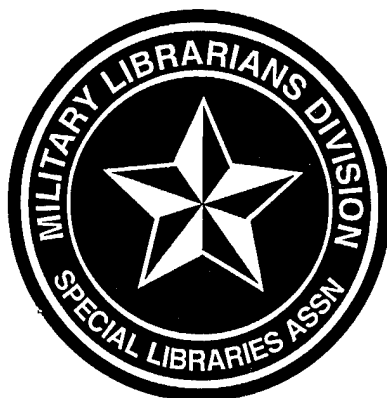


RSIC-CP--95-1

Thirty-Eighth Military Librarians Workshop

November 14 - 17, 1994
Huntsville, Alabama



**"REINVENTING LIBRARIES:
CHALLENGES AND CHANGE"**

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REDSTONE SCIENTIFIC INFORMATION CENTER
Redstone Arsenal, Alabama 35898-5241

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RSIC-CP--95-1

REINVENTING LIBRARIES: CHALLENGES AND CHANGE

**PROCEEDINGS OF THE
38TH ANNUAL
MILITARY LIBRARIANS
WORKSHOP**

Carolyn Zorn Mathews, Editor

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Distribution / _____	
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**November 14-17, 1994
Redstone Scientific Information Center
Redstone Arsenal, Alabama 35898-4241**

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 1 September 1995	3. REPORT TYPE AND DATES COVERED Conference Proceedings - Final	
4. TITLE AND SUBTITLE Proceedings of the Thirty-Eighth Military Librarians Workshop, November 14 - 17, 1994.			5. FUNDING NUMBERS	
6. AUTHOR(S) Carolyn Zorn Mathews, Editor				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Headquarters, U.S. Army Missile Command Redstone Scientific Information Center ATTN: AMSMI-RD-CS-R Redstone Arsenal AL 35898-5241			8. PERFORMING ORGANIZATION REPORT NUMBER RSIC-CP--95-1	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution in unlimited.			12b. DISTRIBUTION CODE A1	
13. ABSTRACT (Maximum 200 words) The Thirty-Eighth Annual Military Librarians Workshop was held in Huntsville, Alabama, on 14-17 November 1994. Barbara Wrinkle was the chairperson of the workshop. The theme of the Thirty-Eighth Military Librarians Workshop was <u>Reinventing Libraries: Challenges and Change</u> . The workshop, hosted by the Redstone Scientific Information Center, Redstone Arsenal, Alabama, was held at the Huntsville Hilton Hotel, Huntsville, Alabama. Papers presented and discussion topics included the politics of reinventing government libraries, resource sharing, special librarianship, policy for retention of electronic messages (E-mail), library digitization, document imaging and archiving, and integrated information systems.				
14. SUBJECT TERMS Libraries, Information centers, Information systems, Integrated systems, Networks, Document imaging, Electronic mail, Resource management, Public health, Digital systems, Technology forecasting.			15. NUMBER OF PAGES 365	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

FOREWORD

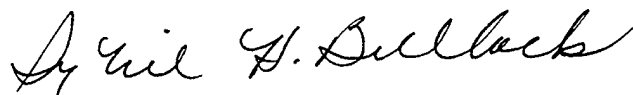
The Thirty-Eighth Military Librarians Workshop (MLW) was filled with exciting speakers, topics, and activities. The theme, "*Reinventing Libraries: Challenges and Changes*," reflected what is happening in our Military Library environment today.

What we are facing can be viewed positively and negatively; we can embrace it or run from it. What we cannot do is ignore it.

The traditions that MLW have provided us through the years will continue; and we will continue to use the MLW as a tool for providing us with continuing training, enhancement of our skills, discussions of the issues facing us, and the strength of our profession: networking.

We would like to thank everyone involved in this successful MLW; in particular the RSIC staff who always come to the forefront and demonstrate their talents for administration, organization, and hospitality. Their warmth in welcoming visitors is genuine. A special thank you to MSIC and SDC for their help in planning and implementing this successful program.

Finally, we would like to thank the speakers who gave us insight into the challenges we face daily and words of wisdom for the future as we are indeed "Reinventing Libraries" and facing the "Challenges and Changes" in that process.



SYBIL H. BULLOCK, Director
Redstone Scientific Information Center

TABLE OF CONTENTS

	Page
Welcome Letter.....	1
Keynote Address	
The Politics of Reinventing Government Libraries.....	3
Re-Inventing Resource Sharing.....	19
National Performance Review One Year Later.....	29
The Ethics and Culture of Special Librarianship.....	35
Policy for Retention of Electronic Messages.....	41
The Learning Organization, Based on the Fifth Discipline.....	43
Higher Education in the Age of Connectivity.....	101
Systems, Subsystems and Technology Integration: An Approach to an Integrated Information System.....	115
DTIC Update.....	129
FLICC/FEDLINK Update.....	131
Document Imaging and Libraries.....	143
Toxic Substances and Public Health.....	177
Technical Libraries and OSD.....	199
Huntsville: Where Technology Meets Tradition.....	225
Silent in the Land.....	233
Partnerships for Universities and Government Libraries: An Alabama Model.....	235

	Page
LABLINK/Minerva.....	247
A Vision for Digital Libraries: Digital Libraries as Personal Libraries.....	265
Science and Application Missions of the Near Future.....	269
Demonstration of Electronic Meeting Systems.....	285
Armed Services Presentations	
Air Force Report.....	287
Army Report.....	291
Canadian Report.....	295
Navy Report.....	297
Army Library Committee Meeting Report.....	303
38th Military Librarians Workshop Program.....	309
Speaker Biographies and Photographs.....	321
38th Military Librarians Workshop Attendees List.....	333
MLW Evaluation Sheet.....	353
Copyrighted Presentations.....	355
Acknowledgements.....	357

NOTE: Presentation by Mr. Jonathan Gill, White House Office of Media Affairs, on “The Mosaic Multimedia Internet Access to the White House and the Interactive Citizens’ Handbook” was not available for publication.

WELCOME ADDRESSES

The attendees of the 38th Military Librarians Workshop were welcomed by the following dignitaries:

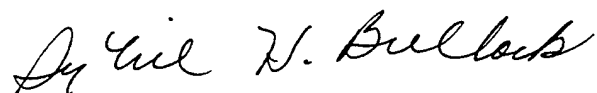
Honorable Steve Hettinger, Mayor, Huntsville
COL Donald H. Watt, Jr., Deputy Director, Research,
Development, and Engineering Center, Redstone Arsenal
Representative, Governor Folsom's Office
Ms. Ann Nathews, President, Alabama Chapter, SLA

Welcome

The Redstone Scientific Information Center would like to welcome you to the 38th Annual Military Librarians Workshop. This year's conference will focus on the theme "*Reinventing Libraries: Challenges and Change*." The speakers will help us explore the future roles of libraries and enable us to look for opportunities to better serve our customers, as well as help us take advantage of the changes happening around us. Libraries will play a vital and exciting role in the formation and execution of the information highway. We will be introduced to the new roles for information providers by representatives from Government, universities, and the private sector.

The Military Library Division continues to strive for better ways to enable us to fulfill our mission of library service for the DOD community. This workshop is a key training opportunity to share our vision of our role for now and the future.

Welcome to Huntsville, Alabama and hope you have a great conference and a wonderful time.



SYBIL H. BULLOCK, Director
Redstone Scientific Information Center

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THE POLITICS OF REINVENTING GOVERNMENT LIBRARIES

Speech Presented at the 38th Military Librarians Workshop
Huntsville, Alabama - November 15, 1994

HERBERT S. WHITE
Distinguished Professor
School of Library & Information Science
Indiana University - Bloomington

There are good managers and bad managers, but all managers with even the slightest interest in survival know that to succeed they have to be noticed. That means that they have to solve problems and avert crises, even if they first have to invent the crisis to be able to solve it. They also understand that nothing is gained by protecting the status quo, because organizations which remain the same in an otherwise changing environment, even when this requires herculean efforts, automatically gets worse. If you have succeeded in renewing every one of the periodical subscriptions in your library for next year, I congratulate you on what must truly have been a massive effort, but I also have some bad news for you. Your library is now automatically worse than it was.

Managers also understand that clamoring for attention means that there have to be problems. If there are no problems which keep your bosses tossing in their sleep at night, you are boring, and boring is the worst crime any manager can commit. The process of growing while everything about you appears to be getting smaller requires that you create an awareness of crises important enough to make you an exception from the norm. Law enforcement officers understand this, librarians often do not. We try to spare our bosses their deserved responsibility of worrying about the library, deserved because worrying about their subordinates is what they get paid to do. At the same time we get no credit for being boringly competent. A Vice President for Research in a corporation said to me during a consulting assignment that he was quite certain that this organization was spending too much money on the library, because nobody was complaining about it. Marion Paris, in her dissertation on the reasons for the closing of library schools, found that administrators closed library education programs because "they never seemed to want anything". They simply couldn't understand that, and they didn't have enough interest to investigate, and so they closed the school. James Matarazzo, in his study on the closing of corporate libraries in the 1970s, found exactly the same thing. Libraries were closed in large part as an

act of euthanasia, since they had already been cut so badly that the final cut was in fact merciful. Nobody understands how much they should spend in support of libraries. There are no management guidebooks to tell them anywhere except in academia, and here we are largely talking only about number of volumes, and that has no usefulness for corporate or government librarians.

Almost all managers understand that cries of poverty are automatic, whether or not they are real. They also understand that in the absence of money there is always money for things for which money must be found. The City of Chicago somehow found money to pump the water out from under the basements, and the state of California cannot and does not ignore what happens when an earthquake destroys the highways. The federal government always deals with unexpected costs - Cuban and Haitian refugees, continuing problems in Bosnia and Rwanda, an offer of funds to deal with floods and droughts, usually in the same year. Where does this money come from? Who cares? If it is necessary to spend the money we spend it, and worry about the impact later. The federal government has a technique called "out of budget expenditures". Corporations can't quite do that, but they do what they must. They recall products, they pay damage awards. Look at poor Exxon (and I use poor only because I see them as victims), whose crime was hiring an employee who had a drinking problem. However, had they tried to fire him some of the same people who now complain would have complained. Exxon now pays billions in damages when it couldn't afford thousands for its libraries.

I need not tell you that library budgets are in serious difficulty, but why is that? Does anyone notice that the same officials in both the government and corporate worlds who swear fidelity to the information superhighway then allow library budgets to be cut? How does this all add up? The answer is that it doesn't. The point is that we are wonderful workers, we are terrible in the political process. We keep trying to be cheap when there is no virtue in being cheap. There is only virtue in being effective if others know you are.

Organizations in government or in the corporate sector must swear fidelity to the process of both effectiveness and cost reduction, because that is required. However, nobody really knows how to do this, and therefore in the process some prosper and some suffer. Librarians have never been very good at this game. When Californians passed Proposition 13, they made an arbitrary decision to curtail government expenditures because they had concluded that only in that way could they reduce their taxes, and that process worked. By doing this, they abdicated the decisions on

how those cuts were to be implemented. To a great extent, libraries suffered. In a conversation with Howard Jarvis, one of the founders of the movement, I heard him say that while the proponents of tax cutting wanted to reduce government fat, they didn't really have libraries in mind, because libraries were not and never have been examples of fat government waste. Jarvis and his friends succeeded in reducing their taxes, they did not really eliminate the programs they thought were wasteful, because they were too well politically entrenched. They ended up brutalizing libraries. When I pointed this out to Jarvis, he replied that this was our problem of political skill and not his. I've thought about that many times since, and I have to conclude, with regret, that he is absolutely correct.

We still don't know how to play this game. While the American Library Association complains bitterly about the inadequacy of library budgets it also announces that its surveys indicate that 90% of the public is satisfied with their libraries, and 70% think they are wonderful. What that suggests to any politician is exactly what it suggested to the Vice President for Research - that the budget can be cut some more, until people complain. What other message can they take from this? When public libraries report proudly that, despite staff and budget cuts, circulation continued to increase, the clear message is that the budget cut was valid, that it caused no problems, and that it is time for another one. In the simplistic manner of budget assessments about which I will speak much more later, the message is no longer "If it ain't broke don't fix it." It is if it ain't broke cut its budget until it breaks, and only then let's find out if anyone cares." At the 1994 Atlanta SLA conference there was a program devoted to how libraries should deal with the results of downsizing. I was not able to attend the program, because I only arrived on the last day for the SLA Banquet in which people were nice enough to install me into the Hall of Fame. However, I can see no useful purpose in such a program, because once the budget is cut it is too late. The money has been reallocated and is almost impossible to get back. If the strategy then becomes one of trying to continue to offer superb service with a smaller staff, all you have done is validate the budget cut and prepare the next one. If the strategy is to pass along more jobs to either contractors or to the ultimate user, is this really a savings or just a cosmetic savings? Don't misunderstand me, cosmetics are very important, and they have always been. When I worked at IBM more than 30 years ago I observed, quite accurately although not to the pleasure of my management, "we're going to have economy no matter how much it costs." It was true then, it is true today. The appropriate topic for an SLA program is not how to survive a budget cut. It is how to avoid one. How can your budget be increased while all

other budgets are being cut? More specifically, why should your budget be increased precisely so that other budgets can be cut? Think about that one, because I will come back to it.

In the corporate sector there is great and continuing pressure to reduce staff, and that process will continue, so nobody should really be surprised. Sometimes that makes sense, sometimes it doesn't. We do have far too many managers who do very little except get in the way of their subordinates and cause trouble. Perhaps, by empowering subordinates in a corporate environment we can get rid of managers we didn't need in the first place. In government that can't be done, because in a downsizing process the people who did little or nothing have seniority, and they will simply replace some of the people who really did something. What this leads to is slaughter of the innocent, and that can happen in corporations, too, when library budgets are cut because their managers have not sufficiently scared the hell out of their bosses as to what would happen if they were dumb enough to cut the library. What would presumably happen is that the bosses would get fired, and even the slightest possibility of that is enough to cause them to pick on somebody else.

Much of the process is not real, but rather cosmetic, certainly in the government section. Where it is real, as it can be in the corporate sector, it could be done effectively and carefully, but it almost never is. Managers don't know what to cut, and so they cut across the board. When that can't be done politically they cut the overhead, because nobody has suggested that in cutting overhead you shift work to the direct sector IF the work still has to be done. And of course, in cutting overhead they always cut libraries. And yet, they have sworn that information is important, that stupidity is unacceptable. How does any of this make sense, and why do we let them get away with doing something so totally nonsensical?

Let's tackle government first. My first observation is that government grows and that government programs become more complex, and there is nothing that any administration can do about it. The fault is not with the government. It is rather with the citizens, who constantly demand more government services, their representatives in the legislative process who in turn institute more control procedures which must be monitored and reported. Some of these are instituted at the federal level for implementation at that level, some at the federal level for implementation in the states or locally. It is beyond the scope of this paper to argue whether or not these programs are necessary and worthwhile, although

undoubtedly some are and some are not. The main point, however, is that the citizen who insists on all of these services does not want to hear any mention of the suggestion that they need to be paid for, and that they should be the ones doing the paying. The last national political candidate who suggested that taxes needed to be raised, not for "them" (whoever they are) but for all of us was governor Bruce Babbitt of Arizona in the 1988 primaries, and he disappeared immediately from sight thereafter. He is now serving as a cabinet secretary, and he didn't have to run for that office. Indeed, his disappearance was so sudden that his campaign manager wrote a tongue in cheek book entitled "The Dog Ate My Candidate."

Since growth is inevitable and ordained, regardless of who wins the election, but every candidate must argue that he will cut the federal payroll if elected, and then claim he did it to be reelected, there is a great deal of emphasis on style and wordage rather than substance. This is not said with malice toward any politician, but government constantly reinvents itself at the behest of the public, by getting larger. There is really no answer for this process as long as the complexity of the political process requires that we subsidize both cancer treatment and tobacco production. I suspect that government librarians know all of this, and have learned to take all of the verbiage with a grain of salt.

That doesn't mean that the federal actual payroll is not sometimes cut, but it is, usually through attrition. Sometimes that process can even be accelerated by early buyouts, a stupid process of pay now and also pay later when you realize you have just shipped into early retirement your most productive people, and this is something that government learned from industry. When the cutbacks are made, are the savings real? It depends on what happens to the programs. If the programs totally disappear, perhaps, but government programs do not disappear. Do we still need a Department of Agriculture at all, when there are far fewer farmers who still produce more than we need and are taught to produce more surplus which must then also be stored and paid for? Of course we do, because farmers vote, and because studies in my state of Indiana indicate a lot of people who don't work on farms at all for the last 25 years, but who wear International Harvester caps to work at the automotive assembly line and who think of themselves as farmers.

Sometimes what happens to the government programs when individuals disappear but the program must be kept is that we contract it out. Does that save money? Sometimes yes, but I suspect frequently no. I worked in Washington in the mid-1960s, and when I now return I find a whole

range of industrial organizations charmingly called Beltway Bandits who do what government employees used to do. Better? Cheaper? The assumption is yes, the answer is we don't know. However for government libraries there is a greater danger. Instead of keeping government libraries or contracting, we do neither. What happens then, particularly in the face of the other reality that information is crucial and vital for the work of the institution? We pretend that the users, at no real cost, will do this work themselves in their "spare" time. If anyone believes this, it is simply because we librarians have made no effort to disprove this absurd lie, obvious to any trained accountant, and our strange reluctance to blow the whistle continues to puzzle me, unless it is because, as librarians, we truly believe that self-service is good and that helping people is somehow immoral and supportive of sloth. That's the librarian as educator, but special and government librarians, with very rare exceptions, aren't supposed to be educators. They are supposed to be information providers. Perhaps it makes sense to get rid of librarians in carrying out a commitment to ignorance and stupidity. But does it make sense to get rid of librarians and replace them with end users, who don't know how to do it, do it badly, and who get paid three times as much? Do they do it in their spare time, or instead of doing what they ought to be doing? If you begin to get the glimmer of the idea that the way to cut costs and staff is by hiring more librarians and getting the dilettante end users away from the search terminals and back to what they were hired to do, stay with me. There will be more.

As I have already suggested, industry can decide, well or badly, whom to terminate, but government doesn't even have that option, and I recall one article in our own literature that reports, twenty years ago, that Library of Congress subject specialists (not librarians) were shelving books, and shelving them badly and incorrectly, as well as expensively, because no shelvees were being hired, or because the shelvees with low seniority had been terminated and the subject analysts were now shelving. The same thing happened at the Applied Physics Laboratory of Johns Hopkins University, a totally government funded agency, which somehow talked itself out of all secretarial and clerical help. Ph.D. research physicists were doing the collating of technical reports --anyone have any ideas about how well or badly?

There is a movement to downsize the federal government by 200,000 people, and the process may even at some point yield some level of proof which will be offered on the altar of public opinion, but we know either that it will involve the wrong people, or end up with unqualified and overpriced people doing what they can't do, or hiring contractors without any real

sense of how well it works. When it works it does so because the agency kept enough of its own professionals to write criteria for and monitor the work of the contractors. When the evaluation is being done by the contracting officer, forget it! Just to show you how simple it would be to really eliminate 200,000 jobs, and to also show you how impossible it would be, let me try out the following scenario:

The president (any president) goes on TV on Monday and announces the elimination of 200,000 federal jobs. We did it over the weekend, and the termination notices have been delivered. We did it by undertaking a computer search for every employee who had the words coordinator or facilitator in his or her job title, because we all know that coordinators and facilitators do neither, but just cause trouble. Can't be done, can it?

In industry the process could proceed more logically, if indeed anybody knew how to do it. Instead, we begin by offering or demanding early retirement from people who are just in the prime of their work career, and of course the ones most anxious to accept are the ones smart enough to know that they are good enough to get other jobs after they retire, perhaps with competitors. If you are going to get rid of people, get rid of the worst ones, and get rid of the ones whose jobs can be left undone. However, since nobody will ever admit that his or her job is anything but crucial, nobody knows what jobs can be left undone. Except, I am afraid to tell you, for librarians, whose work can be done by the end users, presumably at no cost to the organization. Sounds absurd, doesn't it? Then why don't we make the case, long before the layoffs begin? Stay with me.

In 1976 Bo Hedberg, writing in *Administrative Sciences Quarterly*, accurately predicted that organizations might indeed get smaller. He did not argue whether this was a good or a bad idea, only that we should not lie about the process. Most specifically, he argued prophetically that management would suggest that somehow this work could now be absorbed by everyone working harder. Hedberg noted that the argument that people should work harder was a bankrupt strategy, because it required a self-indictment that we had been goof-offs all along. Perhaps we can work harder, but we will never admit it. Except perhaps librarians, who have conference sessions which deal not with how to punish the people who cut our staffs but how to validate their action. Please note that neither Hedberg nor I argue that budgets can't be cut, because obviously they can. However, when budgets are cut programs must be modified, and the modification of the program must be openly and loudly announced. It may just be possible that the cut is unacceptable to people

who are important enough to cause a change. If so, the money will be found. Corporate librarians don't spend enough to make a difference. The cuts are made because they are symbolic and because they are easy. We don't even wiggle on the chopping block. Sometimes we help guide the ax.

I am about to launch into the political strategies that are required of us, but before I do I need to make just one more point about how cosmetic this process is. What of course it represents, in the corporate sector, is a process of bloodletting, of reducing costs and worrying about the impact later, at least in part by trying to bludgeon people into believing that they can do all of that work if they just apply themselves. I also notice, at the same time, that while this goes on the executive officers fiercely protect the people who make their lives comfortable. The people gotten rid of are YOUR clerks, your professional colleagues, your librarians. If the chief executive depended on a daily library fix you would be spared. However, librarians spend a good deal of their time serving the junior people and ignoring the senior decision makers, simply because they don't ask us anything. So tell them anyway! One final point before I let go of the process of demonstrating how totally illogical and unscientific these decisions are, because the desired result is simply cutting costs. What happens as a result of those cut costs is rarely discussed, and almost never discussed when it comes to service and overhead areas. What we're doing, ostensibly, is squeezing out the fat. There's obviously got to be fat. One would hope that in anticipation of this library managers stashed away a lot of fat for the lean years, but somehow I doubt it. The process in industry is called downsizing, and I can live with that. However, when it is called "rightsizing" it really makes me gag. If we are now rightsizing, then how are we punishing the executives who tolerated wrongsizing in the past?

All right, the point is that we are dealing with a very amorphous process which is political far more than it is substantive, which deals with appearance, and which rewards the noisy and punishes the cooperative submissive, as indeed it always did. There are two tactics for dealing with this process, and I stress again it is too late after the budget has been cut. You must anticipate and head off the cut, and surely you already know what is in the wind. The process is, for everyone, cosmetic, and it must also be so for librarians. However, for us it can also be substantive. We are cheap, we are cost effective, and we deal in that most precious of all commodities, information, as against the "ignoramus lobby", those who favor stupidity as a virtue.

One of the things I have developed in my spare time is a list of politically correct terms, and I mean politically correct in the internal management structure. I have lots more, but let me just share a small number with you. I am sure you will recognize them. In alphabetical order, these are: balanced, broader mission, compatible, cost effective, flexible, forward looking, functional, integrated, mobile, needs oriented, optimal, payoff, quality assurance, responsive, synchronous, systematized, total, user friendly, value driven, virtual, and vision. All of these terms must constantly appear in your memos, in your proposals, and in your reports, and I will offer a special prize to the first person who can use all of these terms in one sentence. You will notice that there are some terms that are missing from my list, and they include library, backlog, circulation, book, report, and journal. All of these terms are internal to your organization, and they make no difference to anyone else. One of my saddest experiences in teaching my course in special librarianship was the guest speaker who reported that she had been informed that there was an office betting pool on the monthly size of her backlog. That indicates how important the statistic was perceived to be. What your reports need to deal with, in using all of the right "in" language, is impact on the announced objectives of the parent organization. I assume you know what those are, because that impact, particularly if you can frighten people enough, is really all that matters. It is when they are frightened of the potential consequences for them, personally, that they will think twice before they cut your budget. If you "absorb" the cut like a good soldier you will only be cut again. In order to be effective you must learn to be selfish. Run your library or information center as though it were a private business. If you run it well you are doing what they hired you for, although they may have forgotten. Let the chief financial officer worry about the money, financial officers get paid a lot more than you. Having told you about a depressing guest speaker, let me tell you about what an exhilarating one said. Don't be afraid to overspend your budget or exceed your authority if you have a good reason, and the alternative would have been worse. You will be forgiven.

The approach to style is important, and you must learn as your management needs for you to communicate, even if they don't expect it from you. However, librarians have a more tangible strategy, and we need to spend the rest of this talk on that topic.

Any basic management text will tell you that power comes in large part from the ability to control spending, and in particular to control discretionary spending. That suggests that your budget should not be as

small as possible, it should be as large as possible as long as that means that others will not spend the money. Let me illustrate with an example:

In a corporate consulting assignment I began with a meeting with the Vice President for Administration. That individual had not personally selected me, but I suppose he wanted some idea of what he was paying for. After looking through his notes, he stated that he was pleased that I had been contracted to evaluate the cost effectiveness of his library. I told him that I didn't really think that was why I was here. He looked puzzled, and so I continued by pointing out that I could certainly limit myself to evaluating the library, but that it seemed to me that the larger question was the effectiveness with which the organization acquired and assimilated information, an essential process of which the library was an important part but only a part. I told him that I doubted that he was interested only in the library, if for example that meant that saving money on the library meant that more money would be spent overall. I assumed he was interested in total corporate effectiveness, and not just library effectiveness. He quickly assured me that this was what he had really meant to say. However, my point to you is that is not what he had initially meant. He only stated the larger objective when I challenged him to do so, because it would be absurd for him to argue in favor of library savings and overall cost increases. And it is precisely that larger point you need to make. Don't allow yourself to be entrapped into talking about the library. Talk about the organization's information needs, which are formidable and which nobody will downgrade or deny.

As a service and overhead organization we still have some advantages that other overhead groups, such as the cafeteria services, would be very grateful to have. We need not make the point that information is important, and that ignorance is politically unacceptable. We need only spell out and document our own crucial role in this process. It should not be difficult to do, but only if we are assertive enough. Pledge loyalty to the information superhighway while we decrease the size of our libraries? There must be a joke here somewhere - explain it to me.

We can and must make the case that, if information is important, we are preferable to any of the alternatives. There are only three alternatives. 1) We can opt for ignorance. 2) We can transfer all or as many of the information acquisition costs as possible from librarians to end users, and 3) We can contract with outsiders to avoid having to pay insiders.

The first alternative, I need not elaborate, makes no sense. The second makes no sense, either, if we simply examine the economics. Do end

users, who get paid a great deal more on the average, and who search less efficiently, make a good investment in the process? Only if we are unwilling to make the point that a hidden cost is still a cost, and while hiding costs may be politically attractive to some of our supervisors, in particular perhaps our most immediate supervisor, it is totally unacceptable to the people responsible for overall financial decisions. However, they will only know if they are told. A number of years ago I heard a talk at an SLA conference by a west coast bank librarian, and I wouldn't have been rude enough to ask my question except for the fact that she was enjoying herself too much. She noted that her own supervisor had edicted a cut in library staffing, and an emphasis on end user searching. As a result the end users were now doing terrible searches, wasting their own time and access costs, asking the wrong questions, and generally coming up with garbage. I asked her what she saw as her professional responsibility, even if perhaps at some risk to herself, to inform top management of this squandering of resources? She said only that it was a difficult and painful question.

I sometimes ask medical librarians how many of them think that doctors can do complex information searches on Medline three times as rapidly, or three time as as well as we can. There are no hands raised. Why then, I ask, is the National Library of Medicine consciously and willfully wasting my taxpayer money in stressing end user search training, and, even worse, why are some medical librarians accessories in this rip-off? I am told that the given reason is that not all doctors have access to a medical librarian, and I can only respond that I am not surprised when medical librarians are laid off as doctors are trained. But isn't the obvious cost effective solution to get more medical librarians? Has anyone pointed out to Hillary Rodham Clinton that one of the reasons for unsatisfactory medical care is that doctors are spending too much time doing what they shouldn't be doing? Doesn't the same scenario apply throughout the corporate and government world?

The third option, of hiring outsiders either to do the same work we could have done, or perhaps to do the work that is so specialized that we could not do it, may have some validity. In the first instance it may be, as I have mentioned, that the appearance of economy is more important than economy itself. That, unfortunately, can be the case with government programs, and it is the fault of the voters and taxpayers. Appearance of economy should never be an acceptable reason in the corporate sector. Whom are we fooling, our own bosses? Our own stockholders? Tell somebody - quickly. There is no doubt that the use of contractors is increasing, and at least in part this is because of phony economics. I

have already mentioned the Beltway bandits, who may or may not do a better job than government employees would have done, but at least we should keep honest records. In industry the need to appear to downsize (even as we perhaps spend more money) gives rise to what the British journal *The Economist* has called the Meatware Industry, as contrasted to hardware and software. Meatware people use the hardware and software created for our use, either because there aren't enough of us left to use it, or because we don't want to use it. When it makes sense to do so, fine. However, I know of no science called economic cosmetology.

However, even when the use of outside contractors is either desirable or necessary (such as in a hiring freeze that is not a spending freeze), we must make sure that we continue to control the process. We select, we control, we monitor the contractors, because we are the experts. Certainly no contracting officer can monitor them, because contracting officers have no understanding of the information world. That's OK, they don't need to have it. They need only be willing to understand that they have no understanding. Similarly, if there is a heavy use of outside contractors, it is essential that the end users still come through you, and that the contact is between you and your contractors. If end users can negotiate for their purchases of either materials or of information searches, your own unique turf control is gone. Purchasing agents, who insist that all requests must come through them for processing, understand the concept of political turf far better than we do. And, yet, without political unique turf you have nothing at all.

Our consistent unwillingness to insist on controlling our own turf, both for our benefit and that of the parent organization, always puzzles me. One of the obvious manifestations of turf is control over money, and a wag has suggested that the golden rule means that those with the gold make the rules. And yet we constantly try to hide the true information costs - not to be cheap but to appear to be cheap. Why? Libraries often try to get user groups to pay for books and journal subscriptions. It is the same parent organizational money, and what has been given away is the professional assessment of whether it needs to be bought at all. How many Wall Street Journals and how many Official Airline Guides do we really need for information?

Charge-back mechanisms represent another example I do not understand, although I encounter it in my consulting assignments. If it is assumed that being asked to sign a form authorizing a charge to the requesting department for the book, photocopy or interlibrary loan somehow decreases the number of requests received, there is not a

shred of evidence that this is true. If it were true, it would certainly not be true for the senior requestors whose demands are more likely to be both expensive and outrageous, but more likely for the junior individuals perhaps afraid to ask their bosses, and yet it is those individuals we need to protect. What does occur in such a bureaucratic maze of approvals is not only an increased cost mechanism which far outstrips any savings that might be achieved, but also two other side results that can be devastating. First, it is assumed by many users (and I know because they have told me) that the implementation of this approval procedure is the library's own idea. After all, don't librarians love forms and paperwork?

The second reason is the total loss of control over what little money you do spend. If you have to ask permission or get someone else to be willing to pay, what control do you have over either your budget or your decisions? And, no, it is not true that the users know better what needs to be purchased than the librarians, because their decisions are made within a much narrower framework of the alternatives of which they are aware, and because they cannot rank order their priorities against those of another group. Only we can do that.

If cost allocation of the library budget is to be undertaken, then I much prefer a system which allocates not on the basis of actual use, but on the basis of presumed use. Presumed use can be based on almost any kind of formula, and the records kept by the Personnel Department, which report that group A has 27.3% of the professionals in the organization, will do just fine. Group A is then charged 27.3% of the total library budget. The advantages are clear. We have a rationale for allocation, it is a logical rationale, and it requires no record keeping. More importantly, it penalizes not use but rather non-use. Since you are paying for it anyway you might as well encourage your subordinates to use the service. Finally, it allows library service programs to seek and achieve their own valid level. If service activity declines even without financial constraints then obviously that might be a reason for cutting the budget. However, if demand increases the justification for expansion is already built in.

Administrators are nervous about such an approach because they somehow believe that, without constraints and controls, people will overwhelm the library with trivial requests just for the fun of it, but there is not one shred of evidence that this is more true. Individuals are not looking for more information. They are looking for as little information as possible, in as efficient a time setting as possible, so that they can get on to what they are really expected to do and will be measured against. The individual who argues that he or she got nothing accomplished because

they read so much in the library simply does not exist. Management is protecting itself against a non-problem, in part because it doesn't have a clue, in part because when it doesn't have a clue it instinctively makes things smaller, but most importantly because we have failed to make the case.

The problem for us and for the workplace is in fact the reverse. Given both the growth of information and its growing interdisciplinary complexity, the emerging ground rules which encourage more communication may well mean that individuals will spend all day at the terminal trying to sift through all the garbage (and every user defines garbage personally) to find what is needed. That will most certainly happen unless somebody, and I obviously hope that will be librarians, protects them against information trash. We are already beginning to see articles about E-mail trivia and Internet overload, and the avalanche is just starting to rumble down the mountain.

The far greater risk for all organizations is that individuals, badgered into greater accountability by staff cuts and overwhelmed by mountains of information, will opt for pretending that they don't need information at all because getting it is too much trouble. What is the organizational cost and danger in that, particularly since nobody will even know? Is ignorance bliss in the management process? Hardly. This is the point you have to make, because no upper manager will risk overall success of any major project for as trivial a cost as an inadequate library or an inadequate information service. You need to make that point. You need to worry and frighten them.

This means that you need to destabilize your environment, and that is how marketing works. You don't want satisfied users, you want users dissatisfied in the awareness of what they are not getting because you are not allowed to give it to them. That also simply means that both credit and blame are ultimately passed along to upper management. Credit is better, but blame also has its uses. In doing all of this you must move your strategies beyond the vision of your immediate supervisor, who may not really care what happens as long as he or she looks good. There is always danger in a larger sphere of communication, but librarians because of what they do have access to any and all levels within the organization.

Don't be surprised if the financial people, whom librarians always consider their arch enemies, turn out to be your best friends, if you can phrase the questions properly. I have already noted that it is generally

agreed that better information is an assumed virtue in any organization. How is this best accomplished? By end user searching? By contracting out? By having an adequate and competent in-house staff? Don't be afraid to recommend, or even demand, a cost effectiveness study of the alternatives. It is the financial managers who are most likely to keep honest books.

Finally, the drive for downsizing leads to another temptingly delicious possibility. You can point out to your management that the optimum information gathering and evaluation environment is one in which the trained specialists in the library and information center free the users from as much distraction as possible, and makes it possible for them to spend their time more effectively in the pursuit of the assignments that were given to them, and for which information is an essential but still fuzzy input.

It is even possible that, by strengthening the library and information center staff it might be feasible to operate with fewer library users. Even a tradeoff of one more librarian for one less user would be attractive, but if end users do library work as ineffectively and as sloppily as they appear to, a ratio of two former users for one more librarian, or three former users for one more librarian, might be possible. In other words, if you want to continue to downsize the organization, increasing the library staff might be a very effective tactic.

You can make that point, and don't be afraid to make it. However, I would suggest that you make it quietly, and in discreet communications.

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RE-INVENTING RESOURCE SHARING

Paper presented at the 38th Military Librarians Workshop
Huntsville, Alabama - November 15, 1994

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In the latter half of the 1980's there was a drastic decline in the number of monograph acquisitions in academic libraries in the United States. The overriding cause of this decline was the escalation in serials prices which began in the 1970s and accelerated in the 1980s until serial subscriptions had gobbled up the monographs budget and any other funds that could be diverted from other lines into serial subscription payments. Along with the increase in serial subscription prices there were increases in monograph prices, automation and electronic resources expenditures, and static budgets in many libraries. Statistics from the Association of Research Libraries clearly showed that by 1990 monograph acquisitions by volume count had dropped 16% from 1985 to 1989.¹ Although this fact was known, it was not known how the decline had affected acquisitions by individual subject areas or language groups. In other words what had happened to the collections of academic libraries in the U.S. as a result of this decline? And further what might be the implications of these findings for all types of libraries?

Methodology

The study which is reported in this paper was undertaken as a dissertation topic which received the first LAPT Research Award. The findings have been previously summarized and reported in the author's dissertation² and as the 1992 LAPT Research Award article.³

The ramifications of the decline in monographs acquisitions were analyzed by using the 1991 OCLC/AMIGOS Collection Analysis CD-ROM product. The CACD contains 1.7 million bibliographic records for monographs published within the 1979-1989 time span. The holdings of over nine hundred academic libraries in four year institutions are in the CD database of bibliographic records. These libraries are grouped into ten predefined groupings of libraries in the CACD product called peer

groups. The determination for including a library is a control parameter for the product which requires that for any library to be included it must have contributed bibliographic records to the OCLC database for at least six of the ten year time span covered by the edition. The holdings for 72 libraries which are members of the Association of Research Libraries make up Peer Group 1. ARL has as its membership the libraries that serve major North American research institutions.

It is important to emphasize that individual library collections were not studied, but that the holdings of the Peer Group 1 group of 72 ARL libraries were analyzed as a pooled resources base. The findings of the study are relevant to the collective holdings of these libraries as they relate to the resource sharing capabilities of that group of libraries.

The methodology of the study was a comparison of the number of new monographic titles acquired in two years, 1985 and 1989, by the Peer Group 1 libraries according to 108 Library of Congress subject categories and seven language groupings. For presentation of findings the 108 LC categories were compressed into the three divisions of humanities, social sciences, and sciences. There were three variables used to measure the changes in acquisitions patterns between the two years 1985 and 1989:

1. Rate of change by absolute numbers for the subject and language categories
2. Difference in percentage share of unique titles
3. Difference in the mean number of holding libraries

Findings

The simplest of the analysis and findings is the sheer percentage rate of change as shown in Table 1.

Table 1

**RATE OF CHANGE IN NUMBER OF IMPRINTS ACQUIRED
BETWEEN 1985 and 1989**

All Imprints		-27.76%
	Humanities	-31.98%
	Social Sciences	-28.88%
	Sciences	-15.81%
	English	-12.34%
	Non-English	-43.33%

The overall rate of change was an almost 28 percent decline in newly published monographic acquisitions in 1989 from the total acquired in 1985. Twenty-eight percent is a drastic decline. By broad division of knowledge, the humanities declined by the highest rate, the social sciences had a slightly lower rate, and the sciences had the lowest rate of decline. There was not a great deal of difference in the number of titles in the humanities and social sciences in 1985, but the difference in the rates of decline opened a larger gap between the humanities and social sciences in 1989. The sciences had a much lower total number of titles to begin with in 1985 and the lowest rate of decline as well.

The rate of change for languages divided into two groupings of English and Non-English are also shown in Table 1. The decline in English language imprints is a function of the overall decline in the number of acquisitions. The much steeper decline in all foreign language materials is demonstrated by the 43 percent decline for the category Non-English. The rate of decline varied by individual language groupings from the lowest at 33.56 percent for Spanish to the highest of almost 50 percent for Asian languages.

The same data are analyzed in a slightly different way as a percentage share of all imprints in Table 2.

Table 2

SHIFT IN PERCENTAGE SHARE OF ALL IMPRINTS

	1985	1989	Difference
Humanities	40.14%	37.79%	-2.35 %pts.
Social Sciences	41.75%	41.11%	-0.65 %pts.
Sciences	18.11%	21.10%	2.99 %pts.
English	50.25%	60.98%	10.73 %pts.
Non-English	49.75%	39.02%	-10.73 %pts.

Again the humanities and social sciences are almost even in 1985 as with the total number of acquisitions shown in Table 1. The sciences also follow the same pattern of being much lower than the other two groups. Then in 1989 the humanities lose as a percentage share of total imprints, the social sciences remain about the same, and the sciences increase proportionately as the humanities decrease.

The languages present a most interesting finding. The percentage share of the two groupings of English and Non-English are almost exactly even at approximately 50 percent each in 1985. By 1989, the decline in foreign language acquisitions was so steep that the percentage shares for the two groupings rose and fell the exact same number of percentage points. The 50/50 ratio in 1985 had shifted to a 60/40 ratio in 1989.

The analysis of findings for rate of change show an overall steep decline in the number of newly published materials acquired in 1989 by the 72 ARL libraries as compared with the numbers of acquisitions in 1985. The sciences fared best of the three divisions of knowledge, declining at the lowest rate and gaining in percentage share of all acquisitions. As the acquisition of foreign language materials declined precipitously, English language materials were acquired to a greater extent as a percentage share of total.

The second variable used to measure the change in acquisitions patterns between 1985 and 1989 was the difference in the percentage of unique titles to total in each category for the two years in the study. Unique titles are one title held by one library or, in other words, a title owned by only one library in the group under study is a unique title. The number of unique titles in each of the three divisions of knowledge is shown in Table 3 for both of the years in the study. Although the sciences have a much smaller number of unique titles, the percentage share those titles make up of the total number of titles in the sciences is very similar to the other two groupings. In this instance, in 1985 the humanities have the lowest share of unique titles, and this share decreases even more in 1989. The percentage share of unique titles increases slightly in the social sciences, but the sciences have a decrease in percentage share to only slightly over one-fifth of total titles in 1989.

Table 3

**SHIFT IN NUMBER OF UNIQUE TITLES AS A
PERCENTAGE SHARE OF ALL IMPRINTS**

	Unique Titles 1985		Unique Titles 1989		Difference
	Number	Percent Share	Number	Percent Share	Percentage Points
Humanities	14,845	25.53%	9,465	23.93%	-1.60
Social Sciences	16,670	27.56%	12,458	28.96%	1.40
Sciences	7,114	27.12%	4,793	21.70%	-5.62

The percentage share of unique titles is a measure of diversity in the collective resources base of a group of libraries. From the results displayed in Table 3, it can be seen that the pooled resources base of the 72 ARL libraries which make up Peer Group 1 in the OCLC/AMIGOS CACD shrank from 1985 to 1989, not only in the sheer number of newly published titles acquired, but also in the number of unique titles acquired. In this instance all three divisions of knowledge are not far apart in 1985, but the humanities are lowest this time.

What are the implications of this finding? Unique titles are a measure of diversity among a group of library collections. That is, the higher the percentage of unique titles in the library collections under study, the more different resources there are available for the group to share. The more

different titles there are in the collective resources base, the more different resources there are to share. There was less variety in the holdings of the 72 ARL libraries in 1989 than in 1985 and thus, fewer unique holdings to share.

The third measure of the changes in collecting patterns in the acquisitions of the 72 ARL libraries was the difference in the mean number of holding libraries shown in Table 4.

Table 4

DIFFERENCE IN MEAN NUMBER OF HOLDING LIBRARIES

		1985	1989	Difference
All Imprints		10.677	11.573	.896
	Humanities	10.030	10.698	.668
	Social Sciences	10.078	10.977	.900
	Sciences	13.493	14.302	.809
	English	16.016	15.560	-.456
	Non-English	5.284	5.344	.060

The mean number of holding libraries is the average number of libraries in a group which own a title. There was almost no variance in this measure between 1985 and 1989. The fact that the number of libraries was held constant for both years in the study contributed to the stability of this measure. Another possible reason for so little change is similar to the factor which is at work in the decrease in the percentage of unique titles, i.e., a concentration down on a core of materials. These data taken together point to a commonality of selection among the group of 72 libraries. Although the sheer rate of acquisition of new imprints declined drastically, the libraries seem to have acquired the same titles to a greater extent in 1989 as compared to 1985. The concentration by the libraries on the same titles is most noticeable in the sciences where there was an

actual increase in the average number of libraries owning a title. With respect to the language groupings, the languages exhibit much the same pattern as that shown by subject. While English language titles have a much larger average number of holding libraries than non-English titles, the number of libraries buying foreign language materials, albeit it small, remained the same. Thus, the indicators are that the same libraries continued to buy foreign language imprints, but the actual number of titles purchased declined drastically.

Of interest to technical librarians is the pattern of rate of change by the 108 Library of Congress subject categories. Every one of the subject categories evidenced a decrease in rate of acquisitions except two. There was a 3 percent increase in QM-QP, anatomy and physiology, while QR-QZ, microbiology was constant. The social/medical topics of AIDS, geriatrics, immunology, and drug abuse are reflected in the strong acquisitions in basic and applied research. Computer science, physics, and civil engineering all experienced less than a one percent rate of decline. In the humanities and social sciences, U.S. history and American literature experienced smaller rates of decline than most other subject categories in those two divisions. The selection choices appear to have been demand driven and focused on current topics in society and research.

The study found that the group of 72 ARL libraries selected more titles in common in 1989 than in 1985 resulting in a greater concentration on a core of titles especially in the sciences which had the lowest rate of decline. While the sciences experienced the lowest rate of decline, the sciences also made up the smallest portion of the total number of titles and increased in proportion to the other two groups between 1985 and 1989.

The humanities showed an opposite pattern from the sciences having the highest rate of decline in both number of titles and as a proportion of the total. The number of unique titles in the humanities also declined contributing to less diversity in the universe of materials available in humanities subject areas.

The social sciences did not decline to as great an extent as did the humanities and even experienced a slight increase in the number of unique titles, and the portion of the total number of imprints remained unchanged. The average number of holding libraries held steady increasing by less than one library on the average per title in 1989. The

social sciences evidenced the least change amidst the overall decline in the total number of acquisitions than the other two subject groupings.

The indications from the data in the study are that the collective resources base not only shrank in 1989 from four years earlier, but it also narrowed in the scope of resources with fewer unique titles meaning a lessening of diversity in pooled resources to share.

Implications

The real question is--Will what a user is seeking be available somewhere? The rhetoric of resource sharing in the 1970's and 1980's held that if libraries purchased for local needs and local emphases, other materials in less demand locally could be obtained by borrowing from another library. It is beginning to become increasingly more evident that for research libraries the implications are that availability of published items is not guaranteed. There is a real danger that many publications will not be owned by any library or that the quantities will be very small. If every library is buying for specific local needs from a smaller budget, and yet the universe of new publications keeps enlarging, there will be many publications which no library will own. For smaller and medium-sized academic libraries the worry is more in that there seems to be a shrinking in the number of copies of peripheral materials and thus fewer sources from which to obtain those materials.

Most small special libraries are heavily dependent upon academic libraries and upon other special libraries for resource sharing because their collections have to be narrowly focused. The news for the sciences that large academic libraries are buying more and more the same core of materials does not bode well for the future in the technical fields. It is true that many technical materials are not monographs, but rather a myriad of formats of mostly uncataloged material. What might be happening to that universe of other formats? Is it also shrinking as costs have escalated? Is the pattern of decline which has been found for large academic libraries mirrored in smaller libraries and information centers? Only further research will provide data to answer these questions.

Resource sharing has changed in the 1990's. All types of libraries are now relying more and more on full text databases and document delivery services instead of in-house subscriptions and resource sharing. Where is this access not ownership going to lead us?

One aspect of this study is that it was conducted on bibliographic records from the OCLC union catalog database. If we are re-inventing government libraries, or all types of libraries for that matter, there should be concern about the amount of materials which are not cataloged into the network databases. This material is practically lost for resource sharing except to a few information specialists who know other collections. The other formats and unique materials held by special libraries tend to be uncataloged materials, or at least not formally cataloged and added to a network database. It is almost as if we have come full circle in interlibrary loan and resource sharing. Before OCLC there were few tools which gave specific locations for materials other than the Union List of Serials and the NUC. A librarian had to be very knowledgeable of the strengths of other library collections. OCLC made ILL a much less intellectually demanding, more clerical function. Are we now going back to the days when only those who "network" with other librarians in similar types of information centers know where to obtain what their clientele need? Cooperation in contributing cataloging for specialized materials to network databases and being willing to share those materials may be ever more important in the future.

"Reinventing resource sharing" may entail new ways of tracking materials which are not core, mainstream materials and a greater willingness to not only share materials, but to also make their existence known. Just as the Internet has become international and torn down communications barriers, resource sharing in the future should follow this global mindset. Resources, both digital and physical formats, should be shared internationally. This is the only alternative for providing researchers with materials only available from a small number of sources.

Anna H. Perrault is associate professor in the School of Library and Information Science at the University of South Florida. Research for the dissertation "The Changing Print Resource Base of Academic Libraries in the United States: A Comparison of Collection Patterns in Seventy-two ARL Academic Libraries of Non-serial imprints for the Years 1985 and 1989" (Florida State University 1994) was supported by the AMIGOS Bibliographic Network, the LAPT Research Award, the Louisiana State University Libraries, and the Florida State University School of Library and Information Studies.

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NATIONAL PERFORMANCE REVIEW ONE YEAR LATER

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Linda Walker, Staff Specialist
National Performance Review

It's great to be here today to talk to you about the beginning of the National Performance Review's second year of reinventing the federal government. I know that many of you have been making government work better and cost less for many years. I hope you redouble your efforts with the support you are getting from the President and the Vice President.

I want to share with you information about how far the government has come in the past year and some ideas about what we hope to accomplish in the future.

It was a sunny day on the south lawn of the White House last September when Vice President Gore stood in front of forklifts full of personnel manuals, budget guide, and procurement regulations, and handed the National Performance Review to President Clinton.

The report was a call to arms for federal employees; a challenge to the President and Congress; and a promise of something better for our government's customers--the American people. There were plenty of skeptics because of a long history of failed attempts at government reform. As Defense Secretary Perry put it:

"Many people have vowed to reform the government, but after they start that undertaking they mysteriously disappear, never to be heard from again. It's as if they had decided to take a vacation in Jurassic Park."

Previous government reports on reform had done little more than gather dust on the shelf, but President Clinton pointed out why this one is different. He said:

"When Herbert Hoover finished the Hoover Commission, he went back to Stanford. When Peter Grace finished the Grace Commission, he went back to New York City; but when the Vice President finished his report, he had to go back to his office--20 feet from mine--and go back to work to turn the recommendations into reality."

And the Vice President had plenty of excellent, enthusiastic help. In fact, just one year into the effort, the President, the Congress, and thousands of federal workers have made great strides not only in implementing specific recommendations but, more importantly, in changing the very culture of government. They have begun--mind you, just begun--to make government a different place to work--a place in which employees are trusted and empowered to get results. I know that most of you have yet to see any change in your own jobs; but the groundwork for that change is being laid.

Let me give you a snapshot of some of the first year's government-side accomplishments:

- **The President issued 22 directives and signed performance agreements with five Cabinet secretaries and leaders of two other agencies.** The directives are about things like customer service, streamlining, labor-management partnership, and intergovernmental cooperation. The performance agreements set real goals in terms of the results Americans want from their government.
- **Over 100 agencies set customer service standards for the first time and are publishing them.** For example, Social Security promises to mail out social security cards within five working days, and if you need to know the social security number quicker, they'll tell it to you in one day. In another example, the Customs Service pledges to get international passengers through their check point within five minutes. And listen to this: Department of Commerce pledges to mail to you a compact disk with the latest information on overseas markets, within 24 hours after your request, or it's **FREE**.
- **Agencies are forming labor management partnerships** throughout the federal government. Thirty-two agencies have signed partnership agreements with their unions. There are excellent models of field-level partnerships across the government and across the nation, from the Army in Letterkenny, Pennsylvania, to Interior Department at Hoover Dam, to the US Mint in San Francisco.
- **Agencies are also slashing red tape.** The Office of Personnel Management scrapped the 10,000-page Federal Personnel Manual and the "SF-171" job application form (we at NPR celebrated this action with them); Labor, Veterans Affairs, and other departments eliminated mounds of paperwork associated with internal regulations,

budget justifications, and other requirements. The reinvented Small Business Administration has cut all but one page from their old 100-page loan application. A small business person can now get a decision on an application in three days instead of the three months it took before.

- **Agencies are buying fewer “designer” goods and more off the shelf products.** At the Department of Defense, they’ve put an end to things like fruitcake made to military specifications, replacing it with real food; in fact, military specifications of all kinds are being rapidly eliminated in favor of commercial items. This decision, and the use of a government credit card for small purchases, is actually saving the federal government fifty dollars on each small purchase, just by eliminating the paperwork—how many small purchases would you estimate are made each year, just within your group!?

Congress has done its part for reinvention this year too. For instance:

- **Congress and President Clinton enacted 16 NPR-related laws;** 48 other NPR-recommended actions have passed both houses of Congress and will likely soon become laws; another 46 have passed either the House or Senate; and congressional panels held more than 80 hearings on NPR recommendations.

A lot has been done, but we all understand that there’s still a long way to go. Major corporations have found that real culture changes take eight to ten years. Most of their workers didn’t see big changes in the first year. The government’s not apt to get it done much faster.

These are the big challenges that face us in the coming year:

- **First, we need to streamline federal agencies.** There were a few successes last year; for example, the Bureau of Reclamation reduced the size of their corporate headquarters from 2,000 to less than 100. But in most agencies there are still way too many layers, way too many headquarters staff, and way too many micromanagers. We won’t be able to empower employees or serve customers well until we really streamline. Completing this job quickly is a top priority.
- **Second, we need to do more reengineering of work processes.** The Social Security Administration has completed a bold plan to restructure its disability claims process. The Defense Department has

piloted a radically streamlined travel authorization process that should save one billion dollars. But similar exercises are needed throughout government.

One of Our Most Important Challenges:

- **Third, we need to improve delivery of services to the people.** Last September's report of the National Performance Review recommended that all agencies develop customer service standards and that those standards be published. Within days, President Clinton issued an Executive Order calling for a customer service "revolution within the Federal Government to change the way it does business."

Agencies assembled teams of people from headquarters and the front lines to begin surveying customers and preparing these standards for publication. This document is the U.S. Government's first comprehensive set of published customer service standards.

Many are cautious first steps; but they are a **first step**. We have to live up to those standards and then raise the bar higher. And we must be prepared for our customers to judge us on our performance.

The customer service approach is so new to some agencies that the first step was to figure out who the customer is--who you are trying to satisfy. It was natural for many government workers to think that the customer must be the boss or headquarters or Congress--in the past our systems have certainly been designed to satisfy these people; and they are important to our success, but your customer is the particular group of American taxpayers for whom you directly provide a service. They may even be internal customers--employees within your agency--such as federal employees who use your libraries.

We at NPR identified nine specific groups of customers which federal workers might serve and our report is divided into nine categories.

So, first identify your customer--then ask them what they expect from you--this is critical! **AND** you may be surprised! **SSA** promised to answer their phone on first ring; their customers told them this was not as important as waiting to talk to a person who could answer their questions correctly.

SO--(1) Find out what your customers really want;

(2) Set your standards for service--based on what the customer tells you--and **post** those standards. This will keep you on target.

(3) Align your systems to achieve and maintain those standards. You may have to reassign staff, change hours of operation, offer additional services in order to provide what your customers need.

Folks at the VA recently told us that they have surveyed customers for many years through their Public Affairs department but the data was never used for anything more than just data--until just recently when they decided to move this task into the management side of the organization to allow **programs** to be designed around the results of these surveys.

The Park Service surveys showed that 75% of the people visiting our federal parks were satisfied with the service. Seventy-five percent sounds pretty good--but that means that 25 out of 100 people visiting the parks were dissatisfied!! That's not so good. **UPS** and **FED-EX** set an example for all of us--deliver by 10:00 a.m.--**NO EXCUSES**--100% satisfaction.

One of our recent Hammer Award winners (Do you know about the VP's Hammer Awards?) was the National Archives and Records Administration in Boston. They were not satisfied with an "Excellent" rating of 70% for their Reference Service and 92% for the Records Retirement Process. They wanted to "Dazzle the Customer"! And they did--six months later the surveys showed an "excellent" rating of 88% for the Reference Service and--guess what--a 100% "excellent" rating for the Records Retirement Process. This team's report may be of interest to you because they perform a service similar to yours. I can provide you with that report or the contact person in Boston if you're interested. (Diane LeBlanc 617-647-8088)

- **The Fourth big challenge we have is, every single federal employee needs some training.** The **NPR** is not just about streamlining--though that's the only message most federal workers have heard. The more compelling message is about the change in the way the federal government serves the public. It's about making a government career more meaningful. The video you will be seeing is one of the many ways that message is being spread. The electronic media is another. All of our reports, legislative successes, etc., are on

the Internet or a CD ROM which is available for purchase at the Department of Commerce for only \$16.95--by calling 730-487-4650.

- **Fifth, we need to reform the civil service system.** The administration will propose legislation this year that will preserve the basic values of the current system, but remove the unnecessary rigidity and rigmarole.
- **Finally, we need to move the government to focus on measuring results, rather than on controlling inputs.** We must set more goals in terms of results and give workers more freedom to achieve the results.

Those are the six major steps needed now to ensure the long-term culture change the government needs. I encourage each and every one of you to find a way to help. Much of the progress that has been made, and that will be made in the coming year is due to the dedication of thousands of federal workers who support the quality revolution in government. They have worked in teams and alone, pursuing the **NPR's** main themes:

*Putting customers first,

*Cutting red tape, and

*Empowering employees to get results.

THE ETHICS AND CULTURE OF SPECIAL LIBRARIANSHIP

Paper presented at the 38th Military Librarians Workshop
Huntsville, Alabama - November 15, 1994

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The theme of this conference is "Reinventing Libraries." Certainly we would all agree that there is quite a bit about libraries that needs reinventing. You heard this morning about some of those things, and as I understand it, you'll be hearing more during your time here in Huntsville about the revolution that's finally here.

Over the years a number of people have explained what makes special libraries special. It's practically a cottage industry, in fact. Janet Ahrensfield and Elin Christianson, authors of the venerable text, *Special Libraries: A Guide to Management*, discuss the uniqueness of special libraries. Special libraries are special because they emphasize the information function; they serve specialized groups of users; they are found in inconspicuous places, away from public view; they are limited in subject scope; they are small. Possibly the most eloquent and certainly the most outspoken advocate of special libraries, Herb White, has written of special libraries' role within the parent organization. Special libraries exist only to support the mission and goals of the parent, and so that tenuous relationship must be carefully nurtured, political realities understood and exploited. Jim Matarazzo has written about excellent special libraries; why they survive and prosper--and why the inadequate ones fail. Mimi Drake about their cultural environment, Anne Mintz about ethics.

Today I would like to talk about values. In more than a few circles it is unfashionable to discuss values. In higher education, where some defining values are needed badly, discussions of values are politically incorrect. I very much believe in the foundation values provide, and if that is politically incorrect, so be it.

Five normative statements differentiate special libraries from other types of libraries, and they neither need to be reinvented nor revised! And

further, if they were embraced by managers of other types of libraries, much about *those* would not need reinventing, either.

First. The end justifies the means. I had always thought that statement originated with Machiavelli but recently learned that the actual author is St. Jerome. That imparts a slightly different flavor, does it not? If we agree that obtaining information for a user is our *raison d'être*, then it matters little where or how the information is obtained.

A notion I remember from my early library education and subsequent training was strict dependence upon one's own collection as the ultimate source of information. It was as if my information universe was circumscribed by the four walls of the library building. If the answer could not be found within the collection, then an answer probably did not exist. And worse, it was a little like cheating not to exhaust all possibilities within the library before turning to the outside. One could seek an external source, but not before spending time plumbing the collection at home. Much time, and therefore money, was expended in an elaborate process of digging. Let me give you an example.

Not long ago, two of my friends, both experienced academic reference librarians, were requested by their Dean to find biographical information about the state's new commissioner of higher education. Naturally they consulted the appropriate directories, indexes, and databases and after each spent about half a day searching, they agreed that nothing could be found. Suddenly one had an epiphany: she would phone the commissioner's office and ask that a copy of his *vita* be faxed to her. I happened upon the scene just as the fax machine was producing exactly the data the Dean had asked for. The librarians feared that they would get into trouble. After advising them that what they had done was perfectly correct, expedient, and even creative, I began to reflect.

A special librarian would never face such a service dilemma. Wired to the world, a special librarian would immediately have phoned and asked for a fax of the *vita*. Perhaps because special library collections are limited in both size and scope, special librarians have always realized that information is always a phone call away. Now an e-mail message away, or a gopher hole away. Special librarians can lead our profession into the future by being exemplars at exploiting all available resources through cooperation and collaboration. Thus I say, "the end justifies the means."

Second. Not all users are created equal. Now this one really inflames my students, and I can hear *Library Journal's* John Berry sharpening his quill.

Years ago Jim Matarazzo said it best: cultivate friends in high places, for they will be your salvation in time of trouble. Most of you run special libraries, so if your shops have survived recent defense cutbacks you probably know what I mean. A request from headquarters, no matter how trivial, always takes precedence over other queries. Some of you are post and base librarians, and I know you are clued into that fact of life as well.

Herb White maintains that special libraries are not self-evidently good; only one of his many reasons for recognizing the need for promoting the library and continuously demonstrating its worth to the parent organization. I believe in this world of shrinking distances and dwindling resources, *no* library is self-evidently good. And understanding that some users are more equal than others is critical to ensuring a future for the institution we know as library. Recognizing the forces that work to starve budgets and strangle services of all libraries is a basic management skill.

Third. Exercising professional judgment is not wrong. Somewhere along the line librarians confused judgment with censorship. Parenthetically, I maintain that some censorship isn't all that bad, either. Special librarians practice censorship every day of their careers, as they make determinations about what materials are outside the scope of their necessarily small collections. Professional judgment adds value to what you do. Your vast subject knowledge, confined with your years of experience, qualifies you an expert in the stewardship of your library or information center.

Early in my career as a reference librarian I learned that I must not pass judgment on the suitability of one source in relation to another. If asked for a "good book on gardening," I was encouraged to take two or three off the shelf and let the user decide. In so doing I believe that I abdicated my professional responsibility, and denied the fact that over time and familiarity with the collection, I knew that one source was the best book on gardening the collection could offer.

A student of mine, who has two degrees in biology, was serving an internship in a hospital library. She processed an information combined from a senior member of the clinical staff in the department of internal medicine. Although the exact nature of the question escapes me, the student found an up-to-the-minute answer in the most recent volume of *Current Therapy*. Given what the intern had learned about annuals, serials, and journals in her medical libraries course, she believed that what she had located represented an acceptable answer. She was

reprimanded by her supervisor, who said something like, "we do not presume to judge source material; the physician is the ultimate judge; give him five or six items and let him decide." Dutifully she pulled a half dozen or so sources, marked the pages with strips of paper, and set them aside for the physician. When he visited the library a bit later he was shown the pile of materials, including the volume of *Current Therapy*. Those who were there that day will probably not quickly forget the physician's reaction, which went something like, "I don't have time to read articles. I had one simple question that could have been answered by *Current Therapy*. Don't you people have any brains? I'm paid to practice medicine and you're paid to help me by being librarians."

The physician was asking that professional judgment be rendered. Good special librarians employ it frequently. You know that you are more than neutral conduits through which a stream of indistinguishable bits and bytes flows. If more librarians had confidence in their own special brand of knowledge--that of the worlds of publishing and user needs and user behavior and their own collections and environments in which all of those factors combine--and employed the knowledge and in fact, let the public know that they alone possess it, the future of libraries and LIBRARIANSHIP might be much brighter.

Fourth. Not everyone needs, or wants, to be able to use the library. Here I am reminded of Herb White's comic paraphrase of the SLA motto, "Putting knowledge to work." End-user searching, he says, means putting users to work. One well-known special librarian remarked recently to me, "If I ever hear the words *bibliographic instruction* again it will be too soon."

Of course, some users want to learn to use the library. You know that, particularly where using sexy forms of technology is concerned. The closet hackers among your users certainly will, and they will probably teach themselves. They are the same people who have always taught themselves.

And smart special librarians don't waste resources on the rest. Because it won't make any difference. Academic librarians here take heed: this is not meant for you. Some of your jobs depend upon the quality of BI you give. For the special librarians among you, however, remember the old adage, "Never try to teach a pig to sing; it wastes your time and it annoys the pig."

BI in special libraries is wasteful and more important, it is professionally demeaning, destructive, and it further trivializes us.

Does my auto mechanic, for example, upon presenting me with a bill for fixing my car, say "let me show you how you can do it next time?" Does my plumber? Does my dentist hand me a mirror and a pick, and say, "all you have to do is stand under a bright light...?" Or my heart surgeon? Let the accountants be accountants, the engineers be engineers. Your R and D people are paid to do research, not to use your library badly.

Fifth and finally. Be accountable. By no means am I the first to advocate librarians' accountability. One of my favorite calls for accountability is contained in a memorable article by Joan Durrance called "The Generic Librarian." It appeared in *Reference Quarterly* in 1983. "Librarianship's most common mode of practice--the anonymous professional-client encounter--erodes the profession's ability to uphold its ethical standard of providing access to information: it protects librarianship's incompetent members; it lowers the level of library service; and it has a negative impact on the status of the profession." Arguments against accountability, she says, amount to "rationalization."

Because you have long recognized the need to be responsible to your parent organization for financial and political reasons, special librarians have always understood accountability. You know you *must* be accountable; the alternative is too unpleasant to consider. You stand by the integrity of the services and materials you provide. It is a cliché but so true that the buck stops with you. No doubt some of you have experienced some harrowing times in the process of guaranteeing quality.

Opponents of increased accountability argue that it might make libraries and librarians more vulnerable, especially to malpractice suits. Yes, it might, and wouldn't that be a wake-up call? Other professionals guarantee their advice, and sometimes they are held liable.

I believe that special librarians *invented* some of the commonly held values of librarianship. And you can make a singular contribution to the future by espousing them. I hope I've invited you to think about values today.

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National Archives at College Park

8601 Adelphi Road, College Park, Maryland 20740-6001

Federal Agency Comments on Proposed E-mail Standards

1. Recognize NARA'S interest and responsibility to preserve records created or received on e-mail.
2. Proposed standards impose more stringent requirements for preservation of e-mail than for records in other formats.
3. Too burdensome and costly to implement.
4. Overall recordkeeping requirements for the use of records by agencies should be the primary consideration, not future historical use.
5. The standards should be a brief statement that is incorporated into the regulations; any further explanatory information should be put into a NARA instructional guide.
6. Maintenance of distribution lists and monitoring record status determinations will be particularly difficult tasks.
7. E-mail is a very effective communications tool. Implementation of these standards would greatly limit this effectiveness.

James J. Hastings
Director
Records Appraisal and Disposition Division
301-713-7096

National Archives at College Park

8601 Adelphi Road, College Park, Maryland 20740-6001

**Proposed Standards on E-mail
Highlights**

1. Armstrong v. EOP applicability and influence; inadequacies of EOP policies: Transmission and receipt data, training, monitoring.
2. The wide-spread use of e-mail in Government agencies makes it likely that records are being created and received.
3. The definition of record in the Federal Records Act applies to information in all media, including e-mail systems.
4. Agencies have the responsibility to establish recordkeeping requirements to adequately document activities.
5. E-mail records must be maintained on a recordkeeping system.
Options:
 - a. "Live" system
 - b. Off-line electronic system
 - c. Paper
6. E-mail records may be disposed of only with the approval of the Archivist of the United States. Two versions:
 - a. "Live" system - GRS
 - b. Recordkeeping system - separate schedule
7. Agencies must train all users on the legal requirements for creation, maintenance, and disposition of e-mail records.
 - a. Directive
 - b. On-line features
8. Agencies have the responsibility to monitor the application of records management instructions pertaining to e-mail.

THE LEARNING ORGANIZATION, BASED ON THE FIFTH DISCIPLINE

Dr. Jerry Brightman, Global Management Institute, Wellesley, MA

Vugraphs on the following pages were used during the workshop conducted on November 16, 1994, and were graciously provided by Dr. Brightman for inclusion in the 38th MLW proceedings.

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The Dynamics of Systems Thinking

The Art and Practice of the Learning Organization

**Presented by
Dr. Jerry Brightman**

November 16, 1994
38th MLW • RSIC



Global Management Institute

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The Dynamics of the Learning Organization™

Day One

**9:00 - 11:00 Learning Organizations: Powerful New Ways of
Personal and Organizational Thinking**

- An Introduction to the Learning Organization
- Why Organizations Tend Not to Learn
- From Systems Thinking to Systems Acting

During this session we will introduce the concept of Systems Thinking and explain why it is so important, even necessary, for organizations to understand the usefulness of the concept in dealing with change. We will discuss the need to see "in wholes," and why not doing so usually leads to trouble and only temporary change in organizations. The basic tools of Systems Thinking will be presented in a context of practical usage. Also presented will be observations on why organizations prevent themselves from thinking in a systemic way, and how we might overcome these learning barriers.

11:00 - 11:15 Break

11:15 - 12:15 Systems Thinking and the Learning Organization

- What is a Learning Organization?
- Systems Thinking and Creating Individual Mastery
- Systems Thinking and Developing Team Learning
- Systems Thinking and Shaping a Shared Vision

The notion of a Learning Organization is one that is beginning to catch the eye of corporate America as an idea whose time has finally arrived. During this section of the program we will talk about the "disciplines" (from the Latin disciplina, meaning "to learn") of a Learning Organization and how these disciplines work in ensemble with each other. Specifically we will focus on the disciplines of Understanding Individual Mastery, Developing Team Learning, and Shaping a Shared Vision.

12:15 - 1:15 Lunch Break

1:15 - 2:30 Managing Change

- Events, Patterns and Structure
- Getting Away From the Ineffective Quick Fix
- Finding Sustainable Leverage for Change

This section of the seminar begins to get at the heart of systemic thinking with a specific emphasis on finding appropriate and lasting, sustainable leverage for longer term change to take place in organization. We will reflect on why most change efforts tend to become quick fixes with frustrating repetitive patterns of repetition. As we look at organizations from a "structural" perspective, we will gain greater insight into the notion of leverage and how to make change more understandable, positive, and long-lasting.

2:30 - 2:45 Break

2:45 - 4:00 The Leader's New Role

- A New Leadership for the Twenty-First Century
- Who are the New Leaders?
- Systems Thinking and Leadership

Without understanding the changing role of the leader in the new Learning Organization, we create an incomplete picture of what is possible. This section of the course will look deeply into what the new leadership is, what is required, and how our thinking will have to change in order to create the art of the possible. Leadership will be viewed from the perspective of creating rather than problem-solving; of creative rather than a reactive perspective. Participants will begin to alter the traditional role of leadership with which they entered the course.

4:00 - 5:00 Reflection, Summary and Preview of Tomorrow

Training without reflection makes the time spent on learning new ideas and concepts incomplete. During this final portion of the day, participants will create the time to introspect on their own personal and collective learnings in order to view the day constructively with a look toward tomorrow.

Day Two

9:00 - 10:30 **Effective Conversations and Dialogue**

- Communicating More Effectively in Your Organization
- Dialogue and Communication
- Systems Thinking and Mental Models

This portion of the work will focus on how to better improve our patterns of conversation in a positive way which will allow participants to truly think about and reflect on their own thinking. We will define and better understand the idea of mental models, and see how our mental models shape our behavior and impact on the way we communicate with each other. We will differentiate between dialogue and discussion, and take a deeper look at the emerging picture of what true dialogue is, and how this management tool can bring about more effective change in organizations.

10:30 - 10:45 **Break**

10:45 - 12:15 **Learning From Classic Systems Interventions — Part I**

- What are Systems Thinking Archetypes?
- The "Limits to Growth" Archetype
- Finding Leverage in Your Own Case

The study of Systems Thinking during the past 50 years has created strong theory to support the new art of management. Over time we have begun to understand that the study of Systems Thinking has created what is known as classic stories or systems archetypes which tend to repeat themselves over time, across cultures and throughout organizations. We will focus specifically on the archetype known as "Limits to Growth" with participants using this archetype to look at their own challenges and problems through the lens of this particular classic story.

12:15 - 1:15 **Lunch**

1:15 - 2:30 **Learning From Classic Systems Interventions — Part II**

- The "Fixes That Backfire" Archetype
- The "Limits to Success" Archetype
- Finding Leverage in Your Own Cases

Continuing from this morning, we will delve deeper into the classic stories and look at two more archetypes, specifically the classic stories known as "Fixes That Backfire" and "Limits to Success." These classic stories will form the foundation from which participants can reflect on their own organizational problems and challenges with other participants in the seminar.

2:30 - 2:45 Break

2:45 - 3:45 Learning From Classic Systems Thinking Interventions — Part III

- The "Shifting the Burden" Archetype
- Finding Leverage in Your Own Cases

Continuing our theme of looking at Systems Thinking archetypes as a lens through which participants can see their own set of conditions that present perpetual, and often, solutionless situations, we will look at the "Shifting the Burden" archetype as a way of creating leverage to block existing situations, and unlock newer, more complete means of influencing and supporting change in the organization.

3:45 - 5:00 Using the Dynamics of Systems Thinking To Create Effective Long-Lasting Change

- Creating New Learning About Your Own Organization
- Learnings from the Seminar
- Reflections, Challenges and Conclusions

In concluding the seminar, we will be using several means to express our own reflections of the seminar and explicitly look at our learnings. It is our hope that by this point in the seminar participants will know that some ways of thinking are more powerful than others, and that Systems Thinking and Acting prove to be potentially new ways of thinking about, communicating, and creating leverage on long-standing organizational problems. In group dialogue, our conversation takes on a different meaning and intelligence which the group will now explore.

3:45 - 5:00 Using the Dynamics of Systems Thinking To Create Effective Long-Lasting Change (Continued)

A final dialogue/intelligent conversation will take place from which the group will reflect its own collective meaning by which it sees the world from a newer and more refreshed perspective. New learning will be introduced. The group and I will consider next steps in the learning journey in order to take the energy from the seminar back to the represented organizations.

Learning Organizations and Quality Organizations: Myths and Realities

Dr. Jerome B. Brightman, President
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9 Summit Road
Wellesley, MA 02181

Introduction: Management "Flavors of the Month"

We in the United States love to eat ice cream. Although we are often warned of the consequences of too many calories and too much fat and cholesterol in our diets, we still consume lots of ice cream, too much ice cream — even during the coldest months of winter. This fact coupled with the explosion of new marketing ideas and consumer advertising gives Americans an almost inexhaustible choice of ice cream to eat. We can't wait to go the local ice cream store to see the newest, latest and greatest flavor of the month with the full knowledge that this new flavor will be tastier and more refreshing than anything that we have ever eaten before — or so we think!

In organizations our appetite for new management ideas is very similar to that of our appetite for ice cream. We scour the pages of Fortune, Business Week, Harvard Business Review, Far Eastern Economic Review, The Economist, etc. to see what new management trends are upon us and we attempt to consume them with the same vigor and gusto that we consume our ice cream. We run out to buy the latest books by the "hot" management gurus to see what new innovations or creative ideas we should employ in our work environment to make our jobs easier, our organizations leaner, and our companies more profitable. We have become smart shoppers and consumers of management theories and concepts, even though we truly don't know much about the theory, if any, upon which such ideas are founded. Is it any wonder then that workers and managers become somewhat schizophrenic when senior management often touts the latest management "flavor of the month" without taking the time to see the longer

lasting impact of those management and organizational structures already in place?

Journeys not Programs

From my experience this schizophrenia is most acute when I hear managers discuss their quality and learning initiatives in terms of the short-term gains and long-term failures of such programs. Here we encounter the first myth; namely, that both are viewed as programs that should have a distinct beginning, an easily recognizable middle, and a definitive end so that we can measure and record their results and then quickly move on to the next flavor of the month!

In truth, both the quality movement and the learning organization movement should be viewed as journeys without end. Both are like continuously halving the distance between two points — quick and easily discernible gains are seen with the first few steps; the next steps reveal more subtle gains, but you can never reach the other end, nor should you. Both programs require long-term investments in terms of time, money, and organizational resolve. Both should reflect the organization's values in terms of continuously providing high quality goods and services along with a unique environment for continuous and generative learning. People in the organization cannot be pushed into complying to these new ideas; they must be convinced that they are in everyone's best interest, that they work, and that they are worthy of their commitment.

Learning and Quality: Two Sides of the Same Coin

This brings me to the second myth I see between the two programs; that is that they are both seen as separate and distinct means of achieving greater organizational effectiveness and productivity while at the same time creating long-term sustainable competitive advantages. Firstly I see neither as a free-standing program, but both as journeys or processes which are inherently experimental in nature and which are inextricably linked to each other. For

example how can we even think of initiating a quality effort without having both individual and shared visions of where the organization is going? How can a quality initiative spread throughout an organization without managers and workers having the tools to best communicate the benefits of such an initiative with one another? How can quality be valued in a place where learning isn't? How can we do our process improvements without having designed the appropriate systems and structures in our organizations to make sure that they are implemented and appreciated? W. Edwards Deming has said, "Efforts and methods for improvement of quality and productivity in most companies and in most government agencies are fragmented, with no overall competent guidance, no integrated system for continual improvement." These are only some of the ways that quality and learning initiatives are forever linked.

The Leadership Link

And what of leadership? Many organizations that I have known often use what I refer to as the "conspirator" model of creating quality and learning movements. By this I mean that there seems to be a managerial "underground" which sees and understands the inherent virtues of such programs, and hopes that it can bring them to management's attention and thereby create their swift implementation. Sometimes they succeed; often times they fail. In Deming's view, and in my own experience, without top management commitment, most of these schemes are doomed to fail from the outset.

Does this render middle and lower levels of management less empowered to make recommendations for change in the direction of quality and learning? Not necessarily. I think that leadership can take many forms, and that new leaders are exerting their point of view throughout organizations although they may not be recognized as leaders in the traditional sense as viewed from the traditional organization chart. But I do think the change-makers will have to become more vocal, and shift from underground to "overground," and I think there is a trend in this direction. In a speech I made not too long ago, an audience member took objection to my using the word "conspirator" as a metaphor for corporate change agent. As I was about

to apologize for seemingly offending her, she asked that in the future I change the word to "terrorist"!

The Need for Shared Meanings

Obviously the term terrorist had a specific meaning to this woman, and I suspect that she meant that it the responsibility of all members of an organization to become more vocal and active in terms of creating quality and learning in their organizations. However, this is just my guess, because later, after my speech, I wanted to discuss this further, but the woman had already left the room. This brings us to another myth — that we all have a commonly shared and easily definable set of meanings when we use the terms "quality" and "learning." The reality is that we all hold our own mental models or pictures in our minds about what these terms mean. Each belief we hold is a structure which determines our own behavior as to how we create and pursue these goals. Very few organizations I know have taken the time to have intelligent and thorough discussions about these terms and what they mean, nor do they ask what the impact will be throughout the entire organizational system. Too often in our organizations senior management dictates or advocates positions rather than allowing the proper forums to inquire into the basic gains such initiatives might hold for the organization.

Organizational Transformations

The myth that both the quality and learning movements represent specific organizational programs belies the reality that both are actually very transformative. Both allow the organizations that pursue them to truly create the type of place they want to be and to do what they want to do. There is a major shift from a "reactive" stance to a more "creative" stance. Information flows more easily; people communicate more effectively; there is a greater sense of purpose; change and complexity are embraced rather than feared. A problem-solving mentality which tends to take things away from the organization gives way to a more creative posture which looks at ways of

creating and developing new structures which allow for its people to thrive and an organization to build what it wants to create. The "reactive" organization does what it thinks its public thinks it should be doing (and hence is likely doomed to failure from the start) rather than the "creative" organization which sees what it wants and brings in the initiatives of quality and learning to assist in the achievement of its vision — which brings us to another myth around the role of vision in the successful implementation of both disciplines of quality and learning.

Organizational Vision as a Link

Another myth is that there is no link to organizational vision as associated with the mechanistic application of both the quality and learning initiatives. I believe that there can be no sincere and honest quality and learning efforts if they are not linked to a workable and shared organizational vision. Too often organizational visions are nothing more than the "right" words designed by a well-intentioned public relations staff that conveys what it thinks the "public" (whoever it is) wants to hear. The words are mostly "shoulds" and "ought to's" rather than a vision statement of the picture of the organization in the future.

What happens when quality and learning efforts fail? Too often we tend to look for someone to blame. The myth is that there is someone or a group of someones to blame. The reality lies in the design of the organizational structure that is often flawed. By thinking systemically, we tend to take the broader view, of seeing the whole, rather than satisfying the simplistic belief that an individual or group of individuals is to blame. I'm not saying that we should abandon the notion of individual responsibility, this is indeed a most important element in creating a more effective organization in the future, but more often than not it is the deeper structural issues that causes problems to occur and reoccur, and which make short-term quick fixes just that — effective only in the short-term.

The Effectiveness of Teams

Another myth is that teams will effectively execute the quality and learning experiments in an organization. The greater truth is that although teams will likely be the means by which much of the work will be done in the future, we don't work in teams very well — at least not in the West. I have often asked executives to think of a team that they have been a part of which has been truly exceptional. Although many executives can think of such a team, many cannot think of more than a few such teams that worked so well, and over time. Furthermore, they are at a loss to explain how such sustainability could possibly occur over the long haul and with less energy than was created when the team hit its top stride. Peter Senge has posed the question that if the members of a team have an average IQ of, say 130, why is it that the efforts of a team or the decisions it makes typically has a much lower IQ, say of about 65? The answers lie somewhere in the morass of compromise, defending your own turf, politics, more compromise, egos, and even more compromise! The goal is to look more deeply into the ways productive teams work and to learn from their experiences. As well, it is important for teams to create a shared vision of what is possible and then create that future. These should be paramount goals for both the learning organization and the quality movement.

Quantifying the Results

It is not unreasonable for senior management to want to quantify the results of these efforts in their organizations. A recent article in Business Week magazine entitled "Making Quality Pay" talks about a return on quality or ROQ. Too often organizations found themselves caught in the initial frenzy of a quality initiative and with ongoing zeal forgot what it was doing quality for in the first place. It was quality for its own sake rather than for the better well-being of the organization and its people. In the West, the quality movement is being revived by those who share the goals of the movement, but who also want to quantify the changes. In the learning organization, this might be a bit more difficult to do owing to the more subtle changes generative learning might bring, but in my own experience, a return on

learning (ROL) was defined as USD 900 million in two-way trade when my former company pioneered trade with the Peoples' Republic of China back in 1972. As recently as two months ago, I used the tools of the Learning Organization, namely shared vision and dialogue, to bring together the research and development arms of eight divisions of an international firm and to define how, together, these divisions might create a "return on synergy" by working together, sharing ideas and research, pooling resources, and committing to a long-term program of dialogue and inquiry.

What are the True "Hard" and "Soft" Sides of Management?

Another myth that I have seen in management circles in the U.S. is that both quality and learning represent the "soft" side of management. Although I'm not exactly sure what "soft" means — I think it has something to do with senior executive perceptions that such initiatives are fuzzy, "touchy-feely", or even Zen-like, and consequently not very effective in terms of creating "hard" bottom-line results to the organization. In fact, the work that has to be done in creating organizations that respect and value the values of quality and learning is far more difficult than instituting a new piece of financial software or reorganizing the firm. It requires a long-term commitment in terms of people's time, desire and organizational support. I recently watched a videotape which showed the management and labor of a troubled steel mill decide to meet at least a half a day per week to talk with each other in order to reach a shared understanding of what the company, as whole, wanted to create. A question in the room was in response to this program of "dialogue" was, "How could we ever afford the time to meet that often in the course of a year?" The answer was, "Can you afford not to?" To make the adjustment to our traditional modes of thinking about time and behaviors — to truly think about the way in which we think — is work that is timely, productive, and transformational, but which does take time, effort and money to do so. This is the hard work of management in organizations that espouse quality and learning.

Summary and Conclusions

When I thought about this paper and began to examine the myths and realities from both the quality and the learning organization movements, I was struck by how much more hard work there is to do before we are able to totally transform organizations as we know them today. Those who control the financial purse strings and the decision-making power to bring such new initiatives into their organizations are often trapped by their own traditional thinking (which they may not even be aware of). The impetus still seems to be on the quick fix (sometimes even the long-term quick fix!) without the more reflective and creative thinking that leads to the inevitable conclusion that just maybe there is another way to do business as usual — a way that will require a new, more daring organizational vision, a new, more sharing organizational power, a new, more collective alignment, and a new, more innovative balance between the reactive and creative.

If there is a thread that links all of the previously mentioned myths and realities it is that the work of creating continuous quality and learning is hard, it requires time, it needs to be properly funded, it must have senior management support, it seeks organizational alignment, and it must be nurtured over the long-term as a journey rather than a project. It is the “hard” not the “soft” work of management. It requires a new way of thinking about ourselves and the organizations we create. It requires a determined and ongoing effort to thinking about our thinking — to understand how our thinking might, at the same time, be creating obstacles to progress as well as new opportunities.

My thinking leads me to believe that in the short-run, there is a tremendous set of opportunities for forward thinking organizations to gain a long-term competitive advantage over its traditional (and maybe not so traditional) rivals in the marketplace. These organizations must have the skill to examine their true vision and aspiration, to reflect on how its members are able to communicate with each other, and who will recreate and redesign its structures to embrace rather than shy away from complexity and change. There is an opening for new pioneers on the world stage who will have the courage and the foresight to believe in their new visions of what is possible and to see that by embracing quality and learning as a journey

without end nor immediate rewards can create an organization that is healthy, effective, productive, and profitable.

A Final Word

What we must understand is that like any journey, there must be adequate planning and shared meaning before we can embark on the newer paths of quality and learning. The second wave of the quality movement is reexamining its whole intent and purpose and is combining conceptual and practical precepts to make change more definable and understandable. The learning movement is still experimenting with new ideas around the notions of dialogue, team learning, mental models, systems thinking and change management. Both movements are sober in their analysis that they may, in fact, be more management "flavors of the month" viable only until the next new fad or guru makes the cover of the world's business publications. But maybe, just maybe, the ice cream metaphor will melt in the light of perseverance and patience; in the understanding that there is no effective quick fix, and that the journey can be rough, but rewarding.

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The Dynamics of Systems Thinking

The Art and Practice of the Learning Organization

**Presented by
Dr. Jerry Brightman**

November 16, 1994
38th MLW • RSIC

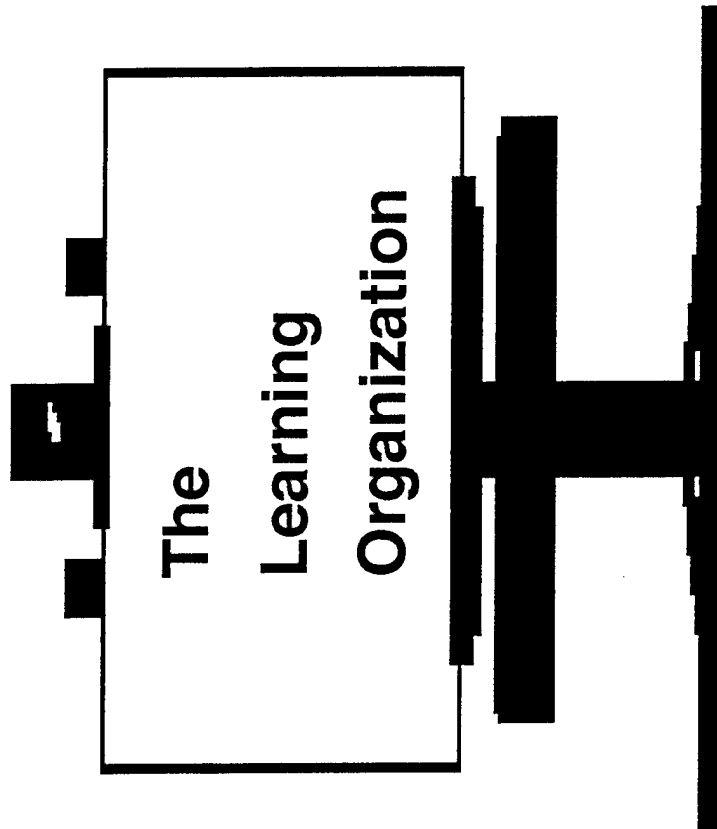


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My Experience in Organizations That Created Their Own Future

1. IMC • ASOMA

2. Innovation Associates



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What is a Learning Organization?



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The Dynamics of Systems Thinking

What is a Learning Organization?

— t —

... an organization that is continually expanding its capacity to create its future.

"For such an organization, it is not enough to merely survive. ... for a learning organization "adaptive learning" must be joined by "generative learning," learning that enhances our capacity to create."

- Peter Senge, author of The Fifth Discipline

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The Five Disciplines

1. Personal Mastery
2. Shared Vision
3. Team Learning
4. Mental Models
5. Systems Thinking



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The Five Disciplines of a Learning Organization

- **Shared Visioning:** Building a sense of commitment in a group based on what people want to create.
- **Systems Thinking:** Developing capacity for putting pieces together and seeing wholes.
- **Mental Modeling:** Developing capacity to reflect on our internal pictures of the world to see how they shape our actions.
- **Team Learning:** Developing capacity for collective intelligence.
- **Personal Mastery:** Developing capacity to clarify what is most important to us, and to achieve it.



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Individual Mastery



Change Starts With You!



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**"We have met the enemy
and they are us"**

• Pogo



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**"We must be the
change we wish to
see in the world."**

Mahatma Ghandi



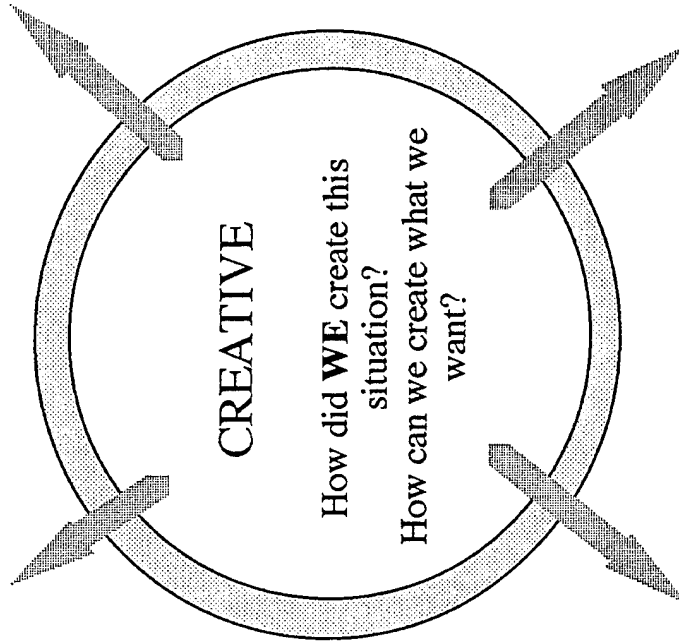
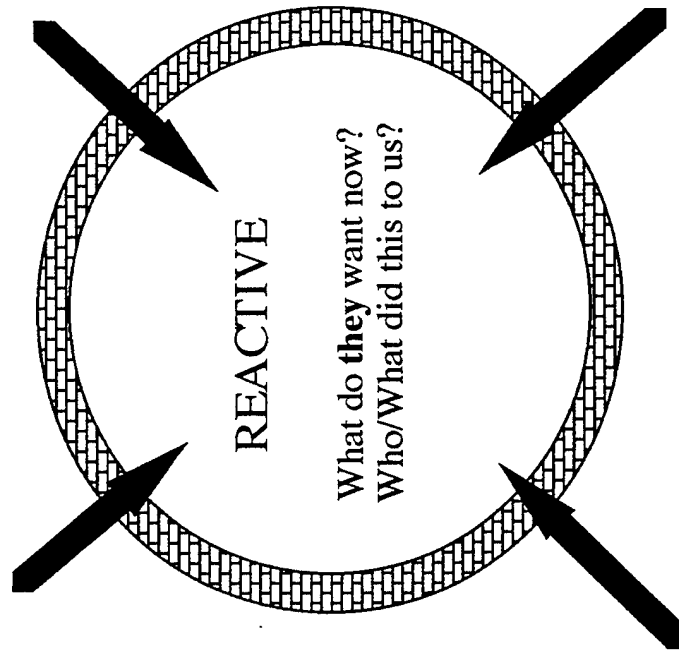
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Reactive vs. Creative Orientations



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Mental Models:

The deeply held beliefs and assumptions we all have about every aspect of ourselves and our lives.

- They guide how we act.
- They determine how and what we perceive.



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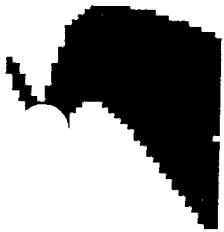
Mental Models

**Our mental models are always flawed
and can get us into trouble.**



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The Dynamics of Systems Thinking

MENTAL MODELS



**"The significant
problems we face
cannot be solved with
the same level of
thinking we were at
when we created
them"**

• Albert Einstein



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Culture:

**Dominant collection of shared
mental models operating in
the organization.**



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The Dynamics of Systems Thinking

Applying Systems Thinking to Managing Change



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The Dynamics of Systems Thinking

Assumptions About Complex Systems

1. All systems have a purpose.
2. Systems will resist our efforts to change them.
3. When a system tries to perform a function for which it was not designed, it will show signs of distress.
4. Tinkering with a system often produces:
 - better before worse behavior
 - shifting the burden to the intervenor
 - a drift to low performance



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The Dynamics of Systems Thinking

What is Systems Thinking?

- The ability to see wholes, not just parts
- The understanding of the interdependencies and interrelationships among parts
- An appreciation for the forces at play



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The Dynamics of Systems Thinking

A Definition of Systems Thinking

Looking at wholes rather than just parts.
Understanding parts primarily in terms of their
interactions and in terms of the role they play in the
system.

Understanding the forces at play in a system so that
you can work with the forces rather than having them
work against you.



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Definition of A System

“A group of interacting, interrelated, or interdependent elements forming a complex whole.” (*American Heritage Dictionary*, 1985)

Definition of Structure

The interrelations of the key elements in a system which result in the system's behavior.



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Purpose of Systems Thinking:

- To discover the system structure behind problems.
- To tell compelling stories that describe your picture (mental model) of a system.
- To capture other peoples' mental models.
- To foster team learning.
- To identify high leverage interventions that solve problems so they stay solved.



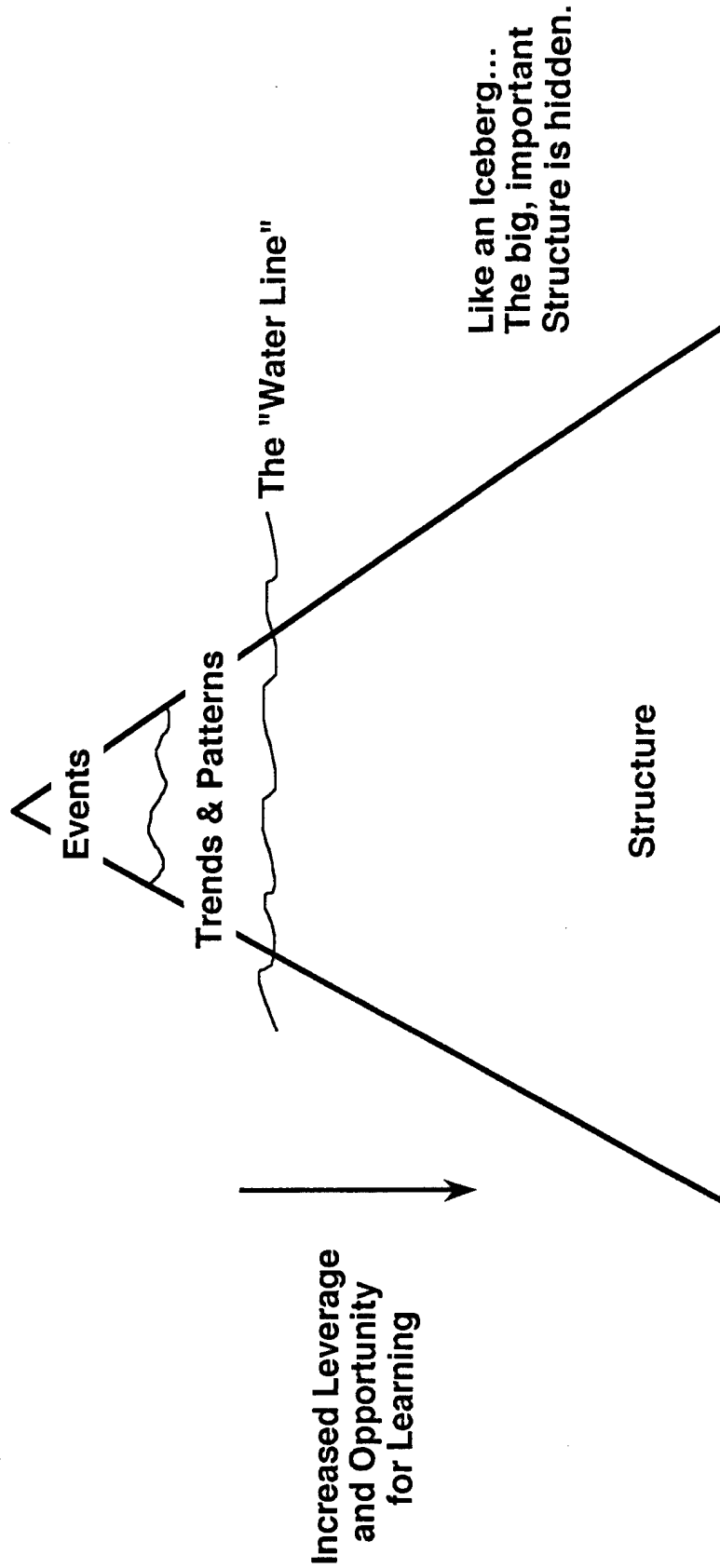
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Structure is Often Harder to See



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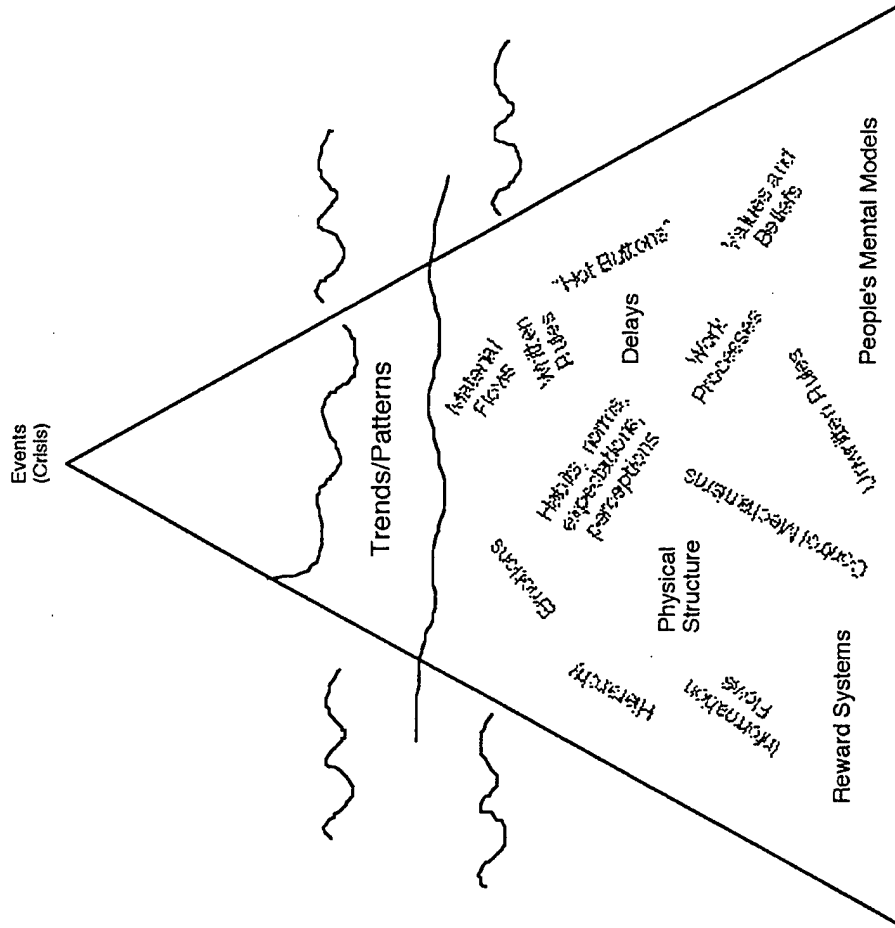
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Aspects of Structure



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Structural Elements Include:

Layers of Management

Hiring Policies

Bonus Schemes

Handling of Information

Emotions

Values

Degree of Trust

What We Pay Attention To

Physical Layout

Decision-Making Process

Work Processes and Flow

Measurement Systems

Control Mechanisms

Perceptions

Mental Models

Job Descriptions

Habits, Norms, and Expectations

Delays



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Systems Thinking

- Focus on structure, not people.
- Appreciate the interdependencies and the dynamic relationships among variables.
- Explicitly consider the long term.
- Plan how we can more effectively create our own futures.



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Structure Influences Performance



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Systems Thinking Questions Assessment & Diagnosis

1. What is happening now?
Description without prescription.
2. What has been happening?
Patterns over time.
3. Why has all this been happening?
Structural Hypotheses/Explanations.



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Classic System Responses to Change

Looking back ...

- Actions had unintended/unanticipated/unwanted consequences (usually later).
- Growth/success got thwarted, limited or stuck.
- Actions that worked initially started to make the situation or problem worse.
- The harder we pushed, the harder the system pushed back.
- We were relying on series of quick fixes to deal with problems/crises (almost additively).



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Steps in Systems Thinking

1. Describe the situation without prescribing a solution.
2. Describe the pattern of events over time.
3. Create a structural explanation for the patterns observed.
4. Develop a strategy to address the underlying structure of the problem.
5. Develop an intervention plan to implement your strategy.



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The Dynamics of Systems Thinking

Leading The Learning Organization



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**The wicked leader is he who the people despise.
The good leader is he who the people revere.
The great leader is he who the people say, "We
did it ourselves."**

— Lao Tsu



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**When you think about
leadership, what are
the first thoughts that
come to mind?**



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Overview

What are the new:

- 1. Roles**
- 2. Skills**
- 3. Tools**

**that the leader of the new Learning
Organization will require?**



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What prevents the shift between traditional leadership style and the new "post-heroic" leadership?



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**"...Whips and chains are no
longer an alternative.
Leaders must learn to
change the nature of power
and how it's employed."**

Warren Bennis



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What if they don't?



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The new leader must:

- 1. Create, develop, and articulate exactly what the organization is trying to accomplish, and....**
- 2. Create an environment in which employees can figure out what needs to be done and then do it well**



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Another Necessary Major Shift:

From:

Problem - Solver

To:

Designer



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The New Leader

- 1. Just says "no" to his/her ego**
- 2. Is confident enough in his/her vision to delegate true responsibility**
- 3. Models the values he/she espouses**



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The Leader as Designer

1. To provide the governing ideas of purpose, vision, and core values by which people will thrive and grow in an organization.
2. To create policies and structures that translate these guiding ideas into business decisions.
3. To develop effective learning processes



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HIGHER EDUCATION IN THE AGE OF CONNECTIVITY

Paper presented at the 38th Military Librarians Workshop
Huntsville, Alabama - November 16, 1994

Dr. Philip M. Turner

Professor and Dean, School of Library and Information Studies
University of Alabama - Tuscaloosa

Chicken story

In their dealings with the emerging telecommunications and information technologies, many decision makers in higher education are planting chickens, and, there is no shortage of advice givers who are, like the county agent, missing the point of the opportunities presented by the revolution in telecommunications and information technologies.

This talk is not about nuts and bolts, or digital compression devices, or really anything to do with the technical side of creating a network. It is about why you enable a college or university, or any type of educational venture, to be a part of a network which can share voice, audio, and data. This talk is about a philosophy and a mindset, It is a warning and a plea.

For the past three years I have been involved on a daily basis in administering the Intercampus Interactive Telecommunications System (IITS). The remarkable thing about this multi-way video/audio/data network is not so much the technology, the remarkable characteristic of the network is the purpose for which it is intended. This purpose is to "Share Alabama's Instructional Resources." Three years of growth from three sites to twelve, including Auburn University and the University of Alabama, have resulted in a few bangs and bruises for me, and a number of insights. It is these insights that I would like to share with you today.

In many ways, I feel like the chicken in another story, Chicken Little, who warned that the sky was falling. There is evidence that an earthshaking and radical change is about to descend upon higher education, and I am very concerned that we are not prepared for it.

Probably most of you have been involved in some sort of long range planning to determine use of resources over the next 3-5 years. Virtually all universities now engage in continuous long-range planning. This

planning process usually begins with stating assumptions regarding how the planners believe the world will look in the near and far-term future. I submit that the planning assumptions of universities look very similar. I perused through several college and university plans and collected a number of the assumptions upon which these plans were predicated. See if you can relate to these:

The persons involved in the planning process believed that:

1. Significant increases in legislative funding should not be expected for public institutions.
2. Public concern about higher education will increase significantly with an accompanying demand for accountability.
3. Competitive salaries for faculty will be increasingly important.
4. Private giving will become an increasingly essential source of support.
5. Resources for new or expanded programs will have to be obtained from restructuring or abolishing existing ones.
6. Knowledge will continue to double in a decreasing cycle. It will be increasingly difficult for any one faculty to have the range of expertise needed. It will be increasingly difficult for any one faculty member to obtain and retain the necessary knowledge base.
7. An increasing amount of on the job time will be spent in learning. All facets of the American workforce will demand continuous re-tooling and upgrading opportunities.
8. There is usually some statement which can be paraphrased as saying that the university will need to be "leaner and meaner."

I think that you probably identify with all or most of these assumptions. These assumptions can be summed up by saying that those of us in higher ed will be expected to do more with less and be better at doing it.

Now, these assumptions represent the environment in which we will operate. I want you to keep them in mind for a minute, and let's focus on a phenomenon--no a revolution, that is gaining momentum even as we meet. I am referring to the developments in telecommunications and

information technology. We have heard about the information revolution and the information age for several years now, but exponential growth is just about to occur. Let's look at some of the evidence:

The court ruling that baby bells can produce television;

The standardization of digital television format;

The joint venture between Time-Warner and U.S. West;

The partnership between Kinkos and Sprint to provide interactive video services in all of Kinko sites;

A 700% increase in videoconferencing systems sold;

30,000 attending a conference on networking (versus 2,000 five years ago);

The entrance of Intel into the video compression market.

This revolution is proceeding at an even faster pace in less developed countries. China and Russia are predicted to spend over 76 billion dollars in the second half of this decade on creating a digitally-based telephone infrastructure (Business Week Information Technology, June, 1994, p. 49).

Other developments:

In the U. S., fiber optic cable is being laid down at the rate of roughly 600 mph, 24 hours per day (1, Snelling, 1993).

Recently:

Georgia is creating a 175 site network of schools, colleges, and hospitals linked for videoconferencing and network connectivity;

North Carolina is creating an ATM-based network to link every state institution, and provide virtually unlimited bandwidth.

In the next five years:

All digital phone central offices;

All digital phone service;

All fiber feeders and maintenance;

50% of telephone switches will use ATM technology.

What does this seemingly random collection of events suggest? Simply stated, it is that within a very short period of time, the infrastructure will be in place to provide unlimited connectivity. One site will be able to "dial up" another site and achieve two-way video, audio, and data connections. It is very important to understand what dial-up connectivity means. A student or faculty member will be able to be virtually present with any other student or faculty member in the United States.

This revolution in technology has not gone unnoticed in higher education. Since innovative institutions like Carnegie Mellon began using technologies to "wire the campus", even the most isolated campus administrator has become aware that something important is happening.

So given the assumptions presented earlier, and faced with extended connectivity enabled by new technologies, what should we in higher education be planning to do with these new technologies?

Some might say that we should plan to do nothing...that business as usual will suffice. Let's take a second to recall how technology has impacted other institutions.

In 1920, agriculture employed one in four American workers. Now agriculture employs 2.5%. (2)

In 1960, manufacturing employed 25% of the American workforce. By the end of the 90's, it is predicted that only 5% of the workforce will actually be involved in making a product.

Ninety percent of our international trade is in information.

In the 1981 recession, one out of eight people collecting unemployment was a white-collar worker. In mid 1991, white-collar workers represented 20% of those collecting unemployment. (2, p. 69) While 90% of the white-collar workers who lost their job in the 1981 recession found similar jobs in a short period of time, only 25% were able to find similar jobs in the early 90's. (2, p. 88) The media frequently carry stories of layoffs of middle managers by the thousands. The eleven largest computer and

telecommunications companies have cut or are planning to cut a total of 143,000 jobs in middle management (Business Week, Information Technology, June, 1994, p. 26). The federal government is poised to join the downsizing. Many factors have led to the attrition in white-collar jobs, but advances in telecommunications and information technology, no doubt are a significant cause. Middle managers are essentially information handlers and communicators. How could advances in these areas not impact on the workforce?

Imagine someone who worked on a farm, in a bank, or a manufacturing plant 50 years ago beaming through time to today. The differences would be extraordinary. Today's farmer drives a tractor that is really a computer on wheels and retrieves crop reports and forecasts downlinked by satellite to a computer. Banking is decentralized, with some of the world's most sophisticated computer networks connecting financial institutions. Many of us do not physically go to a bank for weeks at a time, and true "home banking" is right over the horizon. In fact, recently, the first video banking kiosk was installed to allow for total banking, including applying for and receiving a loan. A large loan agency in Los Angeles, with over 100 locations in the state, has announced that they are placing 2-way video sites in malls and retail stores, cutting the staff by 70% and brick and mortar costs by 80%.

What about changes in manufacturing? Four years ago, I had the opportunity to visit manufacturing plants in Japan. One of these plants had an assembly line five miles long and produced over 100 million VCR's per year. The assembly line was almost completely staffed by robots, but occasionally, we would happen on a woman adding a part to a VCR. When I inquired why there was not a robot at that particular station, I was told that they had not been able to develop a robot that could turn the part just a certain way in order for it to be attached properly. Later, one of the managers proudly pointed to a robot and said, "Last week, there was a person there!"

It is safe to say that technology has significantly impacted the vast majority of institutions in the United States. But as amazed as we have been by the pace of this change, many believe that we are really only on the threshold of an even greater transformation. The impact of telecommunications and information technologies are just being felt in many sectors such as white-collar employment.

Now what about the impact of technology, particularly information and telecommunications, on higher education? I think that someone beaming

in from 1944 would feel pretty comfortable in our schools. In fact, someone beaming in from 1844 really wouldn't feel too out of place. That is not to say that leaders in education are not aware of and concerned about the impact of telecommunications and information technology. However, I believe that many of the actions taken as a result of this concern are misdirected. Unfortunately, most often we continue to fulfill McLuhan's prediction of how a new technology will be used: To do the same things, only faster. Some cynics might say that many of us are employing the new technologies to practice bad education at the speed of light.

Thirty years of expansion have left higher education with a culture of growth...a mindset that declares a university president a failure if there are not new buildings under construction, a dean or department head a failure if there are no new degree programs planned.

When faced with a new technology, is there any surprise that our first reaction is, "Now we can reach more students in more sites! We can expand our geographical area, and get bigger and bigger!" In fact, using technology to expand an institution's geographical area is often an explicitly-stated goal in a university's plan. Consider how we in higher education have used many of the technologies developed in the past forty years: Broadcast television, videotape, microwaves, satellites,...we have taken each one and used it to expand our reach. Every call that I have received on behalf of a college or university president, starts out like this..."We have x branch campuses or would like to have Y branch campuses, and we want to use two way video to deliver courses from the main campuses to these branch campuses." It is difficult to fault these administrators. Decision makers at the highest level, in some of our most prestigious institutions don't "get it." I attended a briefing at the headquarters of APT in Washington, D.C., and the speaker remarked that they had a replacement metaphor for the information highway. They liked the concept of an "irrigation system" better. Think about it...

As far as the emerging telecommunications and information technologies are concerned, I think that the leadership in much of higher education, like our transplanted farmer and county agent, is missing the point. As an example, the July 6th issue of the *Chronicle of Higher Education* contained two articles related to digital interactive video networks in higher education. While these articles addressed issues such as deciding which institutions get to offer which programs, and dealing with "unapproved" programs offered within a state, there was only one mention

of sharing resources in the entire article. The articles were essentially about defending turf; competition, not cooperation.

While technology certainly allows us to serve more and more students who are further and further away, the concept that will dramatically alter higher education is *connectivity*. The ability to make connections among and between a wide variety of parties and share resources will radically change how we do business.

The February 8, 1993 issue of *Business Week* featured the virtual corporation. The premise of the feature article, and also of the book of the same name by Malone and Davidson, is that many businesses cannot, by themselves, assemble the expertise needed to create viable products. Responding to a specific need, several companies utilize telecommunications and information technologies to create a *virtual* corporation in which each company contributes its particular strengths to create a product, and when the project is complete, each company goes on its way. Telecommunications and information technologies make the virtual corporation possible.

After reading the *Business Week* article, I converted the article into an electronic format and, with my handy word processor, replaced "corporation" with "university". Let me share some of this article with you, with the term "university" replacing "corporation".

"The virtual university is a temporary network of independent universities, suppliers, customers, even erstwhile rivals-linked together by information technology...Each university that links up with others to create a virtual university will be stripped to its essence. It will contribute only what it regards as its core competencies...It will mix and match what it does best with the best of other universities...(3, p. 99)

The characteristics of the new university model are: Excellence, opportunism, no borders, technology, and trust." (3, p. 98)

"The virtual university will demand a different set of skills from all managers...They will have to build relationships, negotiate 'win-win' deals, find the right partners with compatible goals and values, and provide the temporary organization with the right balance of freedom and control. This model means that you have to be more open in dealing with outsiders. To some people that sounds like fun. To others, it will be hell." (3, p. 102)

What are the possibilities provided by the revolution in digital information technology? What if you were a dean or department head in a college or university? Take a few seconds to imagine the kinds of opportunities that you could offer your students if you could form a virtual university to link up with one or more departments anywhere. How would these linkages benefit your research faculty? Imagine the team of researchers and students that could be assembled. Establishing such a virtual university is technically possible now. In the very near future, connectivity enabled by developments in telecommunications and information technology will make possible opportunities beyond our imagination.

Now let's bring our feet back to the ground. There are formidable barriers to this sharing and cooperation. I am sure that they were racing through your mind as I described the virtual university. F.T.E., formula funding, and tenure and promotion policies are but a few. Of course, the very culture of higher education which we have created mitigates against cooperation. Can you imagine a department head announcing that rather than proposing a new stand-alone degree program, the department will cooperate with a similar department to jointly offer the degree? How about a president announcing that no new program will be considered unless the option of a virtual, i.e., shared program has been seriously studied? In our current culture of higher education, I cannot imagine such occurrences, except in rare and isolated cases. If there is a portion of a university plan that calls for connectivity and sharing of resources with other universities, I would wager it is for the library or computer center and not for academic units.

In many ways, the culture of higher education today resembles that of medieval times. Knights (deans) swear allegiance to their lord of the fiefdom (vpa) and plan crusades to capture territory (degree programs and students) from the infidel and other lords and to establish far flung outposts (branch campuses). Sometimes these lords owe allegiance to a king (system or state monitoring agency), but, at best, this allegiance is given grudgingly. The lord and the knights spend a lot of time wondering why the serfs (taxpayers) don't love them and why there is no respect for authority (higher education). In this medieval culture, commerce between fiefdoms is severely limited. While lords will occasionally team up to loot another fiefdom or to defend against invasion from another kingdom, cooperation or communication between fiefdoms is suspect at best, and often regarded as treason.

Whether or not you agree with the medieval/modern day university analogy, I hope that you will agree that the prevailing higher education

culture does present a serious barrier to the utilization of emerging technologies in higher education. One dean, who read the *Business Week* article in which virtual corporation was replaced by virtual university, remarked, "You are crazy if you think this will happen in higher education."

I might be crazy, but I don't *think* that the virtual university will come about, I *know* that it will. I also know that there is a great deal of misunderstanding about what the virtual university will do, and fear about how it will affect jobs. For example, another dean of my acquaintance, when hearing about developments in networking and teleconferencing, claimed, "*They* are working with these computers so that *they* can replace faculty." As far as I know, there is no *they*, there is no plot. I honestly believe that there is not a group of administrators or legislators, or whomever, plotting to replace faculty with computers.

But, because there is not a plot, does not mean that the virtual university is not going to happen. There was no plot by automobile manufacturers at the start of this century to replace workers employed in buggy-whip manufacturing. There was no plot by calculator makers in the middle of the century to replace those employed in making slide rulers. I don't think that the developers of information and telecommunication technologies are plotting to replace university teachers.

The introduction of a technology causes changes. In 1894, over one half of the workforce was involved in the horse economy. One quarter of the crop land was used to raise fodder. (2, p.64) Even the greatest visionary could not have foreseen the change in our society that the automobile would cause. In late 1992, the number of employees involved in computer, data processing, and information retrieval, surpassed the number of employees involved in all aspects of motor vehicles and parts (Business Week Information Technology, June, 1994).

Whether we like it or not, whether we plan for it or not, the emerging telecommunications and information technology infrastructures will alter the way that we do business in higher education. Many of us will not approve of the way that it will do so. I would like to use a geological metaphor to represent our choices in the matter. As you know, the surface of the earth consists of large land masses called tectonic plates. When these large land masses meet, they usually continue to move past each other. This movement is largely unnoticed because there is constant, but minor, changes over time. But, sometimes there is resistance to the movement and the plates stop moving. The pressure

builds up, sometimes over a period of many years, and everything seems peaceful and unchanging. Inevitably, when the pressure is sufficient to overcome the resistance, there is a sudden release of the energy in the form of an earthquake, often with devastating results.

Telecommunications and information technologies are causing an increasingly greater pressure for change. I am concerned, because I believe that we have a culture in higher education which has such an aversion to cooperation, and which has such barriers to cooperation, that it will take enormous pressure to change the culture, and when higher education does change, this change will be so drastic and sudden that there will be personal and professional devastation. During the past decade a variety of factors have resulted in closings of degree programs, departments, and entire divisions. These are traumatic events which often have no apparent beneficiaries. I believe that the changes that will occur to a department, division, or university unwilling or unable to undergo planned change to utilize the emerging technologies will be many times greater in magnitude and trauma. Attempting to stop a phenomenon such as this is as futile as trying to stop the wind. The combination of social, economic, and technological factors are just too great.

While we cannot, even if we wanted to, stop this change, I believe that we can manage it through planning. First, we have to recognize what this change is not. It is not a plot by anyone. This change does not mean that all faculty will be fired and students taught by videotape. The human element in higher education will not be removed. In many cases, it will be enhanced because connectivity can enhance communications. Let me give you three examples from my limited experience of this connectivity. **EXAMPLES:** professor of Medieval manuscript painting, one year left, brand new professor, usually isolated in specialization, an opportunity to pass on the torch; Nursing course access to experts, off-campus orientation.

If we are serious about managing the effect of telecommunication and information technologies on higher education, there are some actions which can be taken. First, we must attempt to overcome some long-standing mindsets. One is the tendency to devalue the work of an outsider, and another is the All-American notion that doing something alone is better than doing something in a group. (3), p. 103. While we spend a great deal of resources obtaining technology to allow the workforce in higher education to share information, we forget that sharing does not come naturally in our culture. From now on, an important

assumption for a college or university plan should be that telecommunication and information technology developments will link institutions in mutually beneficial ways, and it should be assumed that the institution will further these linkages.

Second, sharing resources via emerging technologies should be given a high priority in the goals of an institutional plan. Third, pilot projects should be initiated, supported, promoted, and recognized. When we began our telecommunications network in Alabama, we brought together department heads one discipline at a time for an open agenda meeting. In every case these department heads identified some way in which they could cooperate for their mutual benefit. These ideas for cooperation were as simple as sharing colloquia speakers, but also included some radical proposals such as a joint core for a masters degree program. Fourth, tenure and promotion guidelines should be reviewed to determine how they might be altered to promote sharing. Fifth, internal program review procedures and, eventually, regional and national accreditation agencies must encourage connectivity and cooperation in their standards and procedures.

One final reference to the *Business Week* article about virtual corporations. A handbook for virtual managers is provided in this article consisting of five admonitions. These are:

1. MARRY WELL. Choose the right partners for the right reasons- because they are dependable, can be trusted, and offer the best products or services.
2. PLAY FAIR. Every link must offer a win-win opportunity for everyone, even if the outcome isn't always successful. Partnerships must serve the interests of all parties.
3. OFFER THE BEST AND THE BRIGHTEST. Put your best people into these relationships. It's the easiest way to tell your partners your link with them is important.
4. DEFINE OBJECTIVES. When you ask the question, "what's in it for me?" you should have a quick and ready answer. Know what you and your partners will be getting out of the virtual enterprise.
5. BUILD A COMMON INFRASTRUCTURE. Until networks and standards let corporations talk to each other across the street or across

the ocean, information systems must at least communicate with current potential partners. (3) p. 102.

While these admonitions were aimed at the corporate world, they certainly hold a significant value for those of us in higher education who are attempting to cooperate to amplify our limited resources. Successful virtual university aspirants need to identify programs with resources which can supplement their own, encourage trust versus suspicion, recruit the best instructors to participate, have widely accepted goals, and begin now to create the telecommunications infrastructure that is necessary.

Most importantly, the culture of higher education must change. Simply making the technology available is not sufficient. In fact, if somehow the funds became available to connect every institution of higher education in the U.S. via a multiway video/audio/data network, there is a good chance that the money would be largely wasted unless there was a fundamental change in the way we perceive our institutions.

When chief administrator and academic officers gather to discuss how to plan for the impact of declining or static budgets, and how to utilize the huge investment in human capital in a more efficient manner, cooperation through the use of emerging technologies should be among the first alternatives discussed. I also don't want to leave you with the impression that there are no proponents of using these emerging technologies to share resources. The same Chronicle article which I mentioned earlier did have one reference to sharing, placed at the very end of the article. Rich Gross, who is the dean of telecommunications at Kirkwood Community College in Iowa, is quoted as saying, "academic leaders should begin planning now for a time, perhaps as little as five years away, when most students will have virtually unlimited course options from institutions from all over the world, regardless where they may be enrolled...many colleges will need to become local gatekeepers, helping students choose courses from different networks, showing them how to obtain instructional materials, and providing counseling and other traditional student services." (Chronicle of Higher Education, July 6, 1994. A23) I would add to Dr. Gross's statement by calling on colleges and universities to be active linkers, to seek out partners. The next emphasis in higher education is not going to be bricks and mortar, it will be connectivity.

We must realize that no one is good enough to stand alone. We must explore the synergism that results from bringing faculty and students together in a manner unfettered by distance. Competition must evolve

into cooperation. Suspicion must evolve into trust. Connectivity allows the good to be better and what is not good to improve.

Maybe I am naive, but I have a hope that the greatest collection of intellectual talent that the world has ever seen, represented by our institutions of higher education, can alter the culture, reach out, and turn this phenomenon to the benefit of those we serve.

(1) Snelling, R. K. (1993). "Education in the Information Age" A presentation at BellSouth TechKNOWLEDGEy '93: Atlanta, Georgia, August 5, 1993.

(2) Perelman, L. J. (1992). *Schools Out; Hyperlearning, the New Technology, and the End of Education*. New York: William Morrow.

(3) Byrne, J. A., Brandt, R., and Port, O. (1993). The Virtual Corporation. *Business Week*, February 8, pp. 98-103.

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SYSTEMS, SUBSYSTEMS, AND TECHNOLOGY INTEGRATION: *An Approach to an Integrated Information System.*

Mr. Larry Nelson and Mr. Dick Snow, Sparta, Inc., Huntsville, Alabama

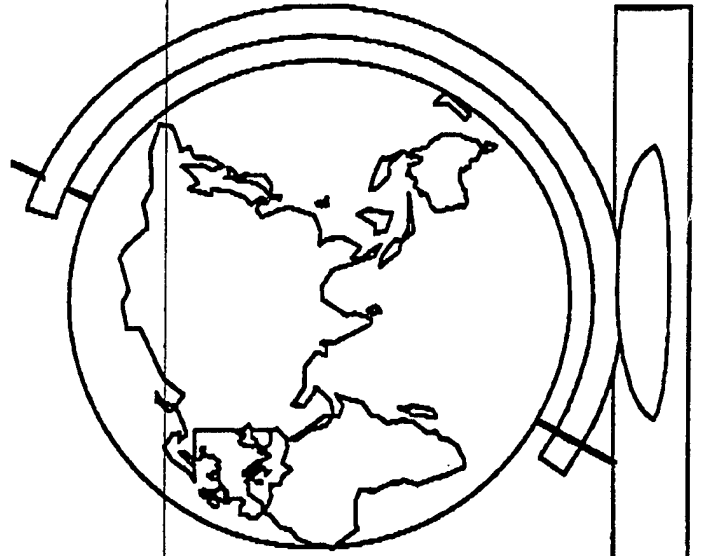
Vugraphs only from the presentation by Mr. Nelson and Mr. Snow at the 38th Military Librarians Workshop, November 16, 1994.

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Systems, Subsystems, and Technology Integration:

An Approach to an Integrated Information System

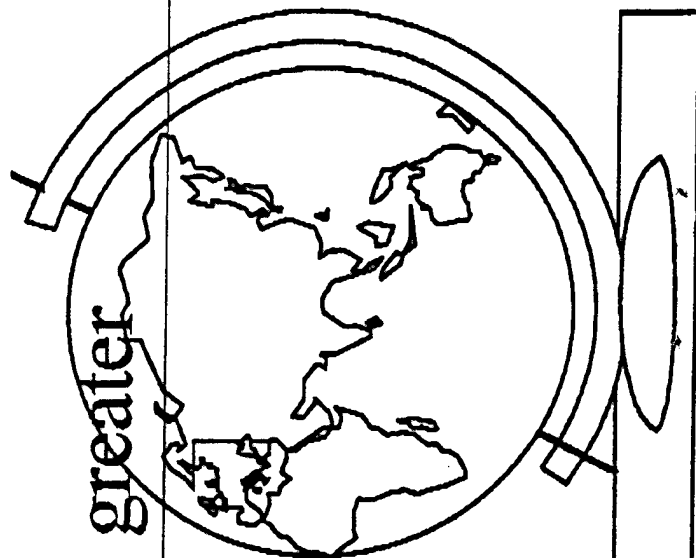
Mr. Larry Nelson
Mr. Dick Snow
Sparta, Inc.
(205) 837-5200



Information Exchange

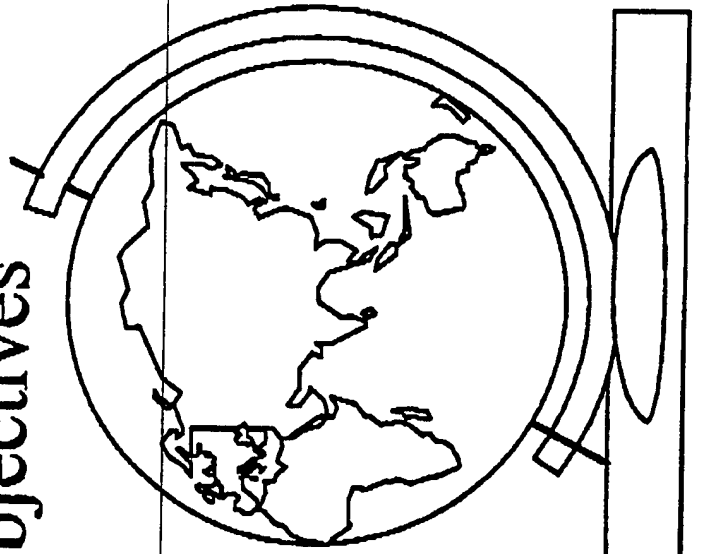
(from a systems integration point of view)

- All Information will become digital
- New Technologies will bring the user into the Libraries through networking and electronic information providers
- New Technologies will allow for greater amounts of data to be online



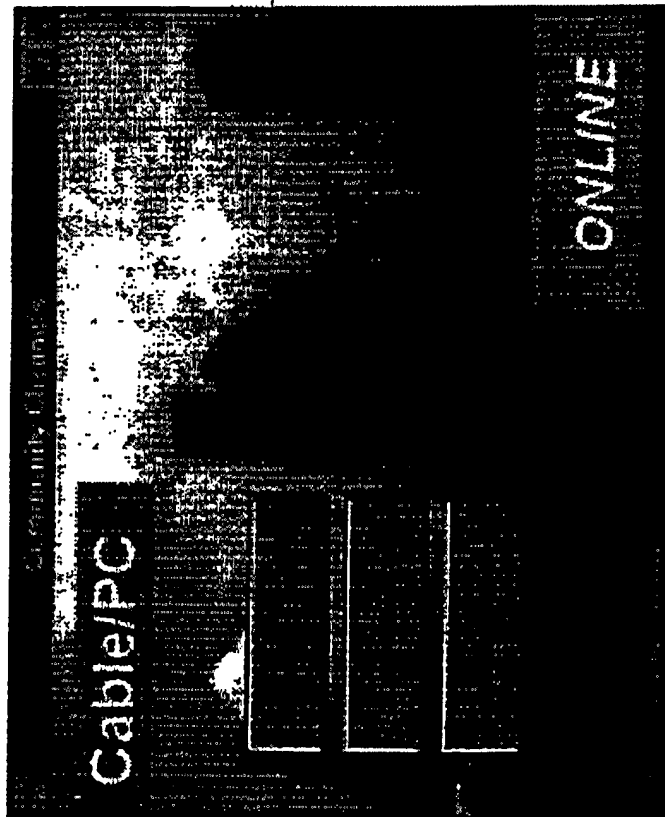
Goal and Objective

- ☞ To provide information on evolving Technologies
- ☞ Show how technologies can be utilized
- ☞ Show new US Army goals and objectives



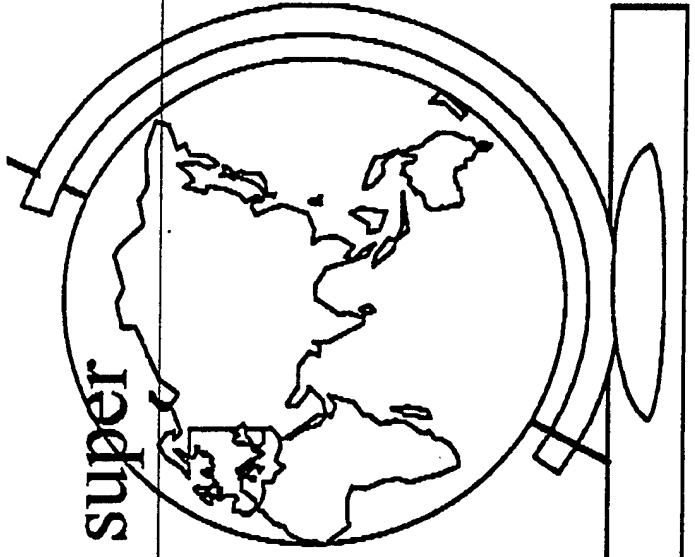
Evolving Technologies

- Cable TV integration with Computers
- CD-ROM storage Capabilities



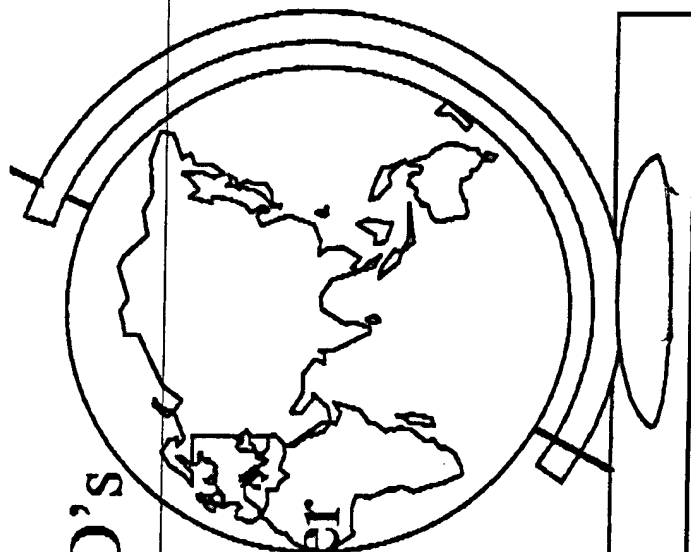
Cable TV

- ☛ Reaches approx. 82% of American Households
- ☛ Band Width = 30 video channels (massive amounts of data)
- ☛ Pushing to become “information super highway”
- ☛ Some pros and cons to success



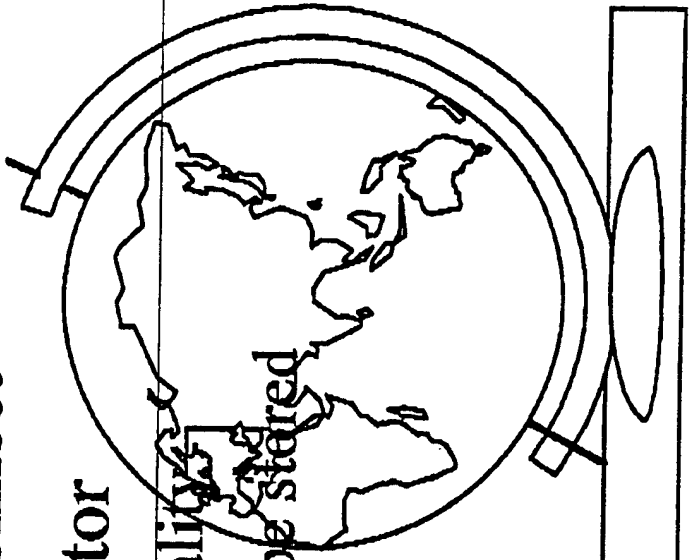
CD Technology

- new storage capabilities
 - Up to 3.0 GIGAbytes of data per disc
- CD-R technology becoming more mainstream
 - Libraries can produce their own CD's
 - Multiple CD stacks can be online
 - OCR Technologies are getting better



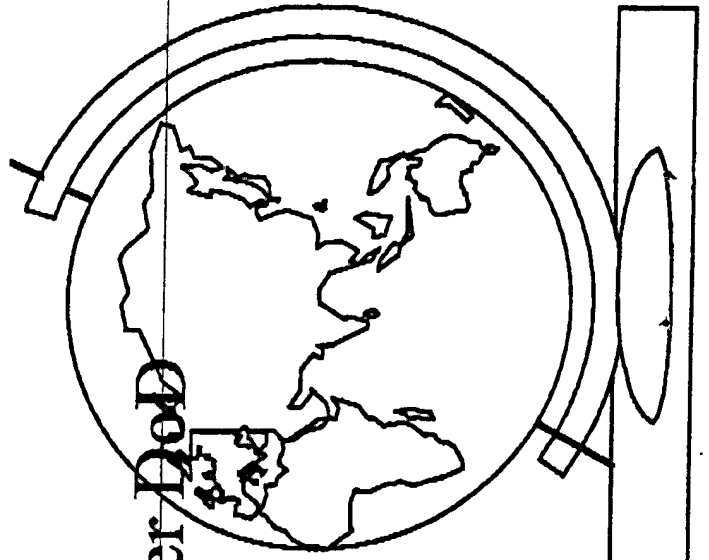
The Internet

- ☛ Defacto “information super highway”
 - 30 million users worldwide and growing
 - Becoming more user friendly (Mosaic)
 - A better way for libraries to interconnect
 - Data Compression becoming a factor
 - ◆ 100-1 compression is becoming a reality
 - ◆ graphics, video, voice, and data can be stored



US Army Initiative

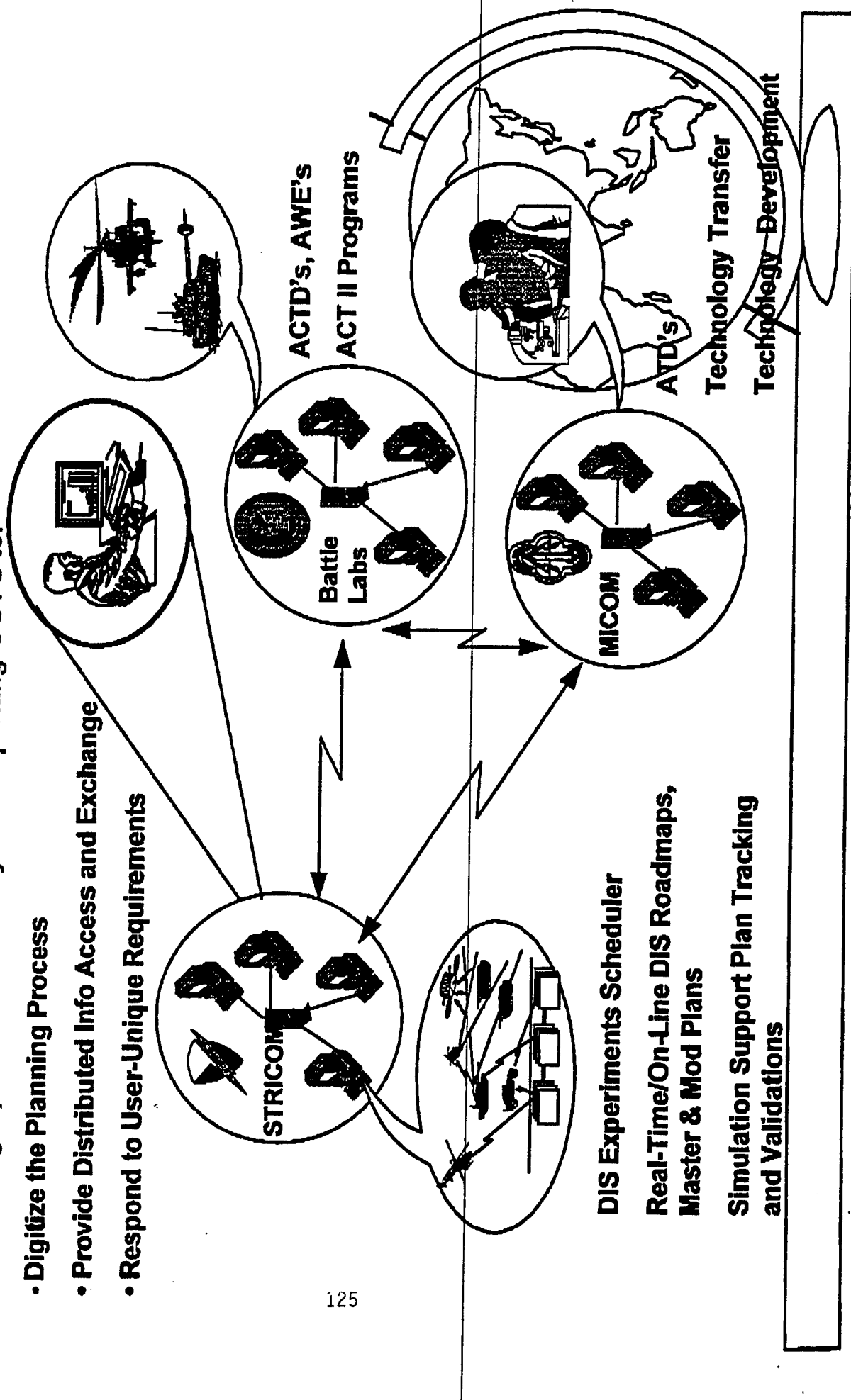
- DoD new “Re-Invention” Laboratories
 - ARL, MICOM, Waterways, Medical R&D
 - Will be linked electronically via Internet utilizing Mosaic, and other interactive technologies
 - Will be on the leading edge of other DoD agencies



RIMS...The New Paradigm

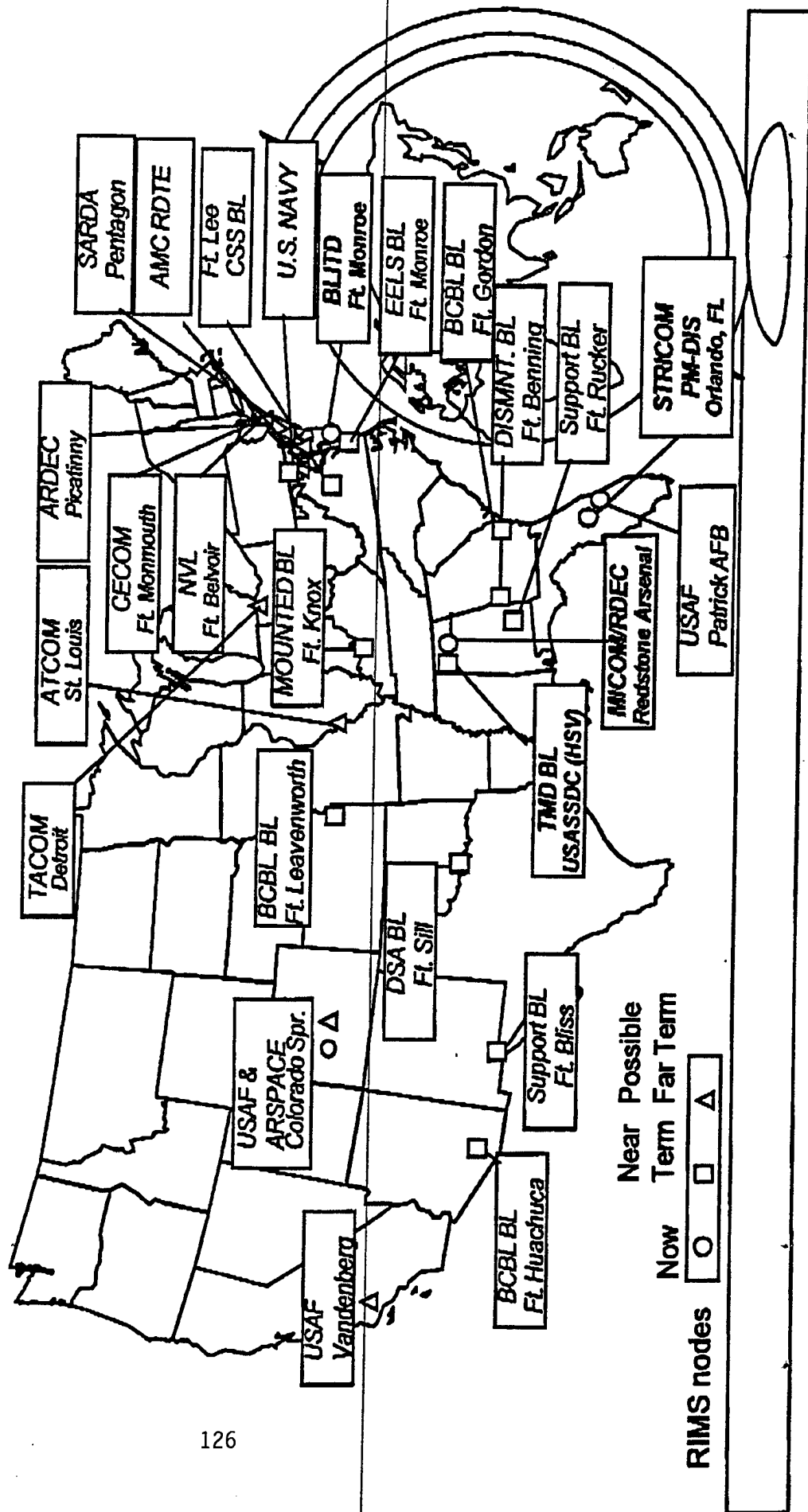
An Evolving Open Information System exploiting COTS to:

- Digitize the Planning Process
- Provide Distributed Info Access and Exchange
- Respond to User-Unique Requirements

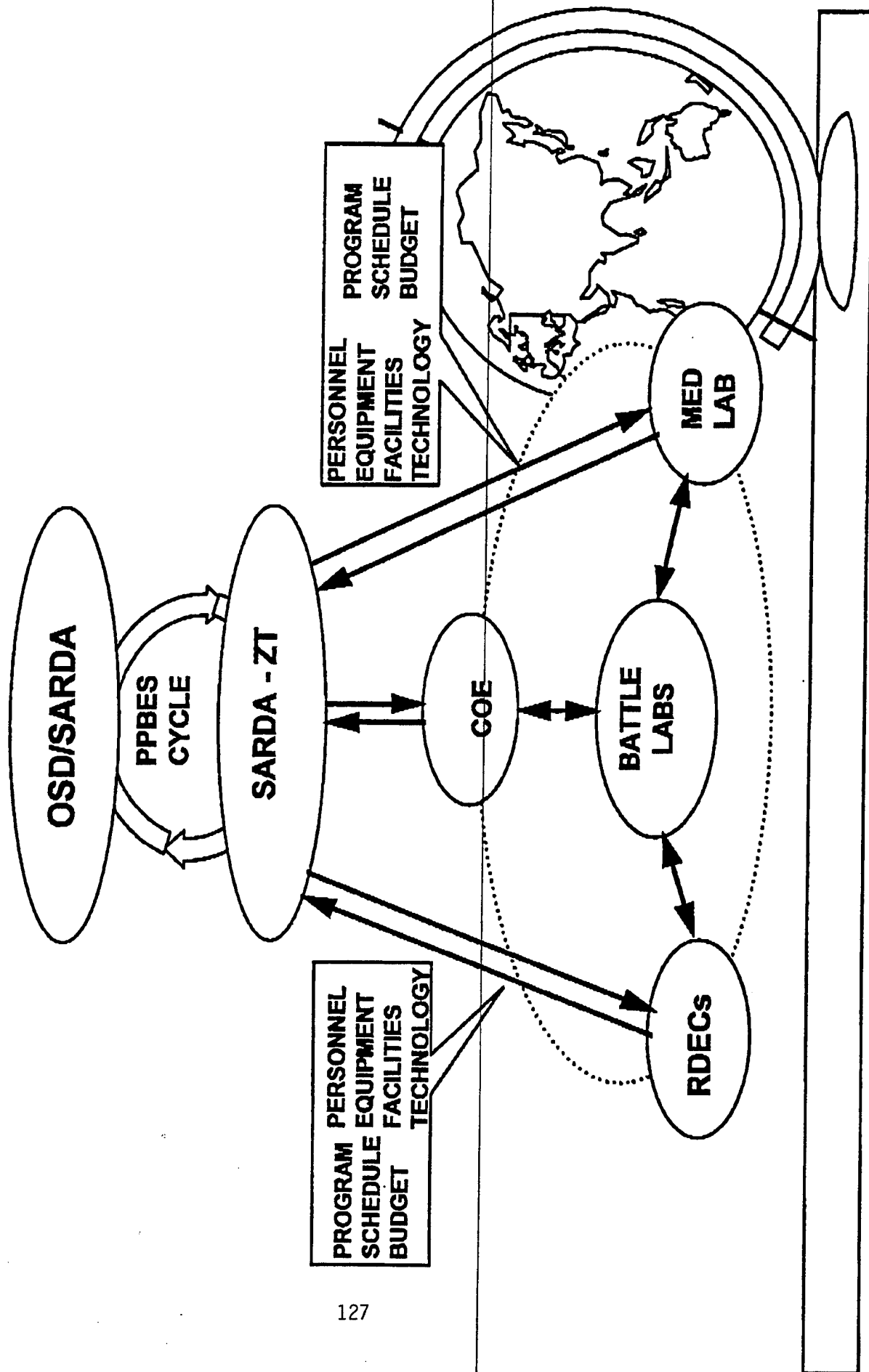


RIMS Confederation Network

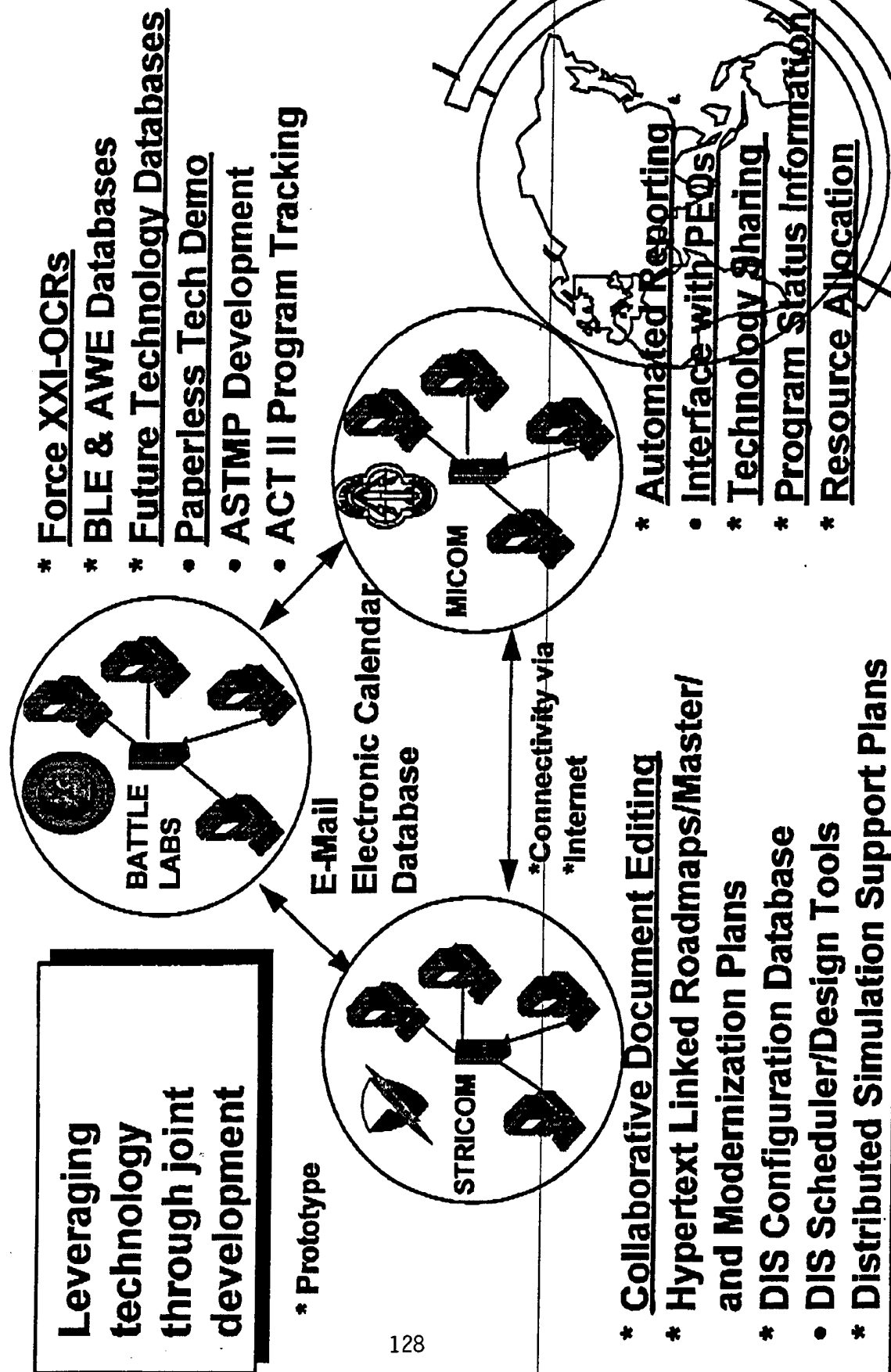
The Evolving RIMS Network is being utilized by the acquisition community to include material and combat developers, along with government labs



Prototype National Reinvention Lab



RIMS Supports joint Venture /Force XXI by Digitizing the Technology Planning Process



DTIC UPDATE

Provided by **Barbara Lesser**, Director, Directorate of User Services,
Defense Technical Information Center, May 1995.

Ensuring that our collections are as complete and comprehensive as possible was a top DTIC priority in 1994. Therefore, an active collection development program was undertaken to encourage individuals and organizations within DoD and under DoD contract to submit all appropriate materials for inclusion in DTIC's databases. As a result DTIC processed over 35,000 documents into the Technical Reports Collection, the largest input in DTIC's history.

In December 1994, the first phase of DTIC's Electronic Document Management system (EDMS) became operational. EDMS is an integrated system in which paper documents are electronically scanned and stored on optical disk and all subsequent processing, such as cataloging, indexing, and reproduction, is performed from the image of the document. The system provides management information and gives DTIC's customers a better quality output product.

Because of the high level of interest from officials at Wright-Patterson Air Force Base and the surrounding contractor community, plans were set in motion to locate DTIC's new "Midwestern Regional Office" at Wright-Patterson Air Force Base in Ohio. Defense contractor activity is high in the midwest. Wright Laboratories expends more than 40 percent of all Air Force R&D funds and employs the support of more than 300 contractors. The new office opened in May 94 and is located in the same building as the Technical Library and the Air Force Information for Industry Office.

During 1994, DTIC also began using the Internet to provide access to information sources cleared for public release to the Department of Defense community and the general public. In addition comment forms were created and listservs established to communicate with users and potential users.

Several Home Pages were created for the Office of the Secretary of Defense (OSD). Among them were: DefenseLINK, the official DoD Home Page; DefenseLINK News which provides access to documents produced and issued by the DoD Public Affairs Office; AirForceLINK, the official Air Force Home Page; TechTRANSIT which provides information on DoD

technology transfer activities; LabLINK which covers the activities of the DoD laboratories; and the DoD Acquisition Workforce Home Page.

In addition to the OSD Home Pages, DTIC also created a DTIC Home Page, the DoD Small Business Innovation Research (SBIR) Home Page, the DoD Information Analysis Centers Home Page, the Defense Technical Information Web (DTIW) and DTIC's Scientific and Technical Information Network (STINET). Available through STINET is the latest 10 years of DTIC's unclassified, unlimited citations from its Technical Report Database. This service allows all levels of users from novices to experts to easily query and retrieve citations by using the full text search and retrieval capability of a wide area information server. Relevance feedback, multiple database searching and current awareness features enhance this service.

DTIC has also put up on the Web the full text of DoD directives and instructions which has greatly increased the availability of these documents.

DTIC established a Public Access Gopher which provides pathways to DoD information, news releases, technology transfer sources, SBIR solicitations and links to other gophers.

FLICC/FEDLINK UPDATE

Presented by **Joseph S. Banks**, Business Manager
The Federal Library and Information Center Committee
Library of Congress, Washington, DC

38th Military Librarians Workshop
Huntsville, Alabama - November 16, 1994

- **FY 1994 Highlights**
- **Agency Changes: New People/New Initiatives**
- **Procurement Update**
- **Network Support Services**

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HIGHLIGHTS OF FY 1994

- FEDLINK saved member agencies an estimated \$12.1M in discounts and contracting cost avoidance.
 - Basic ordering agreements (BOAs) discounts saved members \$2.3M (discounts range from 0% to 57% of commercial rates)
 - Contracting cost avoidance saved members \$9.8M (estimating \$20,000 per contracting action for establishing 87 BOAs and providing competition for 403 individual serial orders over \$25,000)
 - Ignores savings from FEDLINK invoice processing, education, and other services.
- FLICC Personnel Working Group successfully completed through the Office of Personnel Management (OPM) Classification Standards for the GS-1410 Librarian Series and GS-1412 Technical Information Service Series.
- FLICC Federal Depository Library Working Group gained federal libraries representation on the Depository Library Counsel, the body that advised GPO on the conduct of the Federal Depository Library Program (FDLP).
- FLICC Statistics Working Group and the National Center for Education Statistics (NCES) tested and refined the nationwide survey of federal libraries and information centers developed to update the 1978 survey.
- FLICC Forum on federal information policies addressed information role in reinventing government and related executive and legislative actions on the delivery of government information.
- Enhanced the FEDLINK ALIX electronic bulletin board.
 - Connected ALIX to INTERNET to provide INTERNET access to federal librarians.
 - Provided access to ALIX from LC MARVEL gopher menu.

- Enabled members to download and import OCLC usage data through the ALIX Fiscal System (ALIX-FS).
- FEDLINK conducted training for 978 federal librarians and federal library technicians nationwide.
- FEDLINK program is financially solvent.
- FEDLINK FY90 accounts were reconciled.
- Integrating FEDLINK'S automated system with the Library's new Federal Financial System (FFS).
- Completed the selection of a FEDLINK Member Services Supervisor.
- Established an Interagency Agreement (IAG) for a National Agricultural Library in Egyptian--Represents expanded business volume for the FEDLINK program.

AGENCY CHANGES: NEW PEOPLE

- **Hirim Logan Davis** was appointed Deputy Librarian of Congress in July 1994.
 - Scope of Responsibilities: Mr. Davis will serve as the Library's Chief Operating Officer, second in command, reporting to Dr. Billington. Mr. Davis will head the library's management team, direct daily internal operations, oversee the budget, and supervise the implementation of the library's 1994-2000 strategic plan, whose priorities include both a new personnel system and advance technology.
 - Resume: Mr. Davis has accumulated 20 years in academic library administration including experience in facilities construction and staff reorganizations. During the past 5 years he served as Michigan State University Director of Libraries, where he was a vigorous promotor of electronic access to information. He received his Bachelor of Science degree in Economics in 1966 from Missouri Valley College. He earned his Master of Library Science degree at Kansas State Teachers College in 1969. He did graduate work in Administration and Library Science at the University of Michigan and received his Ph.D. in 1984. He is currently a member of the Library of Michigan Board of Trustees, serving two terms as Vice-President. He is a member of several professional library associations including ALA.
- **Charles S. Fulmore** was appointed Chief of Contracts and Logistics Services in August 1994.
 - Scope of Responsibilities: Mr. Fulmore will oversee the work of 50 employees at the Library's Landover Annex in Maryland where C&L conducts business valued at some \$300.0M each year. C&L acquires supplies, materials, furnishings, and equipment for LC; negotiates contracts; and controls LC's inventory of library owned furniture and equipment. C&L is also responsible for procurements and contracts for the FEDLINK program.
 - Resume: Mr. Fulmore is an Army Lieutenant Colonel. He was Deputy Associate Director for Contract Operations at the Army's Electronic Command Acquisitions Center, Vint Hill Farms Station in Warrenton, Virginia. He is a graduate of Utah State University with a degree in Political Science. He obtained his Master's degree in Procurement and Acquisition Management from Webster University

and he gained additional training at the Army Logistics Management College, the Air Force Institute of Technology, the University of Florida, and Florida Institute of Technology. He has published numerous articles on logistics and acquisitions and is listed in Who's Who of Military Authors.

- **Ruby J. Thomas** was appointed Member Services Supervisor in September 1994.

- Scope of Responsibilities: Ms. Thomas will manage the Accounts Receivable Operations, which includes supervision of the IAG technicians in the processing of member transactions requests and the FEDLINK Communications Hotline operations.

- Resume: Ms. Thomas has accumulated 18 years of professional accounting experience (11 years supervisory management experience). Prior to her appointment to LC/FEDLINK, Ms. Thomas worked as a contract accountant with Accounting Resources and as an Assistant Manager in Mortgage Accounting Administration with the Federal National Mortgage Association. She has a bachelors degree in Business Administration with a major in Accounting from Howard University.

- **Susan Tarr**, Chief of the Cataloging Distribution (CDS) has been named Executive Director of the Federal Library and Information Center Committee, effective November 14, 1994.

- Scope of Responsibilities: Ms. Tarr will plan, direct, and control the business and advocacy activities of FLICC/FEDLINK in consultation with the Librarian of Congress, the FLICC Executive Board, and the FEDLINK Advisory Council.

- Resume: Ms. Tarr started her career as a Library Intern with the Library of Congress in 1974. She has worked in Congressional Research Service and in 1978 was transferred to the Processing Services Department as Administrative Officer. Ms. Tarr was named to the position of Executive Officer of Processing Services in 1983 and held that position until she was promoted to Chief of CDS. As Chief of the Cataloging Distribution Service, Ms. Tarr administered a \$6.5M cost recovery program as well as an appropriated budget of over \$3.0M to supply products and services to the Library of Congress programs. Ms. Tarr has managed the development in introduction of the Library's first CD-ROM products and she has

broadened CDS's marketing program and expanded the use of microcomputer technology in CDS's development, production, and distribution programs. Ms. Tarr graduated summa cum laude from Westminster College. She received her M.L.S. from the University of North Carolina and her M.A. in Legislative Affairs from George Washington University. She is a member of ALA, the Library Administration and Management Association, and the Library Information Technology Association.

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AGENCY CHANGES: NEW INITIATIVES

- LC received 3 grants totaling \$13.0M to help make more of its materials available electronically.
 - The National Digital Library will require cooperation of the library community, the private sector, and the rest of the federal government.
 - Collaborative efforts are required to resolve challenges for cataloging, access equity, and copyright.
 - More funds are required: Sources are federal appropriations, outside philanthropy, and partnerships with outside organizations such as education publishers.
 - The Library has identified some 60 collections for possible digitization (e.g., revolutionary war maps, letters, diaries, and other papers of Jefferson, Washington, Madison, Monroe, Lincoln, Jackson, films documenting the life of Theodore Roosevelt, and African American pamphlets from the Daniel A.P. Murray Collection).
- LC has installed and implemented a new central accounting system, Federal Financial System (FFS), effective October 1, 1994.
 - FEDLINK fiscal staff now have complete responsibility for processing vendor obligations and payments through FFS.
 - FEDLINK fiscal staff recently completed FEDLINK specific training for FFS.
 - Next Steps: Start processing all accounts receivable and accounts payable transactions through FFS.
 - Concern: Time required for data entry--must prioritize programming resources to develop automated batch interface to eliminate manual data entry.

PROCUREMENT UPDATE

- Federal Procurement Streamlining Act of 1994 was recently signed by the President.
 - FEDLINK Contracts & Logistics does not have a copy of the signed law.
 - Although small purchase threshold was raised to 100K, requirement exists for agency to be involved in electronic commerce.
 - Still have to synopsise items over 25K and CBD.
 - Still have to compete if contractor challenges award.
 - Conclusion: It would help more than hurt; however, we need to see the specific language.
- Achieving progress on serials competitive selections.
 - Received 150 requirements.
 - Completed 88 contract awards.
 - Average fee is 1.4% "Which is darn good!."
- DOD customers are making progress in getting approval for Economy Act transfers for LC FEDLINK.
 - US Navy--Class D & F
 - Pentagon Libraries--MOU approach
 - Large Air Force customers--D & F
 - Large Army customers--D & F and MOU
 - For help/guidance call FEDLINK Network Office (202) 707-4830.
- FY 1995 registration appears to be proceeding at a better pace than the two previous fiscal years.

OCLC UPDATE

- FEDLINK handed over the maintenance procurement so that libraries now purchase maintenance of OCLC equipment directly from OCLC. This decision was directed by GSA because they wanted to insure the decisions each agency makes locally about maintenance involved the automated procurement plans.
- New OCLC Services:
 - FirstSearch--OCLC's database service designed for "end users" (i.e., not librarians) is getting some full text files, plus more connections to document delivery services. More sophisticated INTERNET connections like MOSAIC are scheduled for next Spring to support access to full text and graphics in electronic journals and other publications.
 - PROMPTCAT--A service which provides cataloging from OCLC at the time of book order.
 - ILL--OCLC will add a similar service to our interlibrary loan fee payment to help pay for charges for borrowing books and getting photocopies from other libraries.
- FEDLINK/OCLC Business
 - We are now staffed to insure coverage of the phones to process OCLC forms for services including our internal training and our communications within the OCLC support team of information specialists and network librarians.
 - Do not let your OCLC account go into deficit and register with FEDLINK in time to receive your services. Over the last few years we have worked hard to keep the OCLC deficit down and we made progress. Remember, successful account management will insure uninterrupted access to OCLC; poor account management will lead to disruption in service.

VENDOR ITEMS OF NOTE:

- BRS Search Services was purchased by CDP Technologies during FY 1994 and will continue to be available through FEDLINK under ID - "BR".
- Orbit Search Services was purchased by Questal during FY 1994 and will continue to be available through FEDLINK under service ID - "OR".
- The Information Store, document delivery service, merged with University Microfilms Inc. (UMI), and will be available through FEDLINK service ID - "UR".
- The Service ID - "UM" is to be used exclusively for the purchase of University Microfilms Inc. microfilm and microfiche products.
- The Faxon Company, serials subscription services, has been purchased by DAWSON Holdings PLC during FY 1994 and will continue to be available through FEDLINK under service ID - "FX".
- New FEDLINK BOA were established for 7 vendor services; 20 FEDLINK BOA's were canceled for FY 1995 because the vendors failed to renew their agreement.

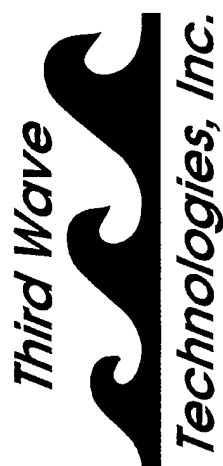
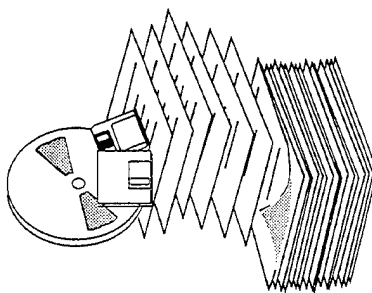
DOCUMENT IMAGING AND LIBRARIES

Mr. Timothy N. Deaton, Third Wave Technologies, Inc., Huntsville, Alabama

Vugraphs only from Mr. Deaton's presentation at the 38th Military Librarians Workshop, November 16, 1994.

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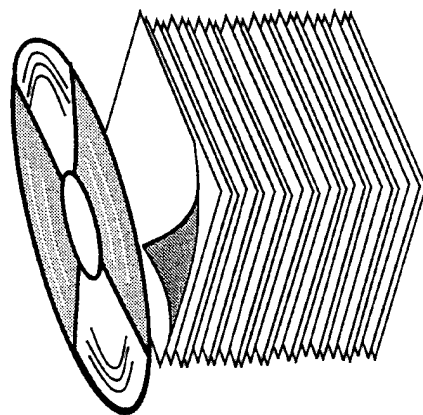
Document Imaging and Libraries



Timothy N. Deaton
Third Wave Technologies, Inc.
7500 South Memorial Parkway
Suite 215-M
Huntsville, AL 35802
(205) 880-1622

Prepared for:
Military Library Workshop
Huntsville Hilton
Huntsville, Alabama
November 16, 1994

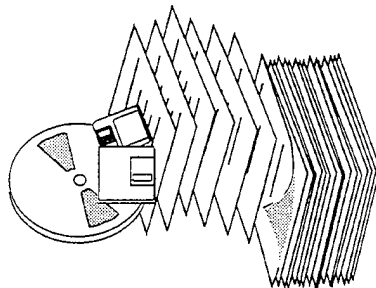
The Goal of This Presentation is to . . .



*... Present an introduction to the
technology of Document Imaging, analyze
Case Studies and discuss methods of
Adapting the Technology for special
libraries.*

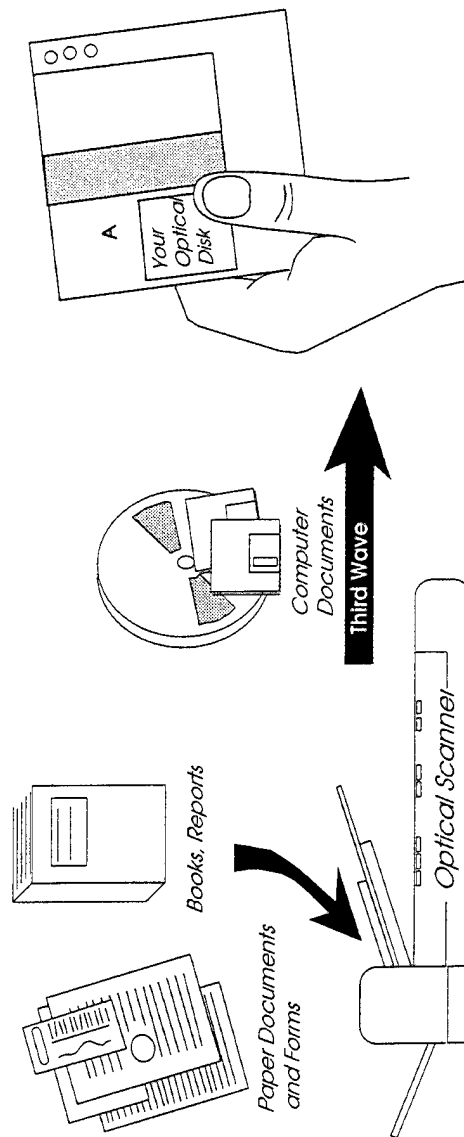
Third Wave Is . . .

- A technical services company based in Huntsville, Alabama providing customized software development and data conversion for users of robust electronic imaging systems.
- A 5-year old firm with a diverse, international base of commercial clients.
- An experienced past-contractor of technical services for the US Government.
- A respected provider of customized business and technical information systems.



Third Wave Provides . . .

- Expert Consultation and Support Services for Imaging Users.
- Custom Software Development - GUI, RDBMS, Production Workflow.
- Cross Platform File Format Conversion Services (Mac/PC/Unix).
- Text and Image Scanning.
- High Speed Optical Character Recognition.
- Conversion from Paper and Computer-Originated Documents to Floppy Disk, Optical Disk and CD-ROM.



Third Wave's Client List

Third Wave has developed, implemented, or enhanced imaging system solutions for –

- British Petroleum Exploration, Texas
- Colgate Palmolive, New York
- Columbia House Company, New York
- Eli Lilly and Company, Indiana
- Ernst & Young, New York
- Georgia Tech Research Institute, Georgia
- Howrey & Simon, Wash D.C./Calif/Colorado
- Micro Dynamics, Ltd., Maryland
- Systronic Document Search, Alabama
- 20/20 Group Financial, Toronto
- US Bank NA, Oregon

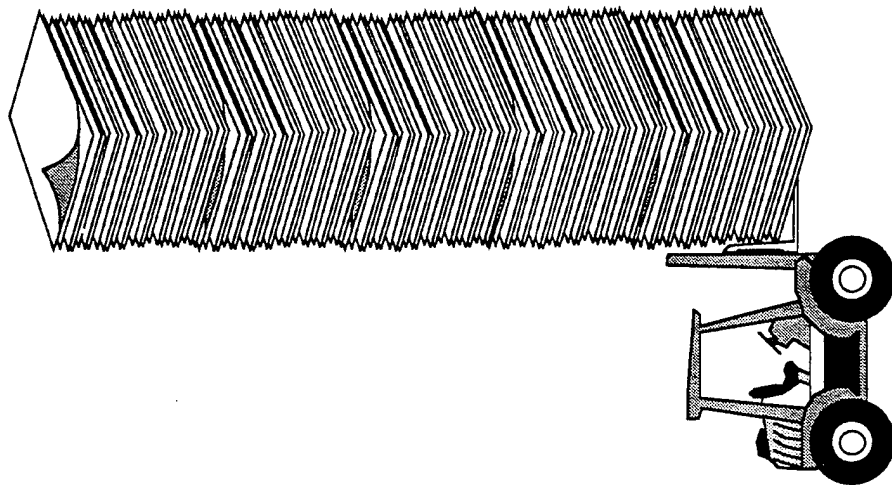
Data Conversion Track Record

Third Wave has performed production-level data conversion efforts for –

<u>Client</u>	<u>Pages</u>
• Ernst & Young.....	470,000
• USAF/RER F16 A/B.....	165,000
• Colgate Palmolive.....	95,000
• US Army TMDE Activity.....	75,000
• Howrey&Simon.....	55,000
• NASA/USAF SSD National Launch System..	25,000
• Columbia House Company	20,000
• US Army/USAF PDIMS.....	12,000
• NASA Program Development, MSFC.....	10,000
• Commercial (Walk-In).....	+80,000

Over 1,000,000 Pages!

Imaging: The Solution to the Paper Deluge



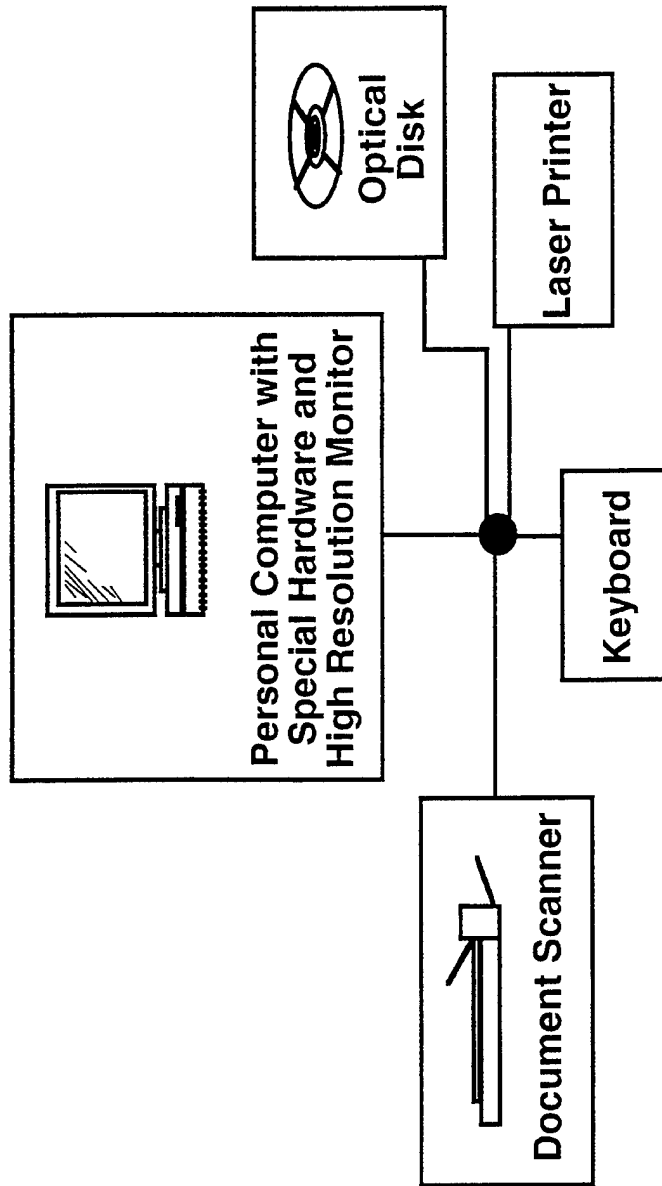
- Over 1.3 trillion documents are currently stored in U.S. Business Offices, and 3% are misfiled.
- Imaging is a technological solution to this avalanche of paper.
- Imaging provides secure and reliable storage of paper - in the form of images - scanned, filed, and indexed on optical disks.
- The images are retrieved and available on desktop computers (PC, Macintosh, etc.).
- Result: The ability to find and use information.

What is Imaging?

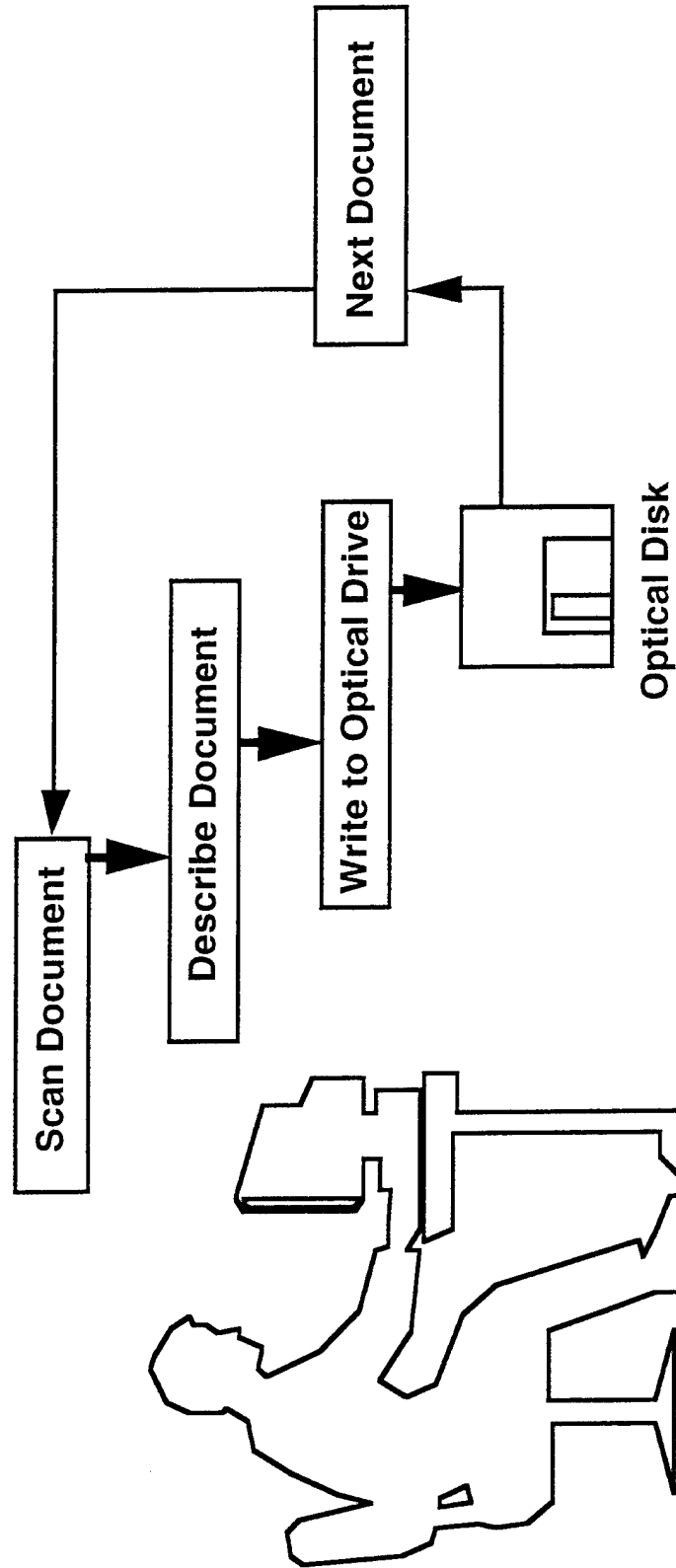


- Digital scanner to input documents.
- Document descriptions ("indexing").
- Store images on optical disk.
- Retrieve documents at desktop PCs.
- Share information over the network.

Typical Configuration - Stand-Alone Document Imaging System



Typical Process Flow in a Stand-Alone System



Storage Capacities - Optical Disk Subsystems

Disk	Capacity	Without Hardware Compression		With Hardware Compression	
		200 dpi	300 dpi	200 dpi	300 dpi
Sony 12" WORM	6400 Mbytes	80,000	32,000	124,000	89,600
LMSI 12" WORM	2000 Mbytes	25,000	10,000	70,000	28,000
Panasonic 5.25" WORM	940 Mbytes	11,750	4,700	32,900	13,160
Pioneer and LMSI 5.25" WORM, and Ricoh and Sony 5.25" rewritable	640 Mbytes	8,000	3,200	22,400	8,960

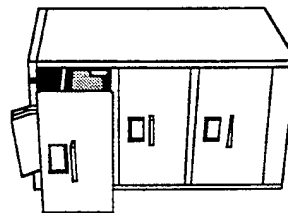
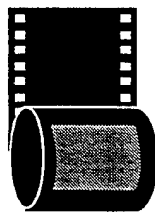
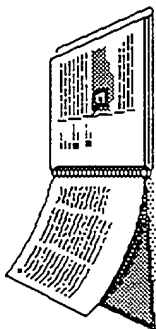
Average Letter-Sized Pages per Optical Disk

Storage Capacities - Optical Disk Jukebox Subsystems

Jukebox	Capacity	Without Hardware Compression		With Hardware Compression	
		200 dpi	300 dpi	200 dpi	300 dpi
Sony 12"	320 Gbytes	4,000,000	1,600,000	11,200,000	4,480,000
Cygnet 12"	178 Gbytes	2,225,000	890,000	6,230,000	2,492,000
Panasonic 5.25"	47 Gbytes	587,000	235,000	1,645,000	658,000
Cygnet 5.25"	16 Gbytes	200,000	80,000	560,000	224,000

Average Letter-Sized Pages per Jukebox

What Does a Good Imaging System Do?



- Enables you to store every kind of document imaginable – paper, microfilm, photographs, computer files, etc.
- Enables many people to simultaneously find and retrieve the information they need.
- Provides efficient storage of vast amounts of information with quick, easy access.

The Ideal . . .

. . . Information Management System

Store

huge volumes of documents
of all kinds—text, images,
sound, computer files, paper

Find

whatever information
you want quickly and
easily

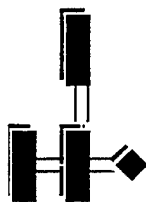
Freedom

from slow or
constraining
searches

Structured

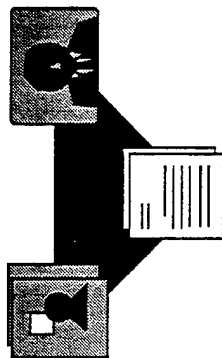
enough to be helpful,
but not so much that
you are confounded!

Three Search Methods . . .



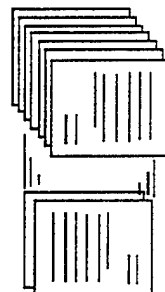
Database

Structured data searching. Requires familiarity with data being searched.



Hypertext

Navigate through large amounts of information in a non-linear way. Paths through the data must be established beforehand.



Full Text

Access any word or phrase in a large body of text. No need to organize data.

Typical User Interface

- Search, Select, and Image Windows -

CLIENT SERVICES
Type of Member

ADMINISTRATION
File Type

Document Type

Investment Doc. Type

File

Social Security No. [] Operator [] Log No. []

System Entry Date [] Original Date [] Rev No. []

Access [] File Type [] # of Pages []

Log#	Note	Document Title	Doc Date	Type	Pages
103	•	Personnel Folder for Jane Doe	11/4/89	PBIT	21
104	•	Employment Eligibility Verification for Bill Doe	11/1/89	PBIT	3
105	•	Employment Eligibility Verification for Bob Doe	11/1/89	PBIT	2
106	•	Employment Eligibility Verification for Sue Doe	10/31/89	PBIT	2
107	•	Employment Eligibility Verification for Sally Doe	10/13/89	PBIT	2
109	•	Jane Doe - Personnel Change of Status	7/16/86	PBIT	1
110	•	Jane Doe - Application for Employment	8/18/86	PBIT	1
111	•	Jane Doe - Personnel Change of Status	2/18/88	PBIT	1
Total:					18

View Get Info Get Note Cancel More Previous

PERSONNEL CHANGE OF STATUS
NAME TYPE OF PRINT

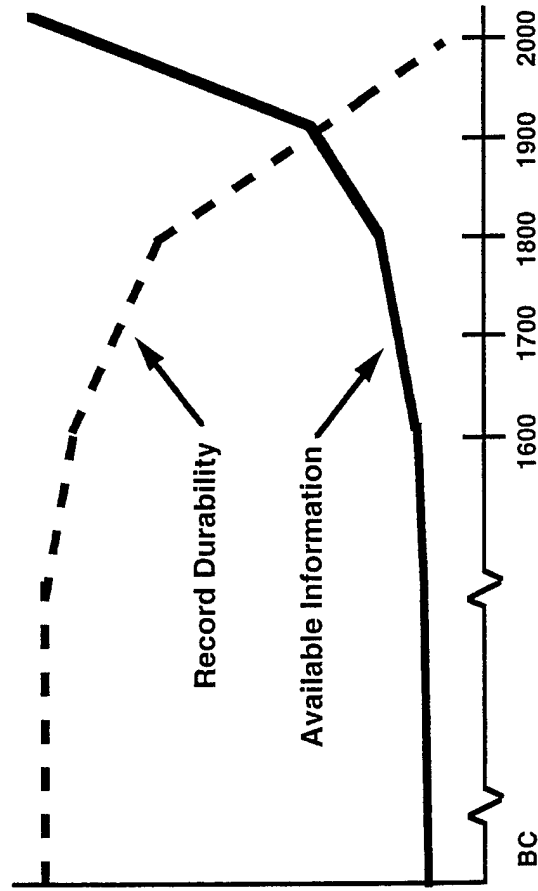
PERSONNEL Folder To... (1 of 21)

A. ACTION TO BE TAKEN:
☐ EMPLOYMENT ☐ RECLASSIFICATION ☐ LEAVE OF ABSENCE ☒ TERMINATION

B. PERSONAL DATA:
 EMP. NO. 818 / 31 / 888 NAME [] CITY/STATE [] ZIP CODE []
 DATE OF BIRTH [] MARITAL STATUS [] NO. OF DEPENDENTS []
 PHONE NO. [] FEDERAL TAX CODE [] STATE TAX CODE [] PAY CODE []
 ADDITIONAL PERSONAL WITHHOLDING [] ADDITIONAL STATE WITHHOLDING []
 PAY BASIS: ☐ PERMANENT ☐ PART-TIME ☒ WISELY ☐ IN WEEKLY
 C. JOB DATA:
 PLANT NO. [] PLANT NAME [] DEPT. NAME [] DATE BEGAN []
 JOB TITLE []
 D. LEAVE OF ABSENCE: FROM [] TO [] LAST DATE WORKED []
 E. EXPLANATIONS:
 Date: 11-14-89
 By: []
 Date: 11-14-89
 By: []
 F. PERFORMANCE RATING (Include all): Above Average Good Fair Poor
 ATTITUDE [] ATTENDANCE [] QUALITY []
 WOULD YOU REHIRE? YES [] NO []
 G. APPROVAL:
 PLANT [] PERSONNEL []
 PERSONNEL WORK INSTRUCTIONS: []

Two Trends *With Unsettling Interactions*

- The Information Explosion
- Durability of Our Records for Future Generations



Durability of Records

- Consider the progression of the media mankind has chosen to pass on to the future:
from stone carvings, tablets, scrolls, parchment and vellum, handmade linen, silk and fibrous paper, to modern sulphite paper, to unstable and fragile audio and digital media to short-lived software and hardware.
- Each successive generation's success rate in immortalizing itself through communication is inversely proportional to the rise in our propensity to communicate and record our thoughts and actions!



Billions of Pages at Risk

- Much of what has been published in the past 150 years has been printed on sulphite paper - paper that deteriorates over time.
- *In 1986, it was estimated that 25% of U.S. research library collections exist only on sulphite paper - over 80 million volumes!*
- Since 1986, the Commission on Preservation and Access (along with its Technology Assessment Advisory Committee) has played a central role in explaining the problem, communicating the concern to the public, and assisting in policy development of a coordinated preservation effort.

Things to Come . . .

"In the next decade we will find ourselves engulfed in an accelerating transition from what has been for centuries a print-on-paper environment to one in which electronic technologies may well dominate or at least be thoroughly integrated with our traditional print options."

as stated in 1992 by
Rowland C. W. Brown, Chairman,
Technology Assessment Advisory Committee,
Commission on Preservation and Access

Microfilm or Digital Imaging - *Which Format is Best?*

A TAAC report entitled *Image Formats for Preservation and Access* asserts . . .

- Digital imagery is a promising alternative to film.
- Digital imagery allows for faithful reproduction and high definition of the source image, with the possibility of even restoring the older print image to its original quality.
- Imagery also facilitates storage in multiple forms and the rapid transfer of the image from one library to another in a manner much simpler and faster than is possible with copies of microfilm.
- And, to accommodate the current personal preference for print copy, electronic alternatives enable the user to print on demand from the reformatted item.

Success Story - Library Case Study

- **Cornell/Xerox/Commission on Preservation
and Access,
College Library Access and Storage System.**

Cornell, Xerox & CPA - Joint Study in Digital Preservation -

Goal:

Demonstrate the feasibility of imaging books that are rapidly deteriorating, storing them and transmitting them to remote high-speed printers either on the Cornell campus or to another collaborating campus.

Approach:

Cornell and Xerox co-development of College Library Access and Storage System (CLASS) - an integrated document imaging system designed to meet preservation and reformatting needs.

An integral component to CLASS is the Xerox Docutech, a high-speed networked book publishing system for on-demand printing.

Using CLASS - Searching -

CORNELL UNIVERSITY DIGITAL LIBRARY - SEARCH WINDOW

User Name: Digital Library User

LOGIN

VERSION

QUIT

Enter search data and press "SEARCH" button or 'return':

Title: The Popular History of the Civ

Author: Herbert, George B.

Catalog Identifier: 020701056783AFA2AEEC420000000300000040

SPECIFY SEARCH DATABASE

SEARCH

OPEN DOCUMENT

PRINT DOCUMENT

CLEAR SEARCH

Letters from th Hon. John Adam	Adams, John, Pres. U.S.,	020701056783AFA2AEEC4200000003
Irrational Numbers and their R	Manning, Henry Parker	020701056783AFA2AEEC4200000003
V.1 Chapters on the Modern Geo	Townsend, Richard	020701056783AFA2AEEC4200000003
Lectures on Elementary Mathema	La Grange, Joseph Louis	020701056783AFA2AEEC4200000003
Groups of order p Isuperscript	Netkirk, Lewis Irving	020701056783AFA2AEEC4200000003
Euclid's Book on Divisions of	Archibald, Raymond Clare	020701056783AFA2AEEC4200000003
A history of the growth of the Civ	Thurston, Robert Henry	020701056783AFA2AEEC4200000003
The Popular History of the Civ	Herbert, George B.	020701056783AFA2AEEC4200000003
Autobiography of Anne lady Hal	Halkett, Anne (Murray) la	020701056783AFA2AEEC4200000003
Astronomy for All	Burgel, Bruno H.	020701056783AFA2AEEC4200000003

Documents Found: 38

Using CLASS - Browsing -

☒ CORNELL UNIVERSITY DIGITAL LIBRARY - STRUCTURE BROWSING

Title: The Popular History of the Civ
 Author: Herbert, George B.
 Catalog Identifier: 0207010567B3AFA2AEEC4200000003000000040

Resolution: ☒ 100dpi

Viewing Commands:

Print Commands:

Document Structure

PAGES
 Contents

Entries: 2

Using CLASS - Browsing -

☒ CORNELL UNIVERSITY DIGITAL LIBRARY ~ STRUCTURE BROWSING

Title: The Popular History of the Civ
Author: Herbert, George B.
Catalog Identifier: 020701056783AFA2AEEC4200000003000000040

Resolution: ☒ 100dpi

Viewing Commands:

Print Commands:

Contents

- Production Note
- + Title Page
-
- + Preface
- + Table of Contents
- + List of Illustrations
- + Text

Entries: 7

Using CLASS

- Browsing -

☒ CORNELL UNIVERSITY DIGITAL LIBRARY - STRUCTURE BROWSING

Title: The Popular History of the Civ
 Author: Herbert, George B.
 Catalog Identifier: 020701056783AFA2AECC4200000003000000040

Resolution: ☒ 100dpi

Viewing Commands:

Print Commands:

Text

+ Chapter I. Introductory
 + Chapter II. Secession Spreading
 + 50
 + Chapter III. Biographical Sketch of Abraham
 + Chapter IV. Composition of Lincoln's Cabin
 + Chapter V. Lincoln's first Call for Troops
 + Chapter VI. Intermediary Events
 + Chapter VII. Further Outrages at Baltimore
 + Chapter VIII. The Federal Forces Cross the
 + Chapter IX. Lincoln's Second Call for Troo
 + Chapter X. The Battles of Falling Waters...
 + Chapter XI. Movements in Missouri
 + Chapter XII. General Butler at Fortress Mon
 + Chapter XIII. Movements in Missouri
 + Chapter XIV. Operations in Western Virginia

Entries: 38

Using CLASS

- Viewing Documents -

v

CORNELL UNIVERSITY DIGITAL LIBRARY - DOCUMENT BROWSING

[CLOSE DOCUMENT](#)

[View ▾](#)

[QUIT](#)

Title: The Popular History of the Civ

Author: Herbert George B.

Catalog Identifier: 0207010567B3AFA2AECC420000000300000040

[NEXT PAGE](#)

[GO TO](#)

Label: _____

[PREVIOUS PAGE](#)

[UNLCK](#)

GAYNES OF NEW WAR.

20

Imporing duties upon an average basis of fifty per cent., was passed, the categorical indignation at the advancing of the action interests was so violent and aggressive that the long-throated bone of disunion snapped at hand.

In the fall of 1860, after an unending Presidential campaign, John Quincy Adams was defeated, and Andrew Johnson, a native of North Carolina, lost a million of Tennessee votes, elected, receiving 110 electoral votes against the Adams' re-election. At least, the more positive aspect of a compromise emerged as easily and as smoothly as the morning dew, and following clouds took their place, the South Chamberlain and the reopening of the tariff question prohibiting another election. The first annual message of President Johnson appeared the re-claiming of the Bank of the United States, and suggested that his old charter should be allowed to expire by the expiration of time in 1863. The opposition grew very noisy, even enough to get them before public, and Congress in 1861 passed the bill to renew it. This was promptly met by a veto, and failing to succeed a free-trade majority, the friends of the bill were obliged to yield.

Meanwhile the agitation on the tariff question had been rapidly spreading like wheat, in the result of the session of 1861-2, opposing tariffs were arrived upon manufacturing goods imported from abroad, the manufacturing element of the North helped him there. It was claimed that again the manufacturing children were involved at the expense of the agricultural interest, and South Carolina, under the lead of John C. Calhoun, with his nullification theory, determined to make the power of Congress in the premises.

Nullification theorists were widely disseminated, and other Southern States were invited to join the movement for mutual self-protection. On the 24th of November, 1860, a grand convention was held at Charleston, and the Nullification Ordinance was adopted. This instrument declared that no duties should be paid in South Carolina after a certain date; that no appeal should be permitted to the Supreme Court of the United States in reference to the validity of the ordinance, and that attempts by the United States Government to collect revenue would justify

84

REPORT OF THE CIVIL WAR.

resistance and the establishment of an independent government. This attitude was approved by the Legislature of the State then in session. To gratify the latter the Legislature indicated the sailing, coming and departing of steam vessels to the satisfaction of the people of the State.

Mr. Calhoun, then Vice-President of the United States, was named at the head of the proposed State organization, and made leading the ranks, "John C. Calhoun, First President of the Fugitive Commission," was carried off and detained. In the midst of his captivity, with a number of men connected with a palanquin, the speaker of the new nation, were freely displayed.

Her did the matter rest here. Colonel Mayne, then under from South Carolina, boldly advanced, on the floor of the United States Senate, the right of a State, under certain circumstances, to nullify an act of Congress. To his fiery eloquence was opposed the manly representative speech of that member of American history, Daniel Webster.

Doubts, however, on such a subject, was not President Johnson's method of dealing with a crisis. He promptly issued a proclamation, in which he asserted that "to say that my final duty may at pleasure result from the Union, is to say that the United States are not a Nation." His decision, his intention to reduce the revenue under all and any circumstances. This was met by a counter proclamation, in which, Governor Baynes of South Carolina, maintained the Nullification theory, called for further theoretical armed resistance to submit the State against Federal interference. On the 24th of February, 1862, Congress passed the Force Bill, which gave jurisdiction to the United

JOHN CALHOUN, SENATOR.

v

Retrieving Image From Local Cache

Using CLASS

- On-Demand Printing -

CORNELL UNIVERSITY DIGITAL LIBRARY - PRINT REQUEST WINDOW

Information about selection to be printed:

Author: Herbert, George B.

Title: The Popular History of the Cliv

Document ID: 0207010567B3AFA2AEEC4200000003

Library: OLIN LIBRARY

Pages to be printed: 1

Print Summary:

Total Pages Selected to Print: 6

Price per page: 0.10

Cost of Pages Per Copy 0.60

Blinding Cost: 0.00

Price Per Copy 0.60

Number of Copies 1

Total Printing Cost: 0.60

Copyright Fees: 0.0

Shipping Cost: 5.00

Total Cost: 5.60

Bill to University Acct:

Printer Selection

☐ SparcPrinter ☐ DocuTech

Print Options ☐ Bind & Stitch

SEND PRINTED COPY TO:

Name: Digital Library User

Address: 502 Olin Library

CORNELL DIGITAL LIBRARY

Please drop in campus mall. Thank y

PRINTOUT TO XEROX DOCUTECH

Is this a Cornell campus address? ☐

Principal Conclusions

- CLASS Phase I -

1. Digital image technology provides an alternative--of comparable quality and lower costs--to photocopying for preserving deteriorating library materials.
2. Subject to the resolution of certain problems, digital scanning technology offers a cost effective adjunct or alternative to microfilm preservation.
3. Digital technology has the potential to enhance access to library materials.
4. Through the implementation of document control structures, digital technology offers a means to facilitate access and to provide links between the library catalog and the material itself.
5. The infrastructure developed for library preservation and access activities supports other applications in the electronic dissemination of information.



Potential Adaptations of These Cases to Special Libraries

- In-house electronic clipping service for patrons. → *re: Vanderbilt's Clipper*
- Development of special-purpose multimedia applications. → *re: Case Western's ELE*
- Preserve rare and brittle holdings. → *re: Cornell's CLASS*
- Provide on-demand print of out-of-circulation resources. → *re: Cornell's CLASS*
- Exchange resources electronically with other affiliated libraries. → *re: Cornell's CLASS*
- Join with local industry to develop needed, viable proof-of-concept applications. → *re: Vanderbilt, CWRU, Cornell*

"In Order for Library Applications to Succeed . . .

" . . . libraries must be innovative: they must be able to adapt and integrate technologies, and they must engage in cooperative ventures."

Rowland C. W. Brown

TOXIC SUBSTANCES AND PUBLIC HEALTH

Presentation by **Gayle Alston**, Librarian
Agency for Toxic Substances and Disease Registry
United States Department of Health and Human Services
Atlanta, Georgia

38th Military Librarians Workshop Huntsville, Alabama - November 16, 1994

Over the past few decades, many laws have been passed to protect our environment. Federal facilities, as well as private industry, must now respond to a cadre of environment and health as areas of high concern to the population. The US federal government has recognized the environmental health concern in its report, *Healthy People 2000*.

Librarians are a crucial link in providing information to both the health professional and to the citizen concerned about environmental exposures. The complexity of environmental information requires familiarity with various sources of non-traditional information. This session will briefly examine environmental laws, educational materials, government agencies, and appropriate print and electronic resources.

Participants will be able to:

- Identify government agencies involved in environmental issues.
- Identify the information needs of potential clients.
- Describe how librarians and information professionals can be involved in the environmental issues.
- Identify new sources of printed and electronic resources in the environmental field.

AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY
Excerpt from Presentation to the Board of Scientific Counselors
November 1, 1993

Federal vs. Non-Federal Facilities

Ms. Carole Hossom, ATSDR, gave the Board a detailed overview on the differences between federal sites and non-federal sites. She noted that the major difference between federal sites and non-federal sites can be summed up in one word--complexity. She then focused on the Department of Defense and Department of Energy sites that have many source areas of contamination, and which are currently active.

Unlike federal facilities, non-federal national priority list sites or NPL sites, typically consist of a single waste area such as a landfill that has been closed or abandoned. Federal sites also differ because of their long history of operation. Most military bases and DOE facilities have been in operation since World War II, while some naval shipyards have been in operation since the early 1900s. So for at least the last five decades or more, hazardous wastes have been accumulating within the boundaries of these facilities.

Ms. Hossom commented that military installations can often be equated to cities in size, and they are totally self-sufficient, having industrial areas, grocery stores, water treatment plants, power plants, housing, schools and medical centers. Fort Wainwright in Alaska contains over 900,000 acres, which is almost 1.5 times the size of Rhode Island. Federal sites also have a wider range of contaminants, depending on their mission. Most Army, Air Force and Marine installations have solids, fuels and munitions. DOE facilities contain radioactive and mixed waste.

Another difference between federal and non-federal sites are the populations affected. Population densities of federal sites are similar to that of metropolitan areas. The installations have on-site, as well as off-site populations, including both civilian and military. On-site residents are transient military personnel with tours of duty from two to five years, many having families with a large percent of young children. Outside the gates, off-site residents include civilian workers who work at the facility and live in the surrounding community their whole career. Interspersed in those off-site communities are also transient military personnel. Military personnel who work and live on base may have a greater potential for exposure, and thus for adverse health effects. And because these

populations are transient, correlation between exposure and possible health effects is extremely difficult.

The environmental contamination of federal sites, however, is aggravated by the sheer volume of contaminants released over the past 50 or more years. Contaminants such as the explosives and chemical warfare agents are unique to the military. Health and environmental evaluations concerning some of these chemicals is difficult due to the limited information on their environmental fate, uptake, degradation, and their implications in human health.

Other issues frequently encountered at federal sites relate to on-site land use. Most federal facilities lease portions of their land to private interests for agricultural use--the grazing of farm animals and the raising of crops. Often these leased parcels are sandwiched between hazardous disposal areas.

Most environmental programs at the installation or federal sites are concerned with contamination of ground water, surface water or soil. They seldom take into account the food chain as an indirect environmental medium and how those leased portions of the land are impacted by contaminant migration from known disposal areas, through the food chain, and ultimately to humans.

More information on biological uptake of military specific contaminants in the food chain is needed to fully evaluate their potential adverse health effects in humans, hence ATSDR routinely makes recommendations for establishing sampling protocols, and collecting research data from these sites.

At the Fernald, DOE facility in Ohio, where dairy cows graze on DOE-leased land, ATSDR was concerned about the potential of contaminants being expressed in milk. As a direct result, ATSDR has contracted with an outside agency to perform sampling and analysis of that milk. Likewise, natural resource consumption represents another food chain issue that tends to escape the environmental considerations at these facilities. Hunting and fishing are common on these installations. ATSDR has recommended and the military has begun sampling of fish and game to determine the potential for human exposure.

Schools and daycare centers represent another widespread public health concern at federal sites. At Tinker Air Force Base, a daycare center was under construction near a waste water treatment plant. ATSDR

recommended that thorough air monitoring data be collected and analyzed prior to the opening of the daycare center. Just last week, the Air Force discussed with us their sampling plan, and as a result of our involvement, opening of the daycare center has been delayed until our evaluation is complete.

Of the immediate threats to public health, unexploded ordnance has potentially the greatest impact. Again, although not routinely considered part of the environmental clean up programs, ATSDR routinely makes recommendations for better marking and restricting access to these areas where explosive hazards exist.

On the broader scale, all ATSDR activities must be coordinated with many other federal and non-federal parties. Coordination of our efforts at federal facilities can be logistically challenging. ATSDR commonly interacts with all groups at NPL sites, however, at federal sites this can be very involved. At Hunters Point in San Francisco for example, the total number of groups represented by both public and private sectors totaled 21, all of whom must be contacted.

Due to the end of the Cold War, land transfers to the private sector and base realignment and closure legislation, we're having to be more flexible in the tools we use to address health issues. We're presently streamlining our approach to public health assessments by focusing only on those areas where there is a potential for public health hazard or human exposure.

ATSDR is producing more health consultations, which address specific questions or areas of focus. Health consultations are more timely than public health assessments, so we can have an input before clean-up decisions are made. That is particularly important here with base realignment and closure activities, where clean-up must be scheduled within one year of contaminant characterization.

Ms. Hossom pointed out that health consultations are also vital at DOE facilities, where clean-up schedules may take 30 or more years before completion. ATSDR continues to provide public health advisories to address imminent public health hazards. ATSDR also reviews federal site environmental work plans, which detail sampling strategies to reduce the number of indeterminate conclusions in our public health assessments.

Organizations

This is a partial listing of agencies and organizations providing environmental information, often for free or a small fee.

Agency for Toxic Substances and Disease Registry

1600 Clifton Road MS E33
Atlanta, Georgia 30333
(404)639-6204

Hazardous Substances and Public Health

Teresa Ramsey, Editor (tarl@atsod3.em.cdc.gov)

HazDat - ATSDR database of site specific and substance information.

Carbon Dioxide Information Analysis Center

Oak Ridge National Laboratory
P.O. Box 2008 (MS-6335)
Oak Ridge, Tennessee 37831-6335
(615)574-0390

Newsletter *CDIAC Communications*, reports, glossary

Center for Environmental and Hazardous Materials Studies

Virginia Polytechnic Institute and State University
201A Architecture Annex
Blacksburg, Virginia 24061-0113

Publishes a free newsletter, *Hazardous Materials Dialogue*.

Purpose is to share information among people who formulate and implement communications with the public about hazardous materials.

Chemical Manufacturers Association

2501 M Street, NW
Washington, DC 20037
(202)887-1100

Community Awareness and Emergency Response Newsletter
Chemtrec (24 hour emergency response)

Clean Lakes Clearinghouse

Terrene Institute
1-800-726-LAKE

Technical information of aquatic ecology, watershed programs, point and nonpoint sources of pollution, and wetlands.

EPA Info Access

Mary Hoffman
Network Coordinator PM-211B
EPA Headquarters Library
401 M Street, SW
Washington, DC 20460
(202)260-7762

Bimonthly publication of the EPA Library Network. Discusses EPA databases and network activities.

Fish and Wildlife Reference Service

5430 Grosvenor Lane, Suite 110
Bethesda, Maryland 20814
(800)582-3421
(301)492-6403 (in Maryland)

Publishes a newsletter of available information.

Florida Game and Fresh Water Fish Commission**Bureau of Nongame Wildlife**

620 South Meridian Street
Tallahassee, Florida 32399-1600

Free list of Florida Nongame Wildlife Program scientific publications. Most publications are inexpensive or free.

Florida, University of

Stephanic C. Haas
Marston Science Library
Gainesville, Florida 32611-2020

Ms. Haas has compiled a list, *Florida's Hidden Environmental Databases and Bulletin Boards*.

INFOTERRA

US EPA PM 211A
401 M Street, SW
Washington, DC 20460
(202)260-5917
(202)260-3023
Internet: library.infoterra@epamail.epa.gov

Directory of Environmental Sources

National Drinking Water Clearinghouse

West Virginia University

P.O. Box 6054

Morgantown, West Virginia 26506-6064

(800)624-8301

(304)293-3161

Newsletter, telephone consultation, databases, bulletin board, referrals, brochures.

National Institute for Chemical Studies

2300 MacCorkle Avenue, S.E.

Charleston, West Virginia 25304

(304)346-6264

Citizens' Guide for Environmental Issues

National Institutes for the Environment (NIE)

Committee for the NIE

David Blockstein, Executive Director

730 11th Street, NW

Washington, DC 2001-4521

(202)628-4303

(202)628-4311

Internet: aibs@gwuvm.gwu.edu

Proposed agency for environmental research to include a national environmental library.

National Response Center**U.S. Coast Guard Headquarters**

2100 Second Street, SW

Washington, DC 20593-0001

1-800-424-8802

(202)426-2675

National reporting center for all oil spills, chemical releases, and radiological incidents.

Key terms: NRT (National Response Team), OSC (On-Scene Coordinator).

**U.S. Environmental Protection Agency
Public Information Center**

401 M Street, SW
Washington, DC 20460

Brochures, booklets, teacher packets, and fact sheets on a variety of topics, glossary of environmental terms and acronyms.

U.S. General Accounting Office (GAO)

Document Handling and Information Service Facility
P.O. Box 6015
Gaithersburg, Maryland 20877
(202)512-6000

Publishes a catalog of documents. Single copies are free!

U.S. Government Printing Office (GPO)

Superintendent of Documents
Washington, DC 20402
(202)512-2303

Distributor for 40 Code of Federal Regulations (CFRs)
governing the EPA, 49 CFR--Department of Transportation, and 29
CFR--Occupational Safety and Health Administration.
Credit cards are accepted.

Waste Policy Institute

1872 Pratt Drive Suite 1600
Blacksburg, Virginia 24060-9940

Publishes a free newsletter, *Energy & Transportation Network
News*, which provides information to officials concerned with
emergency management and transportation of hazardous materials
issues.

Prepared by Gayle Alston, (404)639-6205, November 15, 1994.

FOR YOUR INFORMATION

The Nature and Extent of Lead Poisoning in Children in the United States: A Report to Congress is no longer available from the Agency for Toxic Substances and Disease Registry (ATSDR). It may be ordered from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703)487-4650
(NTIS order number PB89-100184 [paper copy]; \$59 plus \$3 shipping and handling fee per order)

ATSDR Public Health Assessment Guidance Manual is no longer publicly available from ATSDR. It may be ordered from:

NTIS(for address see above)
(NTIS order number PB92-147164 [paper copy]; \$44.50 plus \$3 shipping and handling fee per order), or from:

Lewis Publishers
2000 Corporate Boulevard NW
Boca Raton, Florida 33431
(407)994-0555
1-800-272-7737
(Catalog no. L857 [hard copy]; US \$49.95/Outside the US \$59.95 plus \$7.50 shipping and handling on US and Canadian orders. Sales tax will be applicable. Canadians add 7% [GST].)

Environmental Data Needed for Public Health Assessments: A Guidance Manual was published by ATSDR, June 1994. It may be ordered from:

NTIS order number PB94-179827 [paper copy, 24 pages]

Public Health Overview of Incineration as a Means to Destroy Hazardous Waste: Guidance to ATSDR Health Assessors was published by ATSDR in February 1992. It may be ordered from:

NTIS order number PB94-179835 [paper copy, 12 pages]

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Additional Resources

This is a partial listing of other environmental health resources.

Health Information Resources in the Federal Government is available from:

Editor
ONHIC
P.O. Box 1133
Washington, DC 20013-1133
(800)336-4797
(301)565-4167

ACCESS EPA is a series of seven directories bound in one volume.
Titles are:

Public Information Tools
Clearinghouses and Hotlines
Records Management Programs
State Environmental Libraries
Major EPA Dockets
Major EPA Environmental Databases
Library and Information Services

Copies are available in public libraries or may be ordered from:

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(703)487-4650; FAX (703)321-8547
(NTIS order number PB93-170041; \$24.00);

Government Printing Office
New Orders
Superintendent of Documents
P.O. Box 371954
Pittsburgh, PA 15250-7954
(202)783-3238; FAX (202)512-2250
(GPO stock number 055-000-00437-4; \$24.00)

Compendium of Superfund Program Publications is available from:

U.S. Environmental Protection Agency
26 W. Martin Luther King Drive, MS 293
Cincinnati, OH 45268
(513)569-7980; FAX (513)569-7186
(EPA/540/8-91/014)

Evaluating Hazardous Waste Education and Training and Evaluating the Environmental Health Work Force can be obtained by contacting:

Barry S. Stern, MPH
Senior Environmental Health Advisor
Bureau of Health Professions
Room 8C-09
5600 Fishers Lane
Rockville, MD 20857

Hazardous Materials: A Citizen's Orientation, Hazardous Materials: An Introduction for Public Officials, and Hazardous Materials Contingency Planning are a series of self-study books available from:

Federal Emergency Management Agency
P.O. Box 70274
Washington, DC 20024-0274

NIOSH Pocket Guide to Chemical Hazards can be obtained by contacting:

Publications Dissemination, DSDTT
National Institute for Occupational Safety and Health
4676 Columbia Parkway
(513)533-8287
(DHHS [NIOSH] Publication no. 90-117)

ENVIRONMENTAL EDUCATION PROGRAMS

General Programs (adult and youth)

Buzzworm: The Environmental Journal

January/February issue carries a list of environmental education programs.

Environmental Hazards Management Institute

10 Newmarket Road

P.O. Box 932

Durham, New Hampshire 03824

(603)868-1496

Courses; very good household hazardous waste wheel

Florida Emergency Medical Services

1317 Winewood Boulevard

Tallahassee, Florida 32399-0700

(904)487-6731; FAX (904)488-2512

Hazardous Materials and the Emergency Responder: A

Bibliography (May 1992)

National Drinking Water Clearinghouse

West Virginia University

P.O. Box 6054

Morgantown, West Virginia 26506-6064

(800)624-8301

(304)293-3161

North Carolina Dept. of Environment, Health and Natural Resources

Office of Environmental Education

P.O. Box 27687

Raleigh, North Carolina 27611-7687

(919)733-0711

Environmental Education Bibliography (call or write Ron Still)

**Society of Environmental Toxicology and Chemistry (SETAC)
Foundation for Environmental Education**

Rodney Parrish, Executive Director

1010 North 12th Avenue

Pensacola, Florida 32501

(904)469-9777; FAX (904)469-9778

Journal, workshops, newsletter, meetings, special publications

**U.S. Environmental Protection Agency
Office of Communication, Education, and Public Affairs
Environmental Education Division A-107**

401 M Street, SW

Washington, DC 20460

(202)260-4965

Awards environmental education grants; announced in the **Federal Register**, usually in fall.

**U.S. Environmental Protection Agency Region V
Glynis Zywicki**

EPA Deputy Outreach Coordinator

77 W. Jackson WCP-15J

Chicago, IL 60604

(312)886-0206

School districts, local, state and federal government offices; municipal and county agencies, and utility districts are among the government agencies eligible to receive free software in the areas of drinking water. Wastewater, water conservation, general education about water, agriculture, health, air, and regulations.

The general public may purchase duplicates of the software programs from a number of sources including:

- a. Purdue University
West Lafayette, Indiana
(317)494-1172
- b. Public Brand Software
Indianapolis, Indiana
1-800-426-3475

c. Applied Environmental Technologies
Seattle, Washington
(206)323-1820

The programs may be available on CD-ROM in the future.

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Youth Programs

Alliance for Environmental Education

51 Main Street
P.O. Box 368
Plains, VA 22171
(703)253-5812

Chemical Education for Public Understanding Program

Lawrence Hall of Science
University of California
Berkeley, CA 94720
(510)642-8718

Earth Generation

P.O. Box 2005
Midland, MI 48641
(517)631-4010

Educational Development Specialists

5505 East Carson Street, Suite 250
Lakewood, CA 90713-3093
(213)420-6814; FAX (213)420-1485

Curriculum kits: **Think Earth (E-3)** and also up to grade six

Future Fisherman Foundation

Spirit Lake, IA 51360
Fishing for Fun for Kids (\$1.25?)

Kids for Saving Earth

P.O. Box 47247
Plymouth, MN 55447
Activities, newsletter, international in scope

Mark Trail/Ed Dodd Foundation

P.O. Box 2807
Gainesville, GA 30503

Missouri Household Hazardous Waste Project

Southwest Missouri State University
1031 Battlefield Suite 214
Springfield, MO 65807
(417)889-5000

National Energy Information Center, EI-231

Room 1F-048 Forrestral Building
1000 Independence Avenue, SW
Washington, DC 20585
(202)586-8800

**Energy Education Resources: Kindergarten through 12th
Grade (October 1990)**

North American Association for Environmental Education

P.O. Box 400
Troy, OH 45373

Publishes monographs in environmental education and
environmental studies including:

Computer-Aided Environmental Education edited by W.

J. "Rocky" Rohwedder, Ph.D.

Essential Learnings in Environmental Education

Soil and Water Conservation Society

7515 Northeast Ankeny Road
Ankeny, IA 50021-9764
1-800-THE SOIL

Comic books, coloring books, bumper stickers, book marks,
computer software. Some materials are available in both Spanish and
English.

Water Environment Federation

(Formerly Water Pollution Control Federation)

601 Wythe Street

Alexandria, VA 22314

(703)684-2400

(800)666-0206 (to obtain a catalog of publications)

Education programs include a Water Environment Curriculum targeted for grades 5 through 9. Also have a coloring book for elementary school children.

Prepared by Gayle Alston, ATSDR, February 5, 1994

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Adult Programs

Agency for Toxic Substances and Disease Registry

Division of Health Education

1600 Clifton Road MS E33

Atlanta, GA 30333

(404)639-6205

Case studies in environmental medicine;

Clues to unravelling the causes of environmental illness;

Cooperative agreements with 17 states to provide environmental health education to health care professionals.

Association of Occupational and Environmental Clinics

Edmund Kelly, Executive Director

1010 Vermont Avenue, Suite 513

Washington, DC 20005

(202)347-4976; FAX (202)347-4950

Environmental health

Association of State and Territorial Health Officials (ASTHO)

415 Second Street NE, Suite 200

Washington, DC 20002

(202)546-5400; FAX (202)544-9349

Contact: David Fischer, J.D., M.P.H.

Environmental health

National Association of County Health Officials

Heidi Klein

440 First Street NW, Suite 500

Washington, DC 20001

(202)783-5500

Environmental health

National Environmental Health Association

720 S. Colorado Boulevard, Suite 970

Denver, CO 80222

(303)756-9090

Computer based training courses:

"Fundamental Toxicology and Risk Assessment"

"*interAct*" - OSHA eight-hour refresher training

Prepared by Gayle Alston, ATSDR, November 15, 1994

Agency for Toxic Substances and Disease Registry's World-Wide Web (WWW) Server on the Internet

The Agency for Toxic Substances and Disease Registry (ATSDR), an agency of the Public Health Service in the U.S. Department of Health and Human Services, is now providing information to the public over the Internet through a World-Wide Web (WWW) server. The WWW server provides access to information about the Agency and people within the Agency. In addition, easy access to ATSDR's Hazardous Substance Release/Health Effects Database (HazDat) is provided through a sophisticated, forms-based user interface. The full text, with figures and tables, of the popular Public Health Statements from ATSDR's Toxicological Profiles, is also available with full text search and retrieval. In the future, more ATSDR publications and documents will be made available on the WWW server and HazDat will be expanded to include more data and information.

How to Access the Server

For anyone who already has access to WWW client software, the ATSDR WWW server may be reached by using the Uniform Resource Locator (URL):

<http://atsdr1.atsdr.cdc.gov:8080/atsdrhome.html>

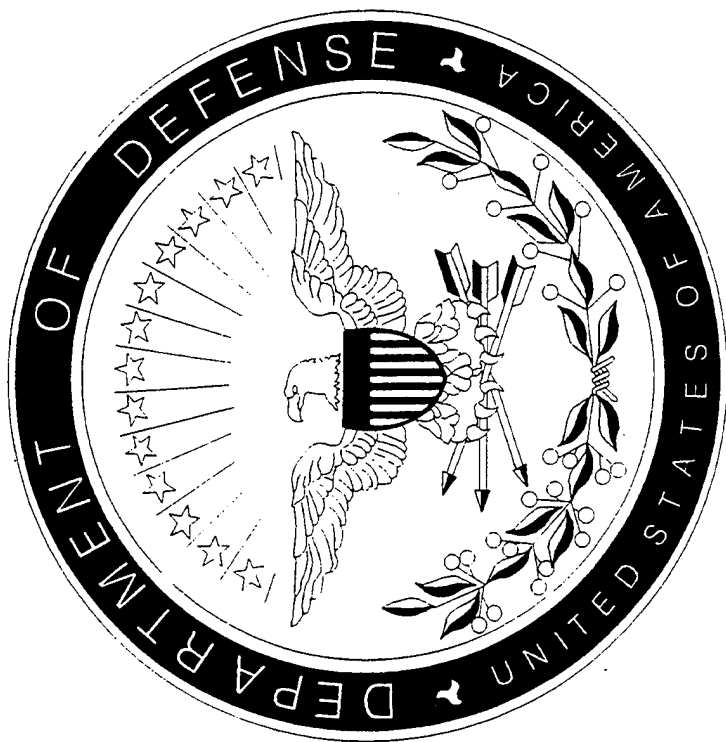
An excellent WWW client to use is **Mosaic** developed by the National Center for Supercomputing Applications (NCSA). Mosaic is available for Unix X-Windows, Macs, and Intel-based PCs running Windows. You can obtain any of these over the Internet by anonymous ftp (file transfer protocol) from **<ftp.ncsa.uiuc.edu>** in the **/Web directory**.

TECHNICAL LIBRARIES AND OSD: An STI Partnership.

Mr. Dave Appler, Office of Science Defense

Vugraphs only from Mr. Appler's presentation at the 38th Military Librarians Workshop, November 16, 1994.

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AN STI PARTNERSHIP

DEFENSE S&E COMMUNITY



DoD STI POLICY



DoD TECHNICAL LIBRARIES



Scientific and Technical Information Policy Office



ROLE OF A POLICY OFFICE:

- Advocate the functions
- Provide guidance and direction
- Emphasize goals and objectives



DoD STI POLICY

WHAT IS IT?

WHERE IS IT?

WHERE IS IT GOING?



DoD DIRECTIVE

3200.12



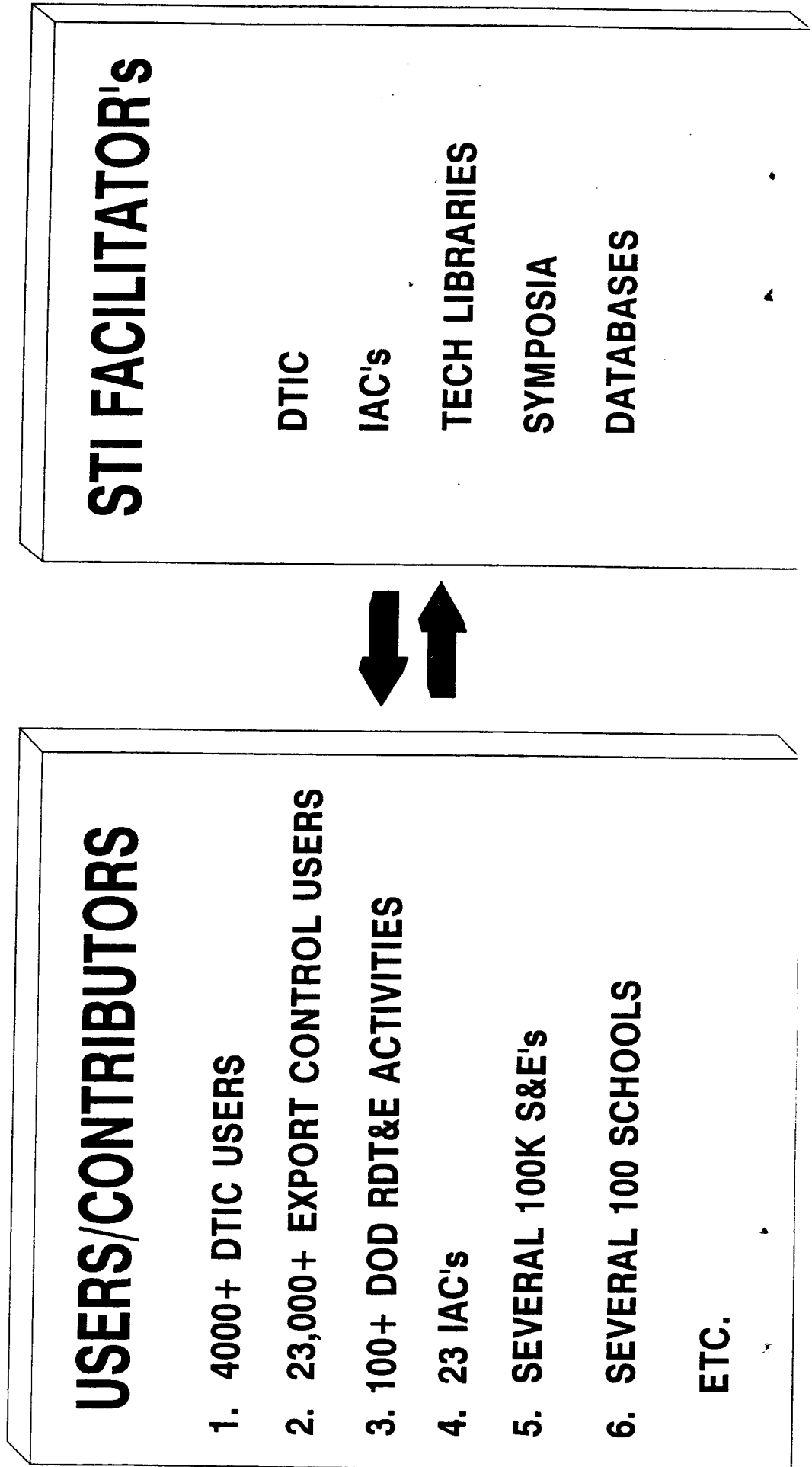
AUTHORITY AND RESPONSIBILITIES

- **DDR&E-OVERALL STI MANAGEMENT AND OVERSIGHT**
- **OSD PRINCIPLE STAFF ASSISTANTS HAVE OVERSIGHT AND GUIDANCE RESPONSIBILITIES FOR THEIR RESPECTIVE PROGRAM AREAS**
- **STI PROGRAM MEETS THEIR DEFINED NEEDS AND OBJECTIVES**
- **DoD COMPONENTS EXECUTE THE STI PROGRAM OBJECTIVES AND CONCEPTS**
- **STI SUPPORT ACTIVITIES FACILITATE EXECUTION OF THE STI PROGRAM CONCEPT AND SUPPORT THE ACQUISITION MISSION**



CONCEPTS

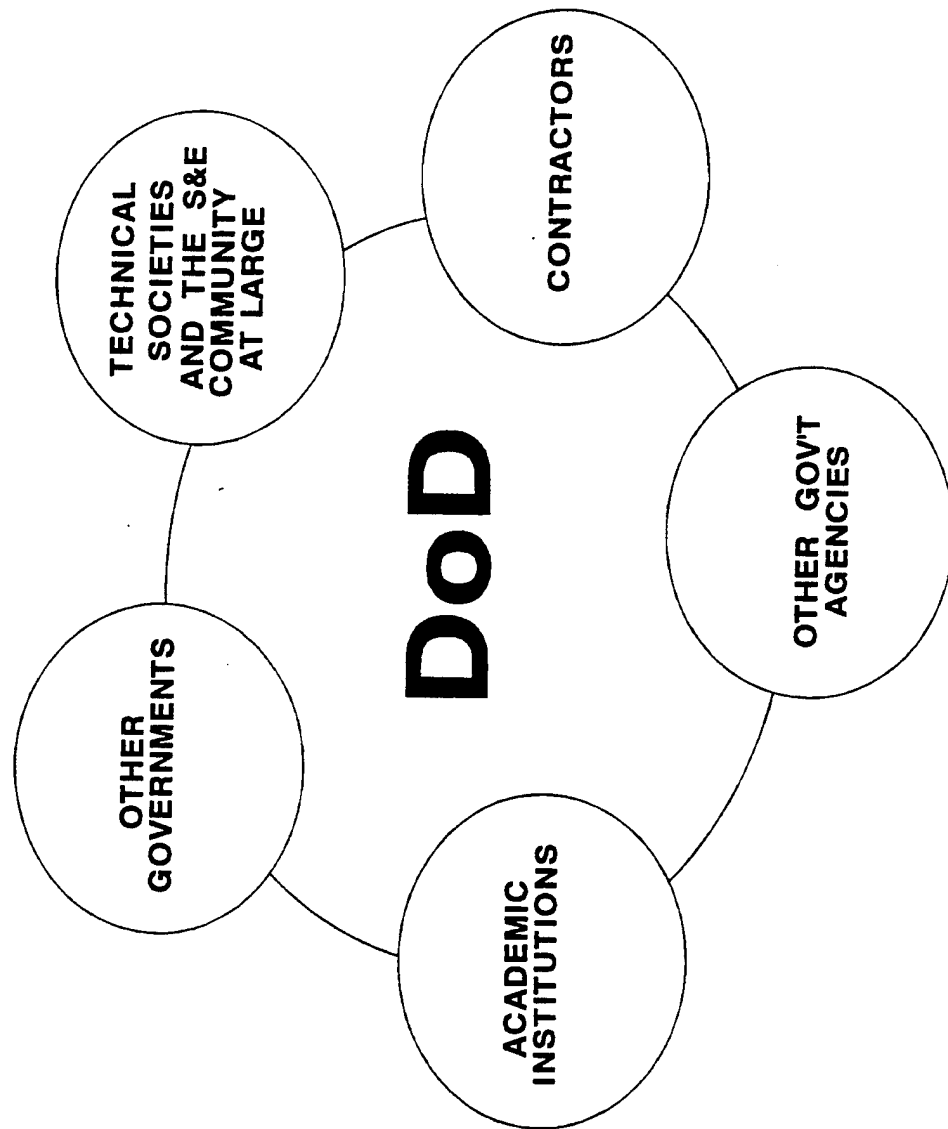
- DoD STIP IS A COORDINATED STRUCTURE OF GENERALLY DECENTRALIZED ACTIVITIES





DOD STI AUDIENCE

- ALL ORGANIZATIONS AND INDIVIDUALS THAT DOD NEEDS TO COMMUNICATE WITH IN ITS R&E AND STUDIES EFFORTS



**DoD STI Program promotes
maximum leveraging of the
DoD technology base.**

**Tell me what (one or two words)
best characterizes the role of the
DoD technical libraries in this
program objective?**

WHAT IS A GOOD SET OF STI PROGRAM FUNCTIONS FOR A DoD TECHNICAL LIBRARY?

REACH OUT TO THE USER COMMUNITY



WHAT DO DoD TECHNICAL LIBRARIES CONTRIBUTE TO THE DEFENSE ACQUISITION PROGRAM



- **LIBRARY AND INFORMATION SCIENCE SKILLS**
- **LIBRARY AND INFORMATION SCIENCE ABILITIES**
- **TECHNICAL LIBRARY ASSETS AND CAPABILITIES**

SOME INITIATIVES

FOOD FOR THOUGHT



- **INVENTORY AND
CHARACTERIZE THE UNIQUE
AND/OR PRE-EMINENT
HOLDINGS OF THE DoD
TECHNICAL LIBRARIES**



- **ESTABLISH GOALS AND OBJECTIVES TO EXPORT AND EXPLOIT THE DoD TECHNICAL LIBRARIES BEYOND THE CONFINES OF THE FACILITIES**



- **BUILD AND MAINTAIN A
WORKING UNDERSTANDING
OF THE TECHNOLOGY
PROGRAMS AND NEEDS THAT
THE TECHNICAL LIBRARIES
ARE TO SUPPORT**



- **DEVISE STRATEGIES TO
BROADEN WAYS IN WHICH
TO RESOURCE TECHNICAL
LIBRARY FUNCTIONS**



- **DEVELOP STRATEGIES FOR
DoD TECHNICAL LIBRARIES
TO TEAM OR PARTNER**

**Is this an attempt by DoD or
DTIC to take over the DoD
technical libraries?**

**I AM YOUR PROGRAM ADVOCATE:
HELP ME ADVOCATE YOUR
PROGRAM**

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Huntsville: Where Technology Meets Tradition

Presentation by **Melinda Gorham Joiner**, Author

38th Military Librarians Workshop
Huntsville, Alabama - November 16, 1994

It's been referred to as "a pearl in a bowl of grits" and the place where "the sky is NOT the limit." In the many articles that have been written about it in the last few years, Huntsville also has been referred to as the "sleepy little cotton mill town that became a high-tech mecca."

To those of us who live and work in Huntsville, those descriptions have pretty much become clichés. Clichés we're proud of yet take for granted in our day-to-day lives. That's why I'm pleased to be able to address you all today -- it gives me a chance to step back a little bit and realize and appreciate what a special city Huntsville is.

After I was called and asked to talk to you today, I was sent a form asking whether I'd need things like a VCR, an overhead projector, an easel, a CD-ROM drive and a slide projector. And I checked none of the above.

I figured that for 14 years I've been painting word pictures in my job as a writer and editor at the *Huntsville Times*. And I strived to convey the essence of the city in my book, *Huntsville-Where Technology Meets Tradition*, which was published last year. I figured I should be able to paint for you in words a picture of Huntsville.

Before we look back at the images of Huntsville's past, let's peek at a few recent snapshots of the city.

One of the most vivid and telling snapshots of Huntsville was provided by *U. S. News and World Report* in April of this year. The magazine did a cover story on America's Newest Boomtowns -- that is, places poised for explosive growth as former big-city residents migrate to them in search of higher quality of life and lower cost of living.

Among the seven cities of tomorrow was Huntsville. The article pointed out that Huntsville is considered a cosmopolitan Deep South city that even the cuts that have scarred the defense industry haven't affected

significantly. Huntsville's reputation as a progressive city with a promising future remains intact.

Another recent snapshot of the city's potential was provided by Cognetics, an economic research company, which deemed Huntsville the top entrepreneurial hot spot among 133 small metro areas in the United States.

Besides the defense and space industries in Huntsville, there are plants producing such goods as compact disks, rubber tires, automobiles and microwave ovens. That diversity gives Huntsville the largest concentration of durable manufacturing in the South, according to *U.S. News and World Report*.

A third important and vivid snapshot of Huntsville came last month with *Inc. Magazine* named the city the second hottest spot in the country for small business. The national business magazine ranked Huntsville right behind Boulder, Colorado, and just ahead of Tampa, Atlanta, Miami and San Francisco. You might also be interested to know Birmingham finished seventh. (And you thought the main thing Alabama produced was winning football teams.)

Local economists have speculated that the reasons for the growth of small business in Huntsville are twofold. One, there has been a considerable increase in the number of small companies doing business with the Army Missile Command and with NASA's Marshall Space Flight Center.

Second, it seems many workers who lost their jobs because of corporate restructuring in large aerospace and defense companies have gone out and started businesses themselves. A recent study showed there are 17,000 sole proprietorships in Madison County. That's considered much higher than other cities of similar size.

It should also be noted that the Chamber of Commerce of Huntsville and Madison County has put a lot of emphasis on small business development over the past few years by establishing a Small Business Development Center with the cooperation of the University of Alabama in Huntsville and Alabama A&M University. In the past year the center has helped more than 1,000 clients.

OK, I've convinced you -- I hope -- that Huntsville is a swell place to put down roots if you're a budding entrepreneur seeking success and good quality of life.

But how did Huntsville, which boasted the region's first cotton mill and cotton gin around the turn of the century and was dependent on cotton industries into the 1940s, become Silicon Valley South?

Well, World War II brought the beginning of an expansion and prosperity that forever changed the face of Huntsville and continues today.

In July 1941, the U.S. Army announced it would establish a chemical weapons manufacturing plant called Huntsville Arsenal southwest of the city. City officials were jubilant and sent clanging fire engines into the streets to distribute a special edition of the *Huntsville Times* declaring that the \$40 million plant was coming to Huntsville.

Shortly thereafter, the government announced Redstone Ordnance Plant would be built on land adjacent to Huntsville Arsenal. The plant, which produced artillery shells and conventional munitions, was soon renamed Redstone Arsenal.

In 1944, Huntsville business leaders formed an industrial expansion committee to make sure the growth wouldn't stop. In 1949, the Army announced its Ordnance Guided Missile Center would be established in Huntsville. And the next year, a team of rocket scientists came to Redstone Arsenal. That team of about 100 German scientists was led by Dr. Werhner Von Braun, the pioneer who would lead the country's space program.

The next two decades saw great progress in Huntsville. The Army Ballistic Missile Agency and NASA's Marshall Space Flight Center were activated in 1956 and 1960, respectively. With the establishment of Marshall, which was directed by Von Braun, some 4,000 civilian specialists transferred to Huntsville.

This time of technological growth was paralleled by changes in the social fabric of Huntsville. And thankfully, the city's progressive attitude toward business carried over into its attitude toward racial equality. The day after Governor George Wallace stood in a schoolhouse door to prevent blacks from entering the University of Alabama in Tuscaloosa in 1963, Dave McGlathery, a young black engineer, enrolled without fanfare at the University of Alabama in Huntsville.

And in Huntsville's tranquil social climate, business thrived. Milestone events included the opening of the U.S. Space & Rocket Center in 1970, the activation of the U. S. Army Strategic Defense Command in 1975, the opening of U.S. Space Camp and Space Academy in 1982, and the establishment of the Alabama Supercomputer Network in Cummings Research Park in 1988. In 1990, the U.S. Army Missile Command (or MICOM), which is located on Redstone Arsenal and manages such weapons systems as the Patriot and the Hellfire, was deemed the Army's most productive and best-managed research facility.

OK, I've talked a lot about defense and space programs, and those are the industries that have won Huntsville its high-tech reputation. But there's more to Huntsville than defense and space.

In the 1980s, Huntsville leaders launched an enthusiastic campaign to attract high-tech industries. By the middle of the decade, Huntsville ranked second to San Jose in the concentration of high-tech employees to total workforce.

The community has set the scene for more than fifty Fortune 500 companies, including Acustar, Rockwell International, and Boeing to establish offices in the city.

Among the gems in Huntsville's corporate crown are companies like SCI, which designs, manufactures and supplies state-of-the-art sub-systems for many military applications and produces electronic equipment systems for various commercial applications. The company has more than 10,000 workers worldwide and operates facilities in the United States, Mexico, Canada, Ireland, Scotland, Thailand and Singapore.

Another corporate star, Integraph, is the world's largest firm dedicated to designing, making, selling and supporting total interactive computer graphics systems. The company, which has offices in more than 40 countries, calls Huntsville home. It was started here in 1969 by five Huntsville engineers who formerly worked for IBM.

As Intergraph's corporate overview manual boasts, the company has systems made in Huntsville operating around the world. Those systems have helped design perfume bottles in France and laboratories in Germany, maintained phone lines in Spain, produced aircraft designs in Italy, managed urban development in Amsterdam, and improved productivity of farmers in Australia.

Besides the firms I've mentioned, Huntsville is a home to Teledyne Brown Engineering, Acustar, Dunlop Tires, Motorola, McDonnell Douglas, AVEX Electronics, and Adtran. And Disc Manufacturing is the world's largest independent manufacturer of laser-based recording products. No doubt you have some CDs in your collection that got their start here in Huntsville.

Dozens of businesses in Huntsville and Madison County are involved in importing and exporting. Among the major exports are rocket parts, farm equipment, tires, telephones, machine tools and cylinders.

And the foreign business community includes representatives of firms from Japan, Switzerland, Germany, Greece, Great Britain, and South Korea.

Huntsville is designated a Port of Entry with on-site customs officials and a Foreign Trade Zone. Because of its international cargo and cargo-transfer center, access to I-65 and a Tennessee River port, the city is becoming one of the most active foreign-trade centers in Alabama and the Southeast.

Containerized shipments may be processed by air, rail, and highway at the \$17 million International Intermodal Center at Huntsville International Airport. The city has access to the Tennessee River and the Norfolk Southern Railway. And, as you know, it's only a few hours drive to Nashville, Memphis and Atlanta.

By now you probably have some idea of what it's like to work in Huntsville, but what's it like to live here? Well, for the most part, the living is easy.

One measure of the quality of life in Huntsville and Madison County is the commitment to education. The city public school system, which serves some 25,000 students, boasts numerous state and regional awards for academic excellence, and recent data from the American College Test program show that many Huntsville students score above state and national averages on the standardized test.

The city's commitment to education also manifests itself in a Magnet program spanning kindergarten through 12th grade. The four schools offering specialized programs are the Academy for Science and Foreign Language, the Academy for Academics and Arts, an International

Education Magnet Program, and a Creative and Performing Arts and Pre-engineering center.

Higher education in Huntsville is plentiful and takes many forms -- ranging from technical schools to community colleges to universities.

Established in 1875, Alabama A&M University is one of the oldest institutions of higher learning in the area. And its beautiful hillside campus in the Normal community is one of the city's time-honored landmarks.

Oakwood College, a liberal arts Seventh-Day Adventist institution, attracts students from some 40 states and 36 foreign countries.

And the University of Alabama in Huntsville has been ranked consistently among the best regional universities by *U.S. News and World Report* magazine.

Besides quality education, Huntsville also offers plentiful medical care and abundant recreation.

Ditto Landing on the Tennessee River is a haven for catfish, bass and crappie fishermen, boaters and barbecuers.

Hunters also have resources closeby. North Alabama is recognized as a prime spot for dove and quail hunting, and the State Department of Conservation oversees 27 game-management areas containing more than 620,000 acres.

Among the area's parks is Monte Sano State Park, which features hiking trails, rustic cabins and the Von Braun Astronomical Society Observatory and Planetarium.

One of the newest additions to the recreation scene in Huntsville is the Hampton Cove Golf Course, a Robert Trent Jones design built on 630 acres in a natural cove surrounded by the mountains.

And the city's time-honored recreation attraction continues to be Big Spring International Park which has been part of the city's recreation life since 1843. The downtown park, which is located between the Von Braun Civic Center and Huntsville's historic downtown area, is the site of the annual Panoply arts festival each spring and the Big Spring Jam music festival each fall.

And during the rest of the year, you can find families toting bread and popcorn to the park to feed the ducks and fish. The park is also a popular spot for runners, walkers, students and courting couples.

In the warm months, fans enjoy taking it out to the ballgame to see the Huntsville Stars, the city's Double-A professional team. And in cooler weather sports enthusiasts enjoy taking in the games of the UAH Charger hockey team.

There's also a motor speedway for NASCAR fans, a Botanical Garden for environmentalists, Alabama's Constitution Village for historians, a depot museum for train fans, and Harrison's old-fashioned hardware store for nostalgia seekers. Huntsville also boasts Burritt Museum, Twickenham historic residential district, a new \$8 million library, numerous shopping centers and malls, and restaurants that serve everything from catfish to sushi.

The U.S. Space and Rocket Center and U.S. Space Academy programs are set up to encourage youths to study math and science by letting them take part in astronaut-training activities, simulated space missions and high-tech programs.

Billed as "earth's largest space museum," the Space and Rocket Center is Alabama's top tourist attraction and the showplace of the United States space program. The museum contains a full-scale space shuttle exhibit and a comprehensive collection of rocketry.

Recent visitors to the Space Center include Chelsea Clinton, director Ron Howard and actor Tom Hanks.

The Von Braun Civic Center hosts many events each year, and many celebrities grace the Civic Center stage each year. Consider that in the month of November alone, the Civic Center has hosted or will host such diverse entertainment events as "Sesame Street Live," Southern Living Cooking School, and concerts by Stephen Curtis Chapman, Brooks & Dunn, the Allman Brothers and Michael Bolton.

The arts play a primary role in Huntsville's quality of life. The community has five major theater groups, a symphony orchestra, an art museum, an opera theater, a chamber music guild and a community chorus.

So, as you can see, the residents of Huntsville and Madison County -- which the Census Bureau places at about 160,000 and 240,000, respectively -- don't ever have to be bored.

I've given you all these facts and figures about Huntsville and its stellar reputation, but here, if I may add a little unofficial personal reflection, is what makes Huntsville a boomtown and a city of the future.

The city has a certain air of diversity and tolerance for new ideas and different lifestyles. And with its Old South gentility and its Space Age outlook, it combines the best of two worlds. There's progressiveness and politeness, a sense of history, and a vision for the future. And the most inviting characteristic of all -- there's a delicious feeling that tomorrow holds all kinds of possibilities.

Thank you, and good afternoon. Y'all come back to see us soon!

SILENT IN THE LAND

Presentation by **Chip Cooper** and **Harry Knopke**

38th Military Librarians Workshop
Huntsville, Alabama - November 16, 1994

Silent in the Land is a unique depiction of the major styles and periods of Southern architecture. With photographs by artist Chip Cooper and essays by Harry Knopke and Robert Gamble, the book's visual and written images provide impressionistic comments on the 19th century southern landscape viewed through the prism of time.

Featuring 60 houses, *Silent in the Land* is an artistic and historical guide to houses as diverse as simple dogtrots and elegant Palladian mansions, it captures each house as it resides in its setting, sometimes calling the eye to a small detail that delights because of its idiosyncrasy. Essays accompanying the photographs provide new insights through interviews with descendants, owners, or neighbors of each house, as well as through archival research. The historical context for the artistic treatment is established in the introduction and is completed in the descriptive, black-and-white pictorial appendix.

This is a book with an urgent message: there are elegant homes, lovingly maintained, some painstakingly restored, there are wasting structures that face slow disintegration through neglect and indifference. *Silent in the Land* bridges both worlds, showing the grandeur of one and the fragility of the other. By compelling us to look anew at old, familiar structures it gives a vivid call to action for preserving a proud architectural heritage.

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PARTNERSHIPS FOR UNIVERSITIES AND GOVERNMENT LIBRARIES

An Alabama Model

Paper presented to the 38th Military Librarians Workshop
Huntsville, Alabama - November 16, 1994

James R. Kuhlman

Associate Dean of Libraries for
Collections and Information Services
The University of Alabama

ABSTRACT

Nurtured for the last ten years under the umbrella of the Network of Alabama Academic Libraries (NAAL), university, college, and military libraries in our state have recorded an enviable history of cooperation and resource sharing. Building upon that success and an expanding computing/communication infrastructure, NAAL is embarking on the creation of a true, state-wide virtual science and engineering library. Initially this conceptual entity will embrace military libraries as well as the state's major university collections and will incorporate shared access to electronic databases, joint collection management, enhanced resource sharing, and unified access to commercially vended and electronic texts. This paper presents early thinking on one possible model offered for revision and improvement.

Partnerships for Universities and Government Libraries
An Alabama Model¹

I. The Culture of Cooperation

Librarians in the United States have long recognized that meeting all the myriad information needs of their respective clientele required sharing resources. Long ago we also appreciated the economics of scale inherent in shared services and processes.

Resource sharing pre-dated even the birth of the republic when in 1754 the president of Yale borrowed a book from the Harvard library to record the first known interlibrary loan among U.S. colleges.² A couple of centuries and several technologies later OCLC (Ohio Online Computer Library Center) immeasurably enhanced global resource sharing among libraries of all types with the implementation of its interlibrary loan (ILL) subsystem, an almost ideal marriage of computer records indicating where books, journals, microforms, and archival materials could be found with an automated system of transmitting requests for those items. By 1984, the OCLC ILL subsystem had logged its five-millionth transaction. In fiscal 1991/92 alone this subsystem sped more than 6,000,000 items owned by one library to meet the information needs of people served by another.³

A long history of shared services preceded the massive OCLC computer database of catalog records undergirding today's electronic interlibrary loan. As early as 1878 the American Library Association proposed a cooperative plan for centralized cataloging to be administered by Publisher's Weekly.⁴ This lasted about a year. By 1901, however, the Library of Congress began its own centralized cataloging service which ultimately evolved into the multi-volume National Union Catalog providing locations of holding libraries.⁵ Beginning with 54 libraries in 1972, OCLC began building its computer database of catalog records with input from the Library of Congress as well as member libraries. By fiscal year 1991/92, this database had grown to 24,837,459 bibliographic records with 444 million location listings supporting the shared cataloging and interlibrary loan activities of more than 15,000 libraries worldwide.

In addition to participating in shared cataloging and interlibrary loan of OCLC through the Southeastern Libraries Network (SOLINET), the twenty-eight academic, military, and research libraries in Alabama have offered their constituencies great benefits derived from the cooperative efforts of the Network of Alabama Academic Libraries (NAAL). Established in 1984 to coordinate and promote the sharing of library resources among academic institutions in Alabama that offer graduate education, NAAL has fostered the conversion of paper bibliographic records to machine readable form, greatly enhanced the speed and efficiency of interlibrary loan services (some 27,413 items borrowed July 1, 1993 - June 30, 1994),⁶ awarded over \$3.7 million to member institutions to assist with the purchase of graduate level materials, supported continuing education, and offered grants to advance automation projects.

With a track record of successful cooperation and a computing/communication infrastructure based on Z39.50 compatible systems connected via the Internet, NAAL and its constituent libraries, including the Air University and the Redstone Scientific Information Center, are poised at the beginning of an exciting new era of cooperation.

II. NAAL Linking Project

Funded partially by a U.S. Office of Education Title II-D grant, NAAL is currently implementing a plan entitled "Linking Automated Library Systems in the Network of Alabama Academic Libraries." This ambitious project will "...establish a statewide online library network enabling students, faculty, other researchers, and ultimately, any citizen to access academic resources throughout the state." NAAL has purchased and several institutions installed Ameritech Library Services' (formerly NOTIS) PACLink software. Library clients at institutions with the PACLink software can, via Internet connections, search the online catalogs at other institutions with PACLink. PACLink makes it possible to use the same terminals or personal computers used to search the local online catalog and using the same search structure and commands. At the time of writing NAAL has successfully linked library catalogs at Auburn, the University of Alabama (UA), the University of Alabama--Birmingham (UAB), and the University of South Alabama (USA). When completed "...NAAL's linked network will offer the sophisticated searching capabilities (Boolean logic along with author, title, subject, and keyword searching) of local systems for 84 percent of the state's academic library resources."⁸ While implementation of the linking project has extended NAAL's record of cooperation on the formal plane, rare inter-institutional cooperation nurtured by years of NAAL successes has allowed us to move rapidly and informally in another area.

III. InfoShare

One of the more exciting library software products to hit the market in the last several years is NOTIS' InfoShare. Running a Z39-50 client-server architecture on a Unix platform, this software offers OPAC access to bibliographic and full-text databases with several significant advantages. Storage is relatively inexpensive--less than \$2,000 a gigabyte at current prices. Database licenses for this product unusually run at about the same price as the equivalent networked CD. The same search engine library patrons are accustomed to using to search on the online catalog (in the case of NOTIS libraries) is used to search all bibliographic files mounted on InfoShare, regardless of producer. And,

for a library with its catalog running on a NOTIS platform and with machine-readable holdings information of its serials, InfoShare provides a direct link from bibliographic citation in a commercial database (e.g., Compendex) to ownership, call number, location, and volume holdings in the local library.

These advantages have led several, including the three largest, academic libraries in Alabama to install InfoShare. Another rather remarkable feature resulting from the combination of Z39.50 compatibility, the link to holdings, and Internet interconnectivity has greatly enhanced our ability to share resources.

With the permission of vendors and within provisions of the corresponding license agreements, OPAC users at one institution can search an index at another InfoShare institution and not be able to tell that that database is not mounted locally. For example, library patrons at the University of Alabama in Tuscaloosa currently may select from four bibliographic files in addition to our catalog. Expanded Academic Index is mounted on the Unix platform in our computer center. ERIC and PsychINFO are mounted at the University of Alabama--Birmingham. ABI/Inform is loaded at Auburn. Access to these databases is purely transparent. There is no difference in how each is selected or how they are searched. When a patron identifies a citation of interest, the holdings information (i.e., whether owned, call number, location, and actual volumes held) presented is for the University of Alabama in Tuscaloosa, regardless of the location of the database. And there are SIGNIFICANT cost savings in making a file mounted in one location available to multiple sites. The host provides storage, typically pays a higher license fee, and, for the present, pays Ameritech a database processing fee which may be as much as the license, itself. Additional sites avoid storage, often pay a discounted license fee, and eliminate their InfoShare processing fee.

This arrangement has evolved in a spirit of cooperation and trust, seeking the greatest benefit to the state of Alabama at the least cost. By January 1995, University of South Alabama students and faculty will access Expanded Academic Index mounted at the University of Alabama in Tuscaloosa as if it were in Mobile. Also by January 1995, the University of Alabama will mount and offer to other institutions, including Redstone and the Air University, Compendex. But there is a problem.

Even with good will and the best of intentions, inequities appear inherent in the current arrangement. Hosts bear a greater financial burden for each file (see, for example, UA, Table I below). So far, faith

has led us to accept that those burdens will even out in spite of the observable fact that the degree of burden varies by database. Experience teaches that unrealized faith leads eventually to conflict.

In addition, the current, informal relationship results in an exclusivity of relative wealth. Participants to date include the three largest public universities in Alabama: Auburn, the University of Alabama, and the University of Alabama--Birmingham. The fourth largest, the University of South Alabama, will soon join. The state's remaining four-year institutions, junior colleges, and post-secondary technical schools largely cannot afford the ante: the believable prospect of bearing the disproportionate overhead of a host site.

IV. The End of "Cooperation"

NAAL sponsored retrospective conversion, enhanced interlibrary loan, further development of instructional and research collections, the catalog linking project, and the highly collegial shared access to databases have done much for higher education, research, and industrial development that, frankly speaking, Alabama lacked the resources to accomplish otherwise. Each of these initiatives was based upon the commitment to improve the collections at member institutions while enhancing state-wide access to those resources. Let me emphasize a key point. Until now, NAAL and its members have built and improved access to INDIVIDUAL collections--always with the development of the whole carefully in sight, but INDIVIDUAL collections, nevertheless. This conceptual framework may have taken us about as far as we can go.

It is by now axiomatic that the future of scientific, technical, and medical (STM) serial literature in combination with, at best, "stagflating" budgets presents academic, research, and military librarians with our most daunting challenge. Prices continue to inflate, publishing proliferates, and our customers expect quicker delivery of more of what is available.

NAAL, created expressly to expand Alabama's information base rather than to relieve institutions of the responsibility to provide basic resources, has rigorously avoided funding current serial subscriptions. This and similar policies complement the development of individual collections to benefit the whole, and work very well in periods of institutional growth or even budgetary stasis. However, retrenchment at the institutional level may combine with such policies to wreak havoc on the whole.

Within the last three years Auburn University has canceled approximately \$600,000 in current serial subscriptions; the University of Alabama some \$225,000. Just this past summer the University of Alabama--Birmingham reviewed all serials costing more than \$1,000 a year in order to cancel subscriptions totalling some \$100,000. Without an unexpected windfall of scarce continuing dollars, the University of Alabama Libraries WILL cancel more than \$650,000 in current serials effective January 1996. This is out of a fiscal 1995 serials budget of only \$2.1 million, nearly 60% of which supports science and engineering programs. STM titles will comprise at least \$400,000, or 62%.

The combined negative impact of these events on academics and research in Alabama cannot be adequately described, perhaps not even meaningfully estimated. Each university has or will inform the others of canceled titles, after the fact. To date, we have neither consulted each other nor coordinated our coverage. The impact on military libraries, four-year and two-year schools, and industrial development is very real, but not an active consideration in the decision to cancel.

As good as we've been about it, "cooperation" in the sense we've understood it, can take us no further. The next stage of development appears to lie amid the hyperbole and ambiguity of the virtual library.

V. The Alabama Virtual Science and Engineering Library

In Alabama, the stage is set. Effective cooperation is in place along with the understanding and trust that implies. The state already appropriates funds to state-wide, academic library cooperation through NAAL--more is certainly needed, but the budget line at least exists. Internet interconnectivity, institutional computer system compatibility, and the sharing of databases are functioning realities. The continually increasing cost of STM serials combined with budget limitations leading to inevitable cancellations provide a compelling impetus to further development. Cost advantages and functionality make a true virtual library for science and engineering too good an opportunity to pass up.

Compendex is arguably the next logical bibliographic file to mount for informal, shared access. At least eight academic institutions in the state offer engineering degree programs including graduate degrees at Auburn, the University of Alabama, the University of Alabama--Birmingham, the University of Alabama--Huntsville (UAH), and the University of South Alabama. This machine-readable, fully abstracted

version of the venerable Engineering Index covers more than 2,600 journals, conference proceedings, and technical reports with some 170,000 new citations annually. For ten representative NAAL institutions, the continuing, total cost of providing access to Compendex at current prices would be approximately \$141,000 a year. Due to consortium price incentives and savings in InfoShare processing fees, the continuing, total cost of accessing Compendex in a shared-access, InfoShare environment would be only \$70,260 a year (see Appendix A, Exhibits A and B for detailed calculations used to derive Table I)—a savings to the citizens of Alabama of approximately \$70,000 a year, EVERY YEAR.

Table 1

Continuing Costs of Mounting Compendex Plus Comparison of Individual and Consortium Totals		
Institution	Total Compendex Individual Institu- tions	Total Compen- dex Consortium
A&M	11,382	3,590
ASU	11,382	3,590
AU	20,450	8,890
JSU	11,382	5,890
REDSTONE	11,382	3,590
TUSKEGEE	11,382	3,590
UA (host)	20,450	20,450
UAB	20,450	8,890
UAH	11,382	5,890
USA	11,382	5,890
TOTAL	141,024	70,260

However, shared InfoShare access to Compendex offers an even more valuable opportunity. Engineering Information, Inc. (Ei) makes copyright cleared, page-image, full-text articles from all publications indexed in Compendex available through the document delivery company Article Express. The vendor claims that some 90% of requests (which the

company prefers to receive electronically) are shipped within twenty-four hours (customer choice of U.S. mail, fax, or scanned image via the Internet). The base fee for mail or Internet delivered article is \$9.50. An additional copyright fee varies depending upon the charge imposed by the copyright owner. Article Express publishes volume discounts for deposit accounts. 5% off the base price for a \$1,000 deposit account; 10% off for a \$3,000 deposit account. The University of Alabama contemplates a deposit account exceeding \$80,000, annually.

Article Express deposit accounts combined with InfoShare access to Compendex offers, for perhaps the first time, an affordable, functional ability to rely largely on access to supply the vast preponderance of serial information in engineering and technology related disciplines. And, this applies equally to all the academic institutions in the state as well as to Redstone and the Air University. In fact, if one of the major engineering collections opts for this "just-in-time" approach and cancels paper subscriptions accordingly, all other institutions in the state which have come to rely upon those hard-copy subscriptions will feel the effects.

Shared accessibility to Compendex and possible reliance upon the on-demand delivery of cited articles via Article Express would appear to mitigate the negative effects of canceling at least one category of technical serial. On the other hand, this solution leaves several, significant questions begging. What titles should be retained in the state in hard-copy so that we do not develop too great a dependence on a single commercial vendor? What affect can we expect from changing license agreements? What about copyright? What about other disciplines? After all, most of our libraries may be encountering their most severe budget squeezes in chemistry, biology, or medicine? How might we make this and other solutions accessible to the smaller academic libraries in the state? K-12? After all, many libraries have come to rely upon collections at the University of Alabama, Auburn, UAB, UAH, or the University of South Alabama to supplement frighteningly sparse serial holdings.

The proposed Alabama Virtual Science and Engineering Library is actually more a holistic, conceptual entity than a computing/communication technological solution. Computing/communications technology is a functional prerequisite and a skeleton on which to build. The full structure must, first of all, provide the framework for our libraries to move beyond the definition of cooperation as a linking of individual collections and services to form a more powerful whole. I would suggest that we must conceptualize our collections, staffs,

technologies, and services as part of a single, "virtual" library which materializes in various locations to meet the teaching, research, and service needs of Alabama. I believe this alternative viewpoint produces outcomes more attuned to the realities of our changing environment. It will also produce an infrastructure capable of making vast information resources available to junior colleges, technical schools, and the K-12 educational system at incremental costs which are a small fraction of their value.

As a first step, a planning and implementation team, ideally formed within the existing structure of NAAL, would begin as quickly as possible to explore the many ramifications of the virtual science and engineering library, outline states of development, and provide guidance through an inevitably rapid, perhaps radical, evolution. Functioning as an executive committee of the virtual science and engineering library this team would report to the NAAL Executive and Advisory Councils and would create subordinate teams to address particular issues. While I don't want to imply any limitation of these issues, they would certainly include:

- *determining how the Compendex/Article Express collection of 2,600 titles related to the core needs of NAAL and its members;

- *enhancing document delivery technologies to ensure rapid, cost-effective delivery of images with sufficient resolution to meet the needs of scientists and engineers (e.g., Ariel);

- *determining which serial titles should be retained in hard-copy and to develop a method to determine the most advantageous location;

- *working closely with the NAAL Planning Committee, Executive Council, and Advisory Council to secure additional funding from the state, foundations, and federal sources;

- *exploring opportunities to include additional materials in the initial phase of the project including government publications, machine-readable versions of engineering standards, and machine-readable texts of standard resources such as CRC handbooks;

and

- *early inclusion of professionals from other sectors of the Alabama information community.

VI. In the fine tradition of writers through the ages, I'll conclude by stating the obvious. I don't know and have not presented here all the answers. In these comments I've attempted to suggest an opportunity which seems readily at hand: an opportunity which seems to offer some prospect of mitigating the information quagmire most academic and research libraries find themselves in today. I believe the virtual library presents a solution: partly technological, but mostly one of concept and will.

Appendix A

Exhibit A

Individual Science & Engineering Collections Schedule of Costs -- Continuing				
Institution	Compendex Plus ¹	Usage Fee ²	NOTIS	TOTAL
A&M	11,382	0	0	11,382
ASU	11,382	0	0	11,382
AU	6,950	7,500	6,000	20,450
JSU	11,382	0	0	11,382
REDSTONE	11,382	0	0	11,382
TUSKEGEE	11,382	0	0	11,382
UA	6,950	7,500	6,000	20,450
UAB	6,950	7,500	6,000	20,450
UAH	11,382	0	0	11,382
USA	11,382	0	0	11,382
TOTAL	100,524	22,500	18,000	141,024

¹Monthly. Current plus 1 back year. AU, UA, and UAB pay 100% of database fee to mount COMPENDEX on InfoShare. All other institutions calculated using networked CD-ROM version for up to 10 simultaneous users and remote access.

²AU, UA, and UAB up to 5,000 users at \$1,500 X (no. of yrs held). For all institutions, cost calculated at maximum charge for 5 years of database held.

Exhibit B

Alabama Virtual Science & Engineering Library, Phase I -- Illustration Schedule of Costs -- Continuing				
Institution	Compendex Plus ³	Usage Fee ⁴	NOTIS	TOTAL
A&M	1,390	2,200	0	3,590
ASU	1,390	2,200	0	3,590
AU	1,390	7,500	0	8,890
JSU	1,390	4,500	0	5,890
REDSTONE	1,390	2,200	0	3,590
TUSKEGEE	1,390	2,200	0	3,590
UA (host)	6,950	7,500	6,000	20,450
UAB	1,390	7,500	0	8,890
UAH	1,390	4,500	0	5,890
USA	1,390	4,500	0	5,890
TOTAL	19,460	44,800	6,000	70,260

³ Monthly. Current plus 1 back year. UA pays 100% of database fee, each additional member pays 20% of host database fee.

⁴ AU, UA, and UAB up to 5,000 users at \$1,500 X (no. of yrs held). JSU, UAH, and USA calculated at up to 2,500 users each at \$900 X (no. of yrs held). A&M, ASU, Redstone, and Tuskegee calculated for up to 1,000 users at \$440 X (no. of yrs held). For all institutions, cost calculated at maximum charge for 5 years of database held.

Notes

1. Portions of this paper appear in the fall 1994 issue of The University of Alabama Libraries' newsletter Library Horizons under the title "Computers and Communication: A Tale of Library Cooperation," (Library Horizons, 8 (Fall 1994)): 1-3.
2. Josephine Metcalfe Smith, A Chronology of Librarianship (Metuchen, N. J.: Scarecrow, 1968), p. 73.
3. Various OCLC annual reports.
4. Smith, A Chronology of Librarianship, p. 115.
5. Smith, Chronology of Librarianship, p. 130.
6. Network of Alabama Academic Libraries, "Resource Sharing Program: July 1, 1993 - June 30, 1994." (Montgomery, AL: Network of Alabama Academic Libraries, 1994).
7. Network of Alabama Academic Libraries, "Linking Automated Library Systems in the Network of Alabama Academic Libraries." (Montgomery, AL: Network of Alabama Academic Libraries, 1992).
8. Ibid.

LABLINK/Minerva

Ms. Margaret Brautigam, DTIC

Vugraphs only from Ms. Brautigam's presentation at the 38th Military Librarians Workshop, November 16, 1994.

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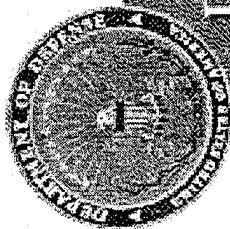
LABLINK HOME PAGE

Universal Resource Locator - URL

<http://www.dtic.dla.mil/lablink>

HTML Developer: Margaret Brautigam

mbrautig@dgis.dtic.dla.mil



Director, Defense Research and Engineering World Wide Web Server

LABLINK Home Page

Welcome to LABLINK, the World Wide Web Home Page of the Office of the Deputy Director Defense Research and Engineering for Laboratory Management (DDDR&E(LM)).

- [DDRE&E, Dr. Anita Jones](#)
- [More about DDDR&E\(LM\)](#)
- [DDRE&E\(LM\) Lab Projects](#)
- [Lab FAQs](#)
- [What's New](#)
- [LARNOTES](#) - Timely notices of general interest
- [LABLINK Areas of Interest](#) - links to Internet resources

LABLINK AREAS OF INTEREST

DDR&E LABORATORY MANAGEMENT
DEFENSE & FEDERAL LABORATORIES

INDUSTRIAL & ACADEMIC RESOURCES
INTERNATIONAL SCIENCE & TECHNOLOGY

POLICY ISSUES
LEGISLATION
STUDIES & ANALYSIS
NEWS SERVICES
PROCUREMENT - EC/EDI

MODELING & SIMULATION
HIGH PERFORMANCE COMPUTING
INFORMATION TECHNOLOGY
INTERNET
OTHER

LABLINK Home Page

DDR&E(LM) LAB MANAGEMENT PROJECTS

Projects

[DoD Interim Response to NCSTPRD-1](#)

[Base Realignment & Closure 1995 - BRAC 95](#)

[Laboratory Information Infrastructure - LII](#)

[Defense Science Board Task Force on Lab Management - DSB-LM](#)

[DSB-LM Interim Report](#)

[Laboratory Quality Improvement Program - LQIP](#)

[LQIP Charter](#)

[Laboratory Infrastructure Capabilities Study - LICs](#)

[LICs Panels - Membership](#)

[LICs Panels - Briefing2](#)

Analysis Tools

[Resource Toolkit](#)

Databases and information resources useful for management analysis

[LABLINK Areas of Interest](#)

[LABLINK Home Page](#)

Meeting User Needs

◆ MOSAIC

- Easy to use
- Multimedia
- Rapid development tool
- Delivery tool of choice

◆ OmniPort

- Tool to allow cross network access

◆ Multi Level Secure System

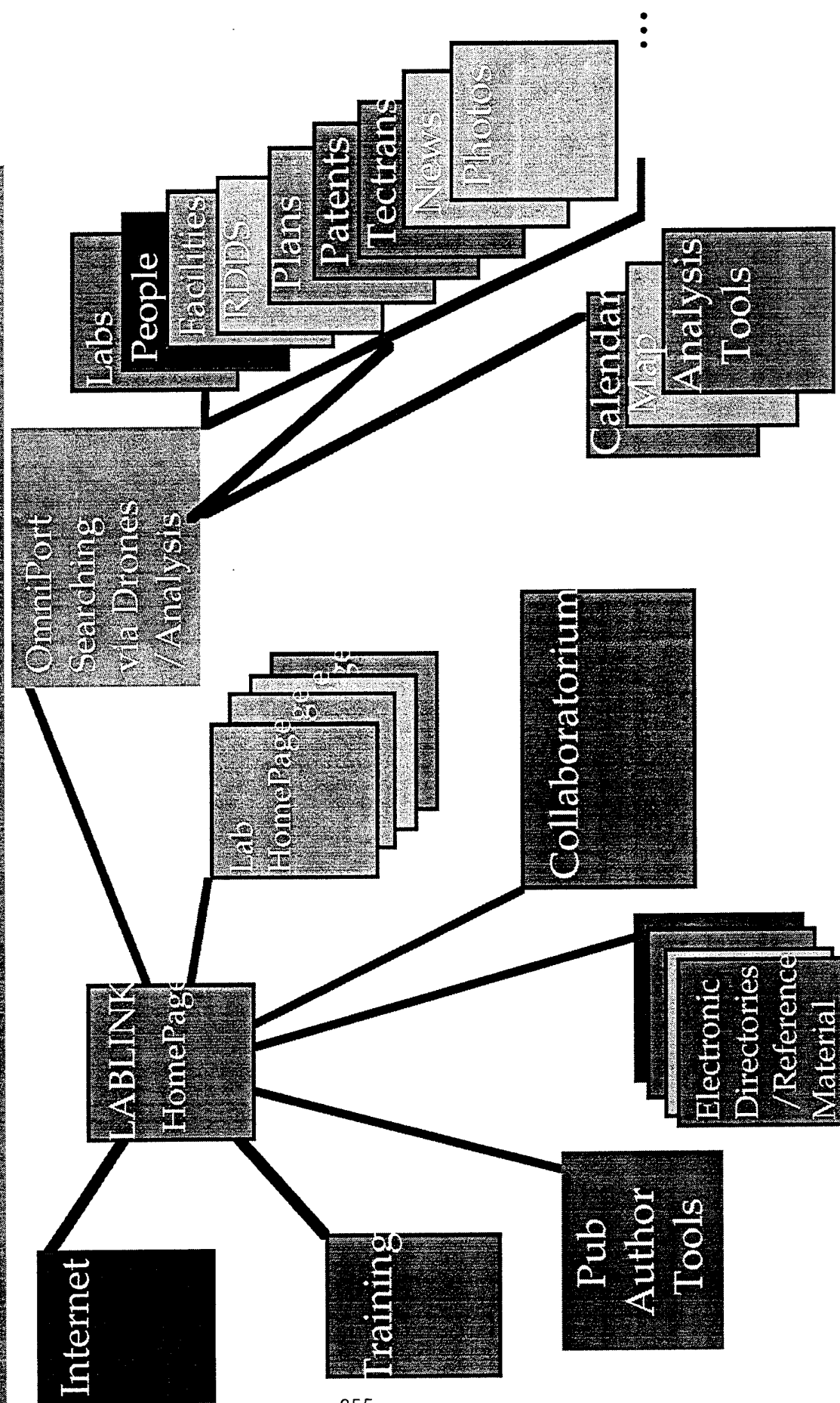
- Data manipulation/understanding
- Protection of information
- Access to all relevant information sources

DDR&E (Laboratory Management) Requirements for LABLINK/OmniPort

- ◆ 1 Oct 1994 - LABLINK released for public access.
- ◆ Provide an interactive capability for 81 DoD labs:
 - exchange information and data with DDR&E
 - exchange & share data among the labs
 - file upload/download
- ◆ Ability to search seamlessly heterogeneous geographically-dispersed information sources
 - single user interface accessed through LABLINK
- ◆ Utilizes multiple data formats including:
 - text, graphics, spreadsheets, images, etc.
- ◆ Provide post-retrieval analysis tools
- ◆ Provide “virtual collaboratorium”
 - virtual real time sessions with multiple labs

LabLink Homepage

-- Cross Network Searching



DDDR&E, Lab Management Lab Information Infrastructure

- ◆ Invites and Encourages:
- ◆ DoD Lab Librarians to “go MOSAIC”
 - Develop WWW Home Pages
 - Use Email Forms on Home Pages
 - Develop Public Access Catalogs
 - Publish electronic documents
 - Use the Internet tools
- ◆ Link your Home Page to LABLINK
- ◆ Connect LABLINK to your Home Page

Model Lab Home Page Concept

Required Now - Extra Credit

◆Outreach

- Event schedule
 - » Seminars
 - » Colloquia
- Solicitations
 - » RFPs
 - » BAAs
- Partnerships
 - » CRDA's
 - » Other Agreements
- Visitors & Newcomers Info

Model Lab Home Page Concept

Required Now - Extra Credit

- ◆Interactive Organization Chart
 - ORG Chart w/links to People/facilities
 - Directorates w/links to org chart/people
- ◆Interactive Base Map
 - Base Map w/links to Facilities
- ◆Mission
 - Mission Statement
- ◆Current Important Programs
 - Program 1
 - » Program description or Descriptive summary
- ◆Facilities
 - Link to Base Map w/ Facilities Marked
 - Facilities by Name w/ brief description
 - Key Capabilities

Model Lab Home Page Concept

Required Now - Extra Credit

◆Equipment

- Item name/brief description
- Availability for use by others
 - » “How to” section for those interested in access and use of this equipment

◆Research Library

- Description
- Access Methods

◆Funding Data

- RDT&E Activities Report Data
- Yellow Pages of Scientists/Engineers/Others

◆Space and Property

◆Mailbox - “How to communicate with us”

Getting Started: MOSAIC

- ◆ Use your DoD site resources
 - visit your Communications/Computer folks
 - ask for TCP/IP connectivity
 - tell them you want to use MOSAIC applications
 - find out if you can get a T1 line or the next best
 - find out if you need modem or lan/wan connections
- ◆ Use the “pocket guide” to ftp sites for freeware
 - download - ftp NCSA MOSAIC or NETSCAPE
 - download HTML authoring tools
- ◆ Use the WWW sites in the handouts
 - guides to HTML home page development
 - guides to URLs
 - style guides

Current:

Guided Tour

What's New?

Questions

Net Search

Net Directory

Newsgroups

EASY HTML Writer

Hi! Welcome to Easy HTML, a forms based HTML document creation system. Easy HTML lets you create simple HTML documents using the forms capability of Mosaic. Simply follow the prompts and fill in text as you go along. When each section is complete, Easy HTML displays that section as it will look when viewed by Mosaic.

[Introduction to Easy HTML](#)

Please take a moment to leave comments about [Easy HTML](#)

Read the [Easy HTML FAQ](#) if you have any questions.

Fill out the following information and click on **BEGIN** to begin editing your document.

Your name:

Document title:

Some World-Wide Web server software

For more detailed lists, see:

<http://info.cern.ch/hypertext/WWW/Daemon/Overview.html>

or

http://sunsite.unc.edu/boutell/faq/www_faq.html

UNIX WWW servers

CERN server

<http://info.cern.ch/hypertext/WWW/Daemon/Status.html>

<ftp://www0.cern.ch/pub/www/src/WWWDaemon.tar.Z>

NCSA server

<http://hoohoo.ncsa.uiuc.edu/docs/Overview.html>

file://ftp.ncsa.uiuc.edu/Web/httpd/Unix/ncsa_httpd/current/

Macintosh WWW Servers

MachHTTP

http://www.uth.tmc.edu/mac_info/machhttp_info.html

Windows WWW Servers

HTTPS for Windows/NT

<http://info.cern.ch/hypertext/WWW/HTTPS/Status.html>

NCSA httpd for Windows

ftp://ftp.ncsa.uiuc.edu/Web/ncsa_httpd/contrib/whtp11a6.zip

<http://www.dtic.dal.mil/~wtrefzge/>

Bill Trefzger

DTIC User's Conference 1995: Getting Started with the WWW

Some WWW Building Sources from the DTIW Locator

http://www.dtic.dla.mil/dtiwl/toc_wwwb.q.html

• <http://hakatai.mcli.dist.maricopa.edu/tut/intro.html>

Writing HTML Documents for Mosaic

• <http://www.pcweek.ziff.com/~pcweek/WebTools.html>

World Wide Web Tools

http://cui_www.unige.ch/OSG/FAQ/www.html

WWW FAQs and Guides

<http://info.cern.ch/hypertext/WWW/Provider/Style/Overview.html>

Style Guide for Online Hypertext

<http://oneworld.wa.com/htmldev/devpage/dev-page.html>

WWW & HTML Developer's JumpStation

<http://fire.clarkson.edu/doc/html/htut.html>

HTML Documents

http://www.ziff.com/~eamonn/crash_course.html

Crash course on writing documents for the Web

http://gps.leeds.ac.uk/ucs/people/BKelly/aberdeen_paper.html

Publishing Information Globally: Becoming an Information Provider on the WWW

<http://www.charm.net/~web/Vlib.html>

WWW Development

<http://info.er.usgs.gov:4444/train/>

WWW/Mosaic Training Presented by the USGS

<http://learning.lib.vt.edu/webserve/webserve.html>

TEACHING AND PUBLISHING IN THE WORLD WIDE WEB

• <http://www.ncsa.uiuc.edu/SDG/IT94/IT94Info.html>

The Second International WWW Conference '95 Mosaic and the Web

• <http://www.dtic.dla.mil/~wtrefzge/>

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A VISION FOR DIGITAL LIBRARIES: *Digital Libraries as Personal Libraries*

Dr. Victor Rosenberg

Vugraphs only from Dr. Rosenberg's presentation at the 38th Military Librarians Workshop, November 16, 1994.

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Digital Libraries as Personal Libraries

Military Librarians' Workshop
November 16, 1994

The "Digital Library" as a Personal Library

Victor Rosenberg, Associate Professor
University of Michigan
Chairman, Personal Bibliographic Software, Inc.



1

The "Traditional" View of the Digital Library

- Do what we do now, but do it better, faster, and cheaper.
- Provide access to collections of information.
- The current view of the digital library promises to provide better, faster, and cheaper access to more collections by more people.
- The "vision" is access anywhere, anytime, by anybody. This includes nomadic computing connected to networks, both large and small.
- The sole function of libraries is to provide access to collections of information.



2

The "Post-Collection" Digital Library

- Instead of one university library system serving 40,000 patrons, we will have 40,000 libraries each serving one. Part or all of the "individual library" could be shared, thus providing the library for a collaboratory.
- Each personal library would contain a combination of resources, including the "documents" themselves and pointers to documents.
- Mosaic is the beginning of this model.
- "Federated" information resources will serve the personal collection.



3

The Historical View

- What would the library/information landscape look like if personal "workstations" had been invented before mainframe computers.
- Technology often dictates its own result. Large mainframes dictated large databases. Personal databases came much later.
- The personal digital library emulates a common type of behavior, collecting articles, clippings, books, recordings, videos, art works.
- It also emulates the fact that we are assaulted by information and must decide to keep, table, or toss it.



4

Implications

- A new economy of information. Currently we pay for each item -- to possess it.
- We will pay for access. Each time we access a document we will pay a fee, but much more information will be in the public domain.
- Universal access and ease of sharing will destroy copyright as we know it, or the great demand for information will make it as inexpensive as cable TV is today.
- Each vestige of a current library will be in charge of one or more international resources, organizing the information and making it universally available.



5

Implications II

- "Digests" of information will become more valuable than the information itself. "Added value" will become predominant.
- A "Gresham's Law" of information may take hold.
- Interfaces will become more important than retrieval algorithms.
- "Book Selection" will again become an important part of information and library studies.



6

Digital Libraries as Personal Libraries

Getting There from Here

- Augmenting the personal library
 - Initial products will be collections of bibliographic data that are specific to a given field and can be edited and added to.
 - The second stage will include images and multimedia documents in the personal collection.
 - The third stage will include pointers to servers accessible to the personal collection.



7

Getting There from Here II

- Creating and organizing the personal collection.
- Developing "filters" that will derive small focused collections from large databases.
- Re-inventing "book" selection.
- Development of new and better selection tools.
- Training librarians to be the developers of "personal" collections.



8

Getting there from here III

- Developing the personal library will require great care and skill in selection, but minimal skill in access and management.
- Personal collections will be eclectic and individual and occasionally valued as the great art or book collections were in the past.
- Information collecting will no longer be the province of the rich.



9

Technical base

- The new computer technologies will make it possible to give each person the illusion of having a personal collection, without actually having anything but pointers to the data. This is much like time sharing gives the illusion of personal access to a mainframe.
- Like cable TV, the major resources will be in the infrastructure not in the workstation, making the concept easily affordable.



10

The Digital Library Metaphor

- "Digital Library" is both too broad a term and too narrow a term.
- It is too broad because it represents the management of a collection of information, which is what we do every day.
- It is too narrow because it signifies the replacement of conventional libraries and the libraries do much more than provide access to a collection. This is what 17th century libraries did.
- We may have to abandon the idea of the library as merely a collection.



11

SCIENCE AND APPLICATION MISSIONS OF THE NEAR FUTURE

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NASA/MSFC
Marshall Space Flight Center, Alabama

Presented by Les Johnson, Marshall Space Flight Center

ABSTRACT

The space infrastructure of the late 90's and early 21st Century will offer a wide range of opportunities for science and application missions. The contemplated infrastructure includes Space Station Freedom (SSF), platforms in polar and geosynchronous Earth orbits, a manned lunar base, low cost satellites and launch vehicles, and supporting systems and technology. The Marshall Space Flight Center (MSFC) is in a unique position to study NASA science and application missions for all of these systems. This paper discusses a variety of missions being studied for NASA at the MSFC in support of space science, Mission to Planet Earth, and the Space Exploration Initiative (SEI). These science and application payloads such as the Laser Atmospheric Wind Sounder (LAWS), Inner Magnetosphere Imager (IMI), Large Lunar Telescope (LLT), Lunar Transit Telescope (LTT), etc., will fully utilize the capabilities of the SSF, Earth Observing System (EOS), Geostationary Earth Observatory (GEO), and SEI infrastructure.

INTRODUCTION

Future science and application missions will take full advantage of the in-place infrastructure such as SSF, EOS, GEO, and the SEI. The synergism of this infrastructure and the planned scientific payloads will not only provide valuable scientific data, but will also lay the foundation for the scientific and application missions of the next century. Due to the long periods of time required to build the "Great Observatories" such as Hubble Space Telescope (HST) and Advanced X-Ray Astrophysics

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AIAA Fellow

Facility (AXAF), it is evident that considerable work needs to be done now for the observatories of the 21st Century. This paper discusses the groundwork being performed at MSFC to establish the requirements for the successors to the Great Observatories.

The purpose of this paper is to give an overview of selected science and application payloads and missions that MSFC is developing for NASA, and provide references for those interested in obtaining more detailed information. Emphasis is placed on showing how these scientific payloads utilize the new infrastructure capabilities to be available in the late 90's and early 21st Century for exciting science and application missions. The author is indebted to the members of the Space Science and Applications Group, PS02, at MSFC for their assistance in writing this paper and managing these programs.

CONTROLS, ASTROPHYSICS, AND STRUCTURES EXPERIMENT IN SPACE (CASES)

MSFC has managed for the Office of Aeronautics and Space Technology (OAST) a very interesting STS mission entitled, "Controls, Astrophysics, and Structures Experiment in Space (CASES)". The CASES project is currently being studied by the MSFC Structures and Dynamics Laboratory. The CASES experiment would utilize Spacelab components, the STS and could effectively utilize the capabilities of the Extended Duration Orbiter. The technology benefits from CASES will provide a firm foundation to develop the Pinhole Occulter Facility (POF) as a space station attached payload or as a free flying observatory, and will support other advanced astrophysics missions. CASES will investigate critical control technology that is needed to stabilize and point large flexible structures in space. The control of a deployable 32-m boom, of a design identical to the one used in the Solar Array Flight Experiment program, will be implemented; either using small cold-gas thrusters for pointing or by an active guy wire system. Angular momentum exchange devices will be used with the thruster system for active damping to suppress vibrations. Since the boom is rigidly attached to the orbiter, the orbiter/boom system may be pointed to a predetermined target for a period of at least 30 minutes. In addition, tracking and slewing of the orbiter at small angular rates will be demonstrated. A significant advantage of this control method is that the orbiter can be stabilized for significant periods of time with very low g levels.¹

LASER ATMOSPHERIC WIND SOUNDER (LAWS)

LAWS represents a major step toward the goal of making routine global wind profile measurements from space. Its purpose is to improve our understanding of the atmospheric wind field by investigating many interdisciplinary scientific questions from an Earth Observing System (EOS) space-borne platform. Wind profiles obtained by the LAWS system will provide research information essential for furthering our understanding of transport processes and the role they play in global climate change. LAWS will enhance our knowledge of large-scale atmospheric circulation and climate dynamics, improve our understanding of global biogeochemical and hydrologic cycles, and advance the skill of numerical weather prediction.

The system technology required for space-based operation is the coherent CO₂ Doppler lidar technique. This system, operating in the eye-safe infrared wavelength (9 to 10 μ m) has been used successfully in ground-based and airborne wind measurement systems. The space system currently envisioned consists of a pulsed, frequency-controlled CO₂ laser transmitter, a continuously scanning transmit-and-receive telescope, a heterodyne detector, and a signal processing system. Initial studies have shown that this instrument concept for LAWS can be accommodated on a moderately sized space platform as shown in Figure 1.

A LAWS science team was selected in early 1989 composed of scientists active in the fields of atmospheric dynamics and laser technologies. General Electric and Lockheed were selected for parallel studies in early 1989 by NASA to define a LAWS configuration. Each contractor team is now nearing completion of its configuration definition study and will soon initiate performance and lifetime tests of the laser breadboard which it developed and constructed during the definition phase. These test results will help shape the strategy for proceeding to the next stage of development.^{2,3,4}

NEUTRAL ENVIRONMENT WITH PLASMA INTERACTIONS MONITORING SYSTEM (NEWPIMS)

Space Station Freedom (SSF) will be a complex and busy structure in space. Priority operations of the Space Shuttle will present significant perturbations to the ambient environment. Additionally, the operations on the SSF may be affected in yet undefined ways by the space environment.

Operationally, the large size of SSF and the inclusion of many high-current electrical paths, and numerous simultaneous communications links could produce many unknown environmental perturbations. As a result, the environment of SSF needs to be verified both during construction, and operations.

In future years scientific users of SSF will have a critical need for knowledge of the actual environment within which external instrument measurements will be made. Telemetry and sensor signals may be masked by the noise, leading to false conclusions due to defective data. Thus, a continuous, ongoing data base is critically needed that characterizes the SSF environmental parameters as functions of time and location.

In response to the above needs, a system to provide comprehensive environmental measurements at multiple locations on SSF has been proposed. This system called the Neutral Environment With Plasma Interactions Monitoring System (NEWPIMS) will have at least a twofold function: to monitor the impact of the SSF on the environment and vice versa, and to supply a database to users that can be employed to unfold natural from induced changes in environmental parameters at the Station.

The NEWPIMS Science Study Team has defined a suite of instruments needed to provide the measurements necessary to define the external environment around the Space Station.⁵ The results of the study team have been incorporated into a conceptual design for SSF by the MSFC Technical Definition Team.⁶

GEOSTATIONARY EARTH OBSERVATORIES (GEO)

The ability to continuously dwell over a specific region of the Earth and study multi-discipline Earth Science processes makes the Geostationary Earth Observatories (GEO) especially important in providing a dynamical understanding of the physical processes that control natural and man-influenced global changes. From geostationary orbit (22,300 miles above Earth), the complete diurnal cycle of land, ocean, and atmospheric phenomena can be observed at even the shortest time scales without aliasing.

Drawing on their experience as Earth scientists, the GEO Science Steering Committee has identified a wide range of specific processes that are integral to Mission to Planet Earth objectives and require high temporal resolution measurement best achieved from geostationary orbit. A subset of these phenomena and processes include: precipitation and

lightning; mesoscale atmospheric and oceanic circulations; coastal processes including tides; environmental pollution; volcano eruption and earthquake occurrence; oceanic phytoplankton blooms; water vapor sources, sinks and structure; solar flux and solar constant; atmospheric trace gases; diurnal terrestrial ecosystem processes; cloud evolution and severe storms; and the Earth system radiation balance.

Three U.S. Earth Science geostationary satellites and two foreign provided geostationary satellites are being proposed in the Mission to Planet Earth initiative. Candidate instruments include facility instruments (those which provide information useful to multiple disciplines), principal investigator instruments (those provided by individual scientists to address specific discipline processes), and NOAA operational instruments. Platform concept studies are currently being conducted by Lockheed Missiles and Space Company (LMSC) and their subcontractors; and by the Marshall Space Flight Center (MSFC) inhouse team. Science instrument concepts are being studied by NASA Centers, NOAA, Universities, and instrument contractors.^{7,8}

INNER MAGNETOSPHERE IMAGER (IMI)

The IMI mission will use the latest imaging techniques to study the macroscale features of the Earth's magnetosphere from space. A single spacecraft carrying optical, ultraviolet, x-ray and neutral-atom imagers will be placed in Earth orbit to obtain data during the projected two year lifetime of the mission. Since a combination of spinning and staring instruments have been identified for the mission, two spacecraft options are being considered. The first utilizes a Delta launched spinning spacecraft with a despun platform as shown in Figure 2, and the second uses two small satellites; a spinning spacecraft and a complementary three-axis stabilized spacecraft. The baseline and optional IMI mission orbits are described in Table 1.

TABLE 1 Candidate Orbits for the IMI Mission

<u>Baseline Orbit</u>	
Perigee Altitude	400 km
Apogee Altitude	5 Re
Inclination	90°
<u>Optional Orbit (Achieved in Second Year)</u>	
Perigee Altitude	1.0 - 1.5 Re
Apogee Altitude	9 Re
Inclination	90°

Past magnetospheric missions have utilized in-situ measurements obtained when satellites passed through that region of the upper atmosphere. The IMI will obtain simultaneously the first global images of the Earth's magnetosphere and its component regions. The following questions are to be addressed by the IMI missions: 1) What does the global magnetosphere look like in quiet and disturbed conditions? 2) How do the principal magnetospheric regions globally change in response to internal and external influences? 3) How are the principal magnetospheric regions interconnected? and 4) What are the remote, global signatures of these important astrophysical plasma processes?

The Space Physics Division of OSSA established in 1990 an IMI Science Working Group (SWG) comprised of leading scientists from various universities, national research laboratories and NASA. Working closely with MSFC, the SWG defined the mission goals and established the primary measurements to be performed. A MSFC study is underway to determine the baseline spacecraft configuration needed for the mission, identify key technologies and establish their level of development, define the design requirements of the science instrument payload and to prepare for detailed design studies and hardware development. The Science Working Group is currently refining the mission goals and providing guidance and support to the MSFC engineering design team.⁹

SOLAR ULTRAVIOLET RADIATION AND CORRELATIVE EMISSIONS (SOURCE)

The goal of the SOURCE mission is to advance significantly our ability to specify the spectral irradiance of the sun in the extreme ultraviolet (EUV) wavelength range from 1 to 125 nm. To achieve this goal, space-based and correlative ground-based observations of the sun will be used in combination with empirical modeling to develop and validate a more accurate system of proxy measurements.

Currently, neither the magnitude nor the temporal variability of the solar EUV radiative output can be specified with sufficient accuracy for space physics applications. This radiation is especially important because it creates the ionosphere and is primarily responsible for the structure and dynamics of the terrestrial upper atmosphere. The upper atmosphere is very responsive to variations in the sun's output, contributing to a "space weather" system that affects low earth-orbit satellites through atmospheric drag and re-entry dynamics so that both military and civilian operational systems need improved models of the upper atmosphere with reliable solar EUV irradiance inputs for specification and forecasting.

The primary, space-based segment of the SOURCE measurements could be achieved with a explorer-class payload of about 55 kg, launched by a Pegasus vehicle as depicted in Figure 3, into a low inclination orbit with perigee in excess of 600 km altitude. The power required for the payload is estimated at 100 watt or less. Peak telemetry rate is from 10 to 400 kbps (largely dependent on how the data from the imagers are downloaded). The mission should exceed two years duration and occur in either the ascending or descending phase of the 11 year solar activity cycle.

The satellite would carry a payload consisting of a suite of well-calibrated spectroradiometric instruments and imagers to provide, respectively, absolute measurements of the solar EUV spectrum and near-monochromatic images of the full solar disk. Images will be obtained at three wavelengths corresponding to emitting source regions in the solar chromosphere, solar transition region and corona. The desired spatial resolution for the imagers is 5 arcsec. The associated spacecraft pointing requirements are ± 3 arcmin pointing with ± 2 arcsec knowledge. Observations are required about once per orbit.¹⁰

LUNAR TRANSIT TELESCOPE

A lunar-based, unmanned, stationary meridian-pointing UV/visible/IR telescope with an aperture of approximately two meters has been proposed by Dr. John T. McGraw of the Steward Observatory as an early science mission for the Space Exploration Initiative (SEI). The telescope would utilize a CCD array to image 800 square degrees of the sky simultaneously in multiple bandpasses from 0.1 - 2 microns. The LTT would image larger portions of the universe in a year than the Hubble Space Telescope is projected to accomplish in its 15 year lifetime and the images returned would have applications ranging from extragalactic to galactic and solar system astronomy. The LTT would also serve as a testbed for the technologies needed to develop larger-aperture telescopes for construction on the lunar surface. An Earth-based transit telescope is currently operating at Kitt Peak Observatory.

MSFC is conducting a conceptual design study of the proposed Lunar Transit Telescope depicted in Figure 4. Interim results from the study indicate that the LTT will perform excellent science and no major new technologies are required for its development. The combined weight of a two meter Lunar Transit Telescope integrated with a lunar lander can be launched on a Titan IV/Centaur. Trades are being performed to determine if a slightly smaller telescope launched on an Atlas IIAS/Star 48B launch vehicle can still perform meaningful science from the lunar

surface. The LTT is an excellent candidate for the earliest phase of SEI because of its potential high science return and the off-the-shelf nature of the technology required for its development.¹¹

LARGE LUNAR TELESCOPE

The 16-m Large Lunar Telescope (LLT) will be a feature of the Lunar Observatory to be established on the Moon in the first two decades of the 21st Century. Experience in operating small optical telescopes in the mid-to-late 90s will prepare the way for a national investment in the unique science potential of this next-generation optical telescope. Capable of diffraction-limited observations in the infrared, visible, and ultraviolet regions of the spectrum, the LLT will extract the maximum benefit from its unique combination of design characteristics. Among these are: Its unsurpassed aperture; its design to provide unprecedentedly long integration times; and its ability to take advantage of positive aspects of a lunar site such as the absence of atmospheric obscuration, the minimum of interfering light, the geologically ultra-stable lunar platform and the uniquely predictable environment.

The LLT optics will consist of three mirrors: A 16 m, segmented primary mirror plus monolithic secondary and tertiary mirrors. The 1098 0.5 m primary segments are actively corrected to maintain the mirror figure regardless of variations in the thermal environment. The secondary mirror provides a fourth reflection from a specially ground central area into a Coude's system which directs the light beam into the instrument chamber whatever the orientation of the LLT. The tetrahedral truss supporting the primary mirror, the secondary tripod, and other dimensionally critical elements are formed of lightweight, thermally stable, composite materials. The central section of the truss interfaces with the yoke of an alt-azimuth mount integrated with the main structural elements of a modified Lunar Excursion Vehicle (LEV) for transport to the Moon. The foundation and base for the LLT can be provided as separate elements transported to the Moon and erected there, or the Lunar Excursion Vehicle may serve as the base and foundation after completing its landing task.

Transportation to the Moon of an LLT equipped with separate foundation and base will involve two standard shuttle launches; integration with the Lunar Transport Vehicle (LTV) and the LEV in Earth orbit; and transfer to the lunar surface for assembly. Using the LEV as a base permits integration of the LLT and LEV on Earth, followed by direct launch to the Moon on certain versions of the new National Launch System.

Operation of the LLT is handled remotely from Earth by a dedicated science team, supported as required by the Lunar Base. In addition to providing first-rate scientific data for researchers, the LLT supplements and expands the science participation by secondary and collegiate educational organizations which was initiated with the Lunar Transit Telescope. Over the first half of the next century the Large Lunar Telescope will be in the forefront of the drive to extend our reach out into the depths of the universe to grasp a clearer, surer understanding of our earliest origins and our ultimate fate.¹²

SPACE EXPLORATION INITIATIVE (SEI) SCIENCE: LUNAR-BASED SPACE PHYSICS MISSIONS

The lunar surface provides a stable based and suitable environment for large area science projects that cannot be otherwise accomplished either on the earth or in space on a free flying spacecraft. MSFC is performing preliminary assessments of several potential lunar-based space physics missions as a part of the Space Exploration Initiative (SEI):

The Lunar Calorimeter will use layers of large-area plastic scintillators to explore the composition of cosmic ray nuclei with energies in excess of 10^{15} electron volts and aid in the determination of the sources and acceleration mechanisms of the highest-energy cosmic rays. The sub-surface Lunar Neutrino Telescope will search for a diffuse flux of heavy neutrinos, a directional flux of weakly interacting massive particle annihilation products from the earth and the sun and for discrete sources of cosmic neutrinos.

A lunar-based Magnetospheric Imaging System will be able to image the entire magnetosphere globally from the unique external vantage point offered by the moon. The goals of a lunar-based Magnetopause Sounder include active soundings of the magnetopause boundary using dipole transceiver arrays located kilometers apart on the lunar surface.

CONCLUSION

The infrastructure planned for the late 1990's and early 21st Century will offer a wide range of opportunities for science and application missions. We have shown how the potential capability of low cost satellites and launch vehicles, Space Station Freedom (SSF), Space Exploration Initiative (SEI), and the polar and geostationary platforms of Mission to Planet Earth can be effectively utilized for exciting new science and application missions such as the CASES, NEWPIMS, LAWS, IMI, SOURCE and LTT. The scientific and technological results from these

missions will help establish a firm data base to ensure scientific continuity and maintain national leadership in space science.

Since considerable time is required to develop and deliver experiment hardware, now is the time to begin planning experiments and payloads to take advantage of the unique capabilities described in this paper. We at NASA/MSFC are confident that this infrastructure will meet the current and future needs of the scientific community and look forward to working with them to exploit these capabilities for the benefit of mankind.

LAWs

LASER ATMOSPHERIC WIND SOUNDER

FIGURE 1
METSAT

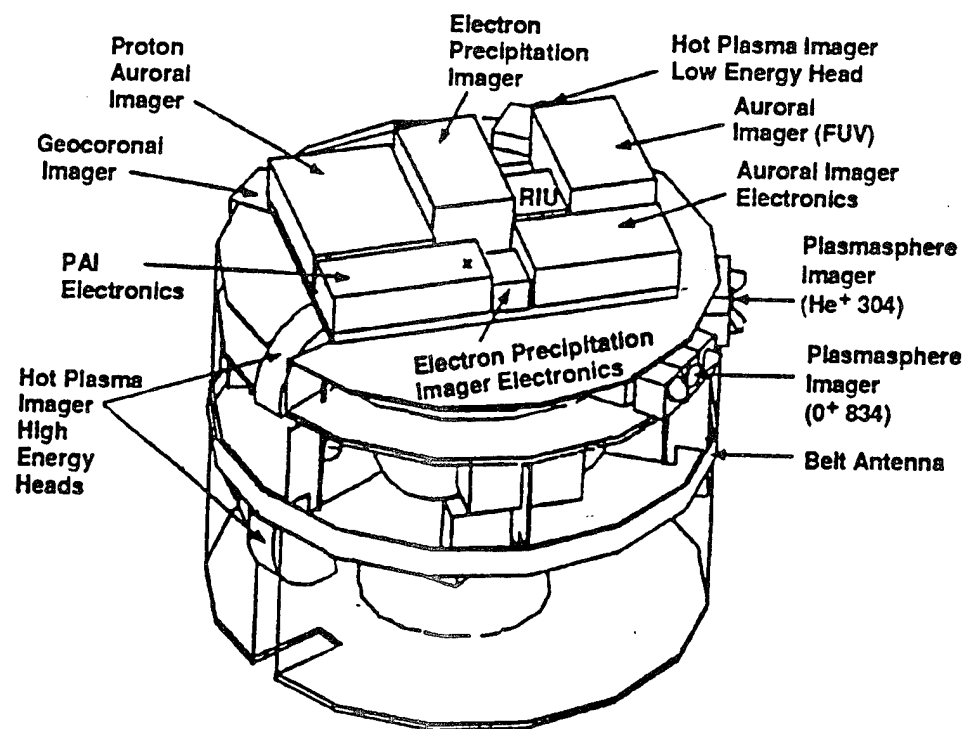


FIGURE 2

SOURCE

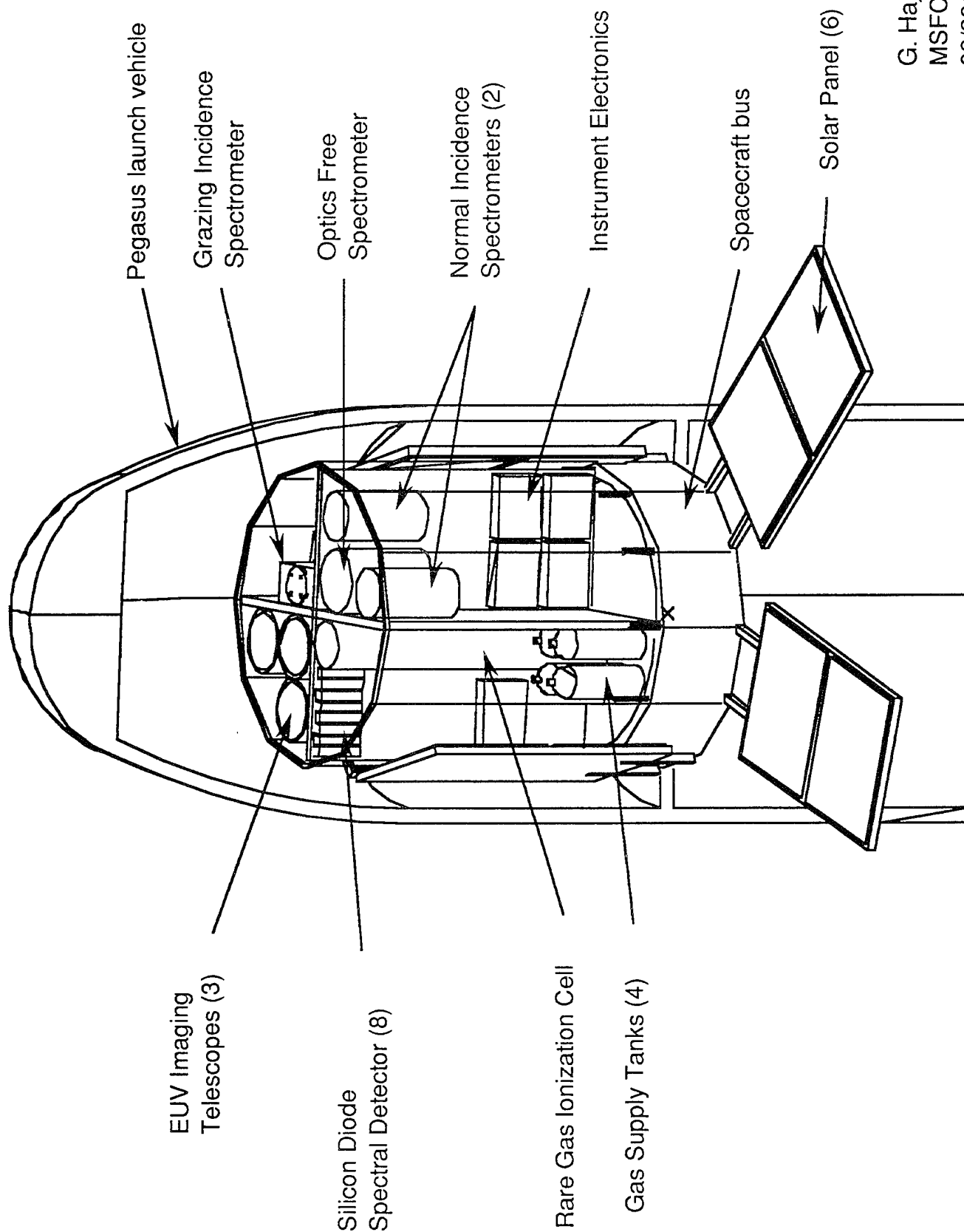


FIGURE 3

G. Hajos
MSFC/PD23
08/20/92

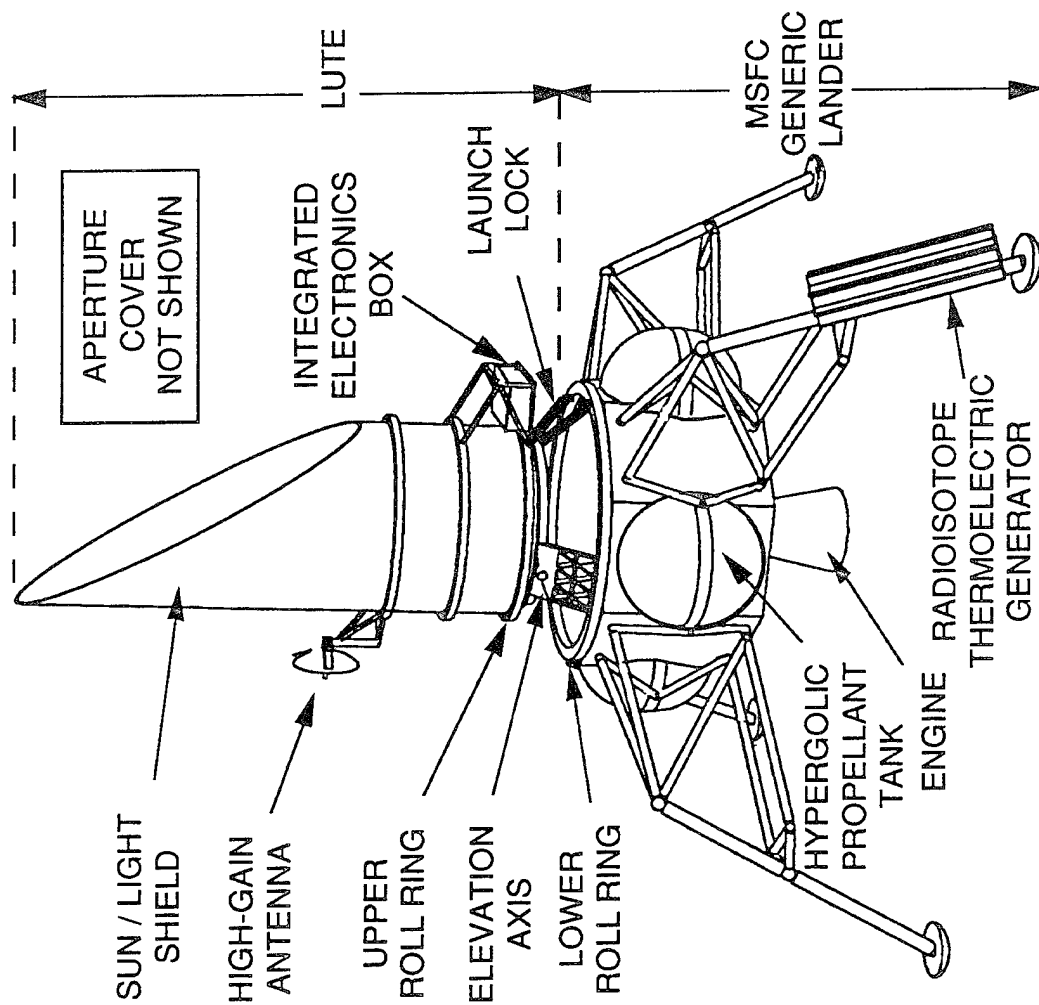


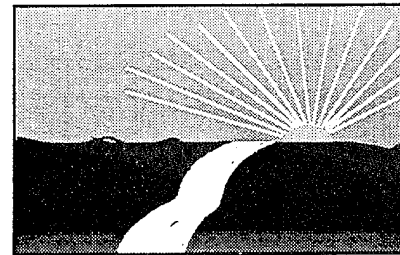
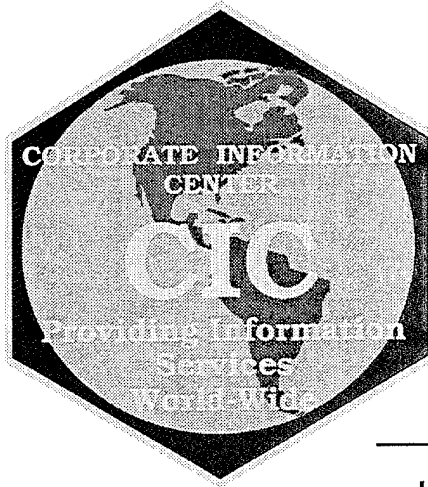
FIGURE 4

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8. Keller, V. W.: Geostationary Earth Observatory Remote Sensing Instruments, AIAA 92-1404, AIAA Space Programs and Technologies Conference, Huntsville, AL, March 1992.
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12. Nein, M. E., Davis, B. G., and Hilchey, J. D.: System Concepts for a Series of Lunar Optical Telescopes, 3rd International Conference on Engineering, Construction, and Operations in Space, Denver, CO, June 1992.

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ELECTRONIC MEETING SYSTEMS (EMS)



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FAX DSN 645 - 0065

THE ELECTRONIC MEETING SYSTEMS (EMS)

THE ELECTRONIC MEETING SYSTEMS (EMS) provide a smooth and successful course of meetings in a **futuristic environment**. EMS was developed to assist the decision making process of an organization or a group by using a variety of **electronic GroupWare tools** and an automated **Integrated Definition (IDEF)** capability in conjunction with the local **facilitating expertise**. By the use of these **electronic state-of-the-art GroupWare tools**, embedded in the **GroupSystems**, EMS is unrivaled at building a group consensus and supporting the meeting process in an **affordable and highly cost effective** method. EMS environment offers the meeting participants an unique opportunity to **communicate simultaneously** and to participate in the **decision making process anonymously**. The conditions provide a **relaxed and supportive atmosphere** among the meeting participants in which **ideas are evaluated on their sources** and where **pressure to conform to a group norm is alleviated** without losing the group consensus.

THE EMS ADVANTAGES

- **Uses state-of-the-art electronic GroupWare** to accomplish the goals of various customers
- **Provides potential project completion time savings of 50% to 80% and significant cost savings**
- **Increases quality and productivity** compared to traditional meeting processes
- **Ensures** that the thoughts of all meeting participants are discussed and heard so that **conformable decisions** can be made
- **Enables** the participants to influence the **decision making process anonymously**
- **Minimizes** the adverse impact of **hidden agendas** and **prejudices** through experienced facilitation and group consensus
- **Delivers** group projects on time
- **Exceeds** project managers specifications
- **Provides world class service and operation** for all meeting needs, once a scheduled meeting has been planned and dates confirmed
- **Operates** the facility and its staff on a **reimbursable concept** to fund and pay for all expenses

THE CAPABILITIES OF EMS

EMS possesses a variety of software tools to assist the customer in accomplishing the task. State-of-the-art **GroupWare Technology** is the cornerstone of EMS. **GroupSystems** provide the project manager with a multitude of approaches as listed in the following:

Idea Generation:	- Electronic Brainstorming - Topic Commenter - Group Outliner

Idea Organization:	- Idea Organizer - Categorizer - Vote

Idea Evaluation:	- Alternative Evaluation - Questionnaire - Survey - Group Matrix

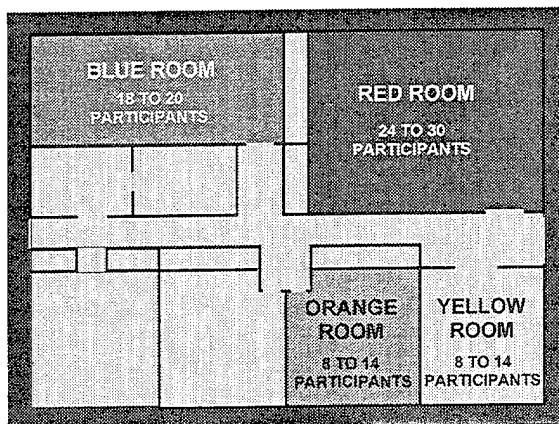
Composition:	- Group Writer - Policy Formation - Stakeholder Identification

Modeling:	
Process	- IDEF 0
Data	- IDEF 1x

Planning:	
Strategic	
Tactical	
Operational	

Electronic Meeting Systems (EMS)

Scheduling/Customer Support Building 3448 Redstone Arsenal, AL 35898	Com. (205) 955-8685 DSN 645-8685 FAX DSN 645-0065



EMS FACILITY FLOOR PLAN - REDSTONE ARSENAL

THE CAPABILITIES OF THE EMS TEAM

The EMS Team is headed by the sound leadership of the USAMICOM/CIC and is providing valuable services to DOD customers since 1990. By working closely with Industry, Educational Institutions and the Community, the well trained facilitating personnel perform the following tasks for designated Project Teams:

- **Planning**
 - strategic
 - tactical
 - operational
 - **IDEF 0 Process Modeling**
 - **IDEF 1X Data Modeling**
 - **Functional Economic Analysis**
 - **Functional Descriptions**
 - **Functional Process Improvements**
 - **Activity Based Costing**
 - **Model Validation**
 - Process
 - Data
 - Activities
-

THE METHODOLOGIES EMPLOYED

- Strategically driven
 - Management of Electronic Tools
 - Facilitation of Meetings in all Aspects
 - Use of "Computer Aided Software Engineering" (CASE)
 - Integration of GroupWare and CASE
 - Incorporation of rigorous facilitated Participant Involvement
 - Data centered Approach to System Design
 - DOD Modeling Techniques employed
 - Provision of a stable Foundation for System Development
-

THE FACILITY

The EMS facility in building 3448 at Redstone Arsenal has 5 GroupWare equipped training/meeting rooms available. A key to the quality of service this facility has to offer is its flexibility to accommodate large or small meeting groups

- Red Room	24 - 30 Participants
- Blue Room	18 - 20 Participants
- Orange Room	8 - 14 Participants
- Yellow Room	8 - 14 Participants

The electronic state-of-the-art equipment in each of the 5 training / meeting rooms serves the flexibility to split the main meeting group into several subteams to expedite the solution finding process

AIR FORCE REPORT

Annette Gohlke

Presented at the Military Librarians Workshop

14-17 November 1994

The level of attendance of Air Force personnel at this workshop is certainly indicative of what's going on in the Air Force. Eighty of the attendees, forty percent of the total, are Air Force librarians. That leads one to believe that there's a great deal of change and challenge going on in our library system and we need the information we're gathering at this workshop. Air Force has been dealing the "**C**" word for over five years; words like **Change, Challenge, Crisis, Chaos, Creativity, Contracting, and Consolidation**. It could make us Cry and even **Choke** at times. Fortunately Air Force librarians remain for the most part **Calm** and **Conscientious**; they are dedicated and **Committed** to the people they serve and that has helped us survive. We are going to start FY95 with only 121 main libraries, that is down from 164 only 5 short years ago. Most of the decrease is from base closure, but a few have been closed through manpower reductions and elimination of function.

We have some very good things going on in the Air Force that we are proud of. We have numerous long overdue building renovation projects in progress. The Air Force likes to take care of its people; and commanders are enlarging and modernizing library buildings to take care of the increased customer use and installation of new technologies. Many of our libraries have moved into smaller quarters during the renovation period, but they are still providing good service to the public.

Automating libraries has been a big initiative for the Air Force for the last six years: I'm happy to report that almost every single command has either awarded a contract or is in the process of the final award process to install integrated library systems in their libraries. Within two years we expect to have 100 percent of all libraries up and running on integrated library systems: we find that to be a real positive.

There have been some global automation improvements in the Air Force: I think that we announced last year that we bought ProQuest for all general libraries. This year we centrally funded First Search, the OCLC reference service.

Many of our libraries have been a little slow in using it, but we are getting rave reviews from those librarians who are using it. [It's outstanding for education and mission support information.] We're going to start centrally funding and installing CD-ROM LANs in every library so that the CD-ROM products on different machines will all be connected. This will improve customer service and use and prepare the groundwork for remote access. Funding has been stable, so we are able to move forward.

Our biggest problem by far is manpower shortages! We've been hurt dramatically in both our general and technical libraries with manpower reductions. Congress indentified libraries as mission sustaining activities, and as a result, base libraries lost all nonappropriated fund personnel by 1 October 1994. Most of those libraries did not get appropriated positions to fill authorized positions. Needless to say, these are operating valiantly in a crises mode. Numerous librarians were lost in the past year due to retirements, transfers to other jobs, and we sustained one death, Jim Agnew, chief of the headquarters library at Air Force Materiel Command. We are concerned about losing our long time, dedicated librarians. It is difficult to replace them and their knowledge base. Hiring freezes and reductions-in-force are ravaging our ranks. We are challenged to find new and younger librarians that can gain the experience to replace those of us near retirement and ensure the continuation of vital library services to the military community.

On the Scientific technical side of the house, we have an optical imaging project in progress at the Phillips Laboratory library at Kirtland Air Force Base. Technical libraries have been challenged with losing staff not only from retirements, but from buyouts. Some libraries have had to curtail services since buyout positions can't be filled. Being resourceful people, technical library directors are using contract personnel temporary hires to help out. Both technical and base libraries have started outsourcing some of their functions, including cataloging, shelving, programming, and so forth.

I asked Gail Hodge, command librarian for Air Force Materiel Command, the command with the most sci-tech libraries, to sum up what is going on in the Air Force today. I'm sure you'll find similar actions and situations in the other branches of service. She used words such as **increase**, **powerplay**, **rumors**, **BRAC**, **takeovers**, **contracting out or outsourcing**, and **consolidation** of both like and unlike functions. Many government workers, including librarians, thought these actions would be limited in scope or never happen. In the Air Force, we have bases with more than one library, a base library and possibly one or more technical

and/or academic library. Some of the bases have begun studies to see if there is any way they can combine the libraries, either total or partial functions, to maximize the use of critical manpower. These are somewhat radical actions in some viewpoints, but it drives home the idea that people are now trying to think "**outside the box**" to find solutions. That's what we're talking about on our side of the house because change is not an option but a hard reality. Our job is to continue operating while we search for creative ways to strengthen support for good information services.

If I were to sum up quickly what our motto is, it really hasn't changed from last year. We feel that we're "**rich in resources, and poor in people**". If the quality of the people we have were not so good, and they were not so dedicated and committed to their profession, and providing good service to their customers, I think this whole process could be more gruesome than what it is. We're going to remain as positive as possible, keep our heads up, and keep trucking along providing the kind of service that the Air Force expects from us - quality. We find that despite the downsizing, the information needs of our customers continue to grow.

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ARMY REPORT

Louise Nyce

Presented at the Military Librarians Workshop

14-17 November 1994

Do you ever feel you're working for an organization with a split personality? While from the evidence of the previous report indicates the Air Force has a very centralized program, the Army seems to be going in a totally opposite direction. To begin at the top, there have been some very dramatic changes.

We are getting ready to welcome GEN Guenther, the new Director of Information Systems for Command, Control, Communications and Computers (usually abbreviated to ODISC4). Mrs. Miriam Browning, who was the Director of Army Information in ODISC4, and where responsibility for overall Army Library policy resides, will depart to accept a position with the National Academy of Public Administration, known as NAPA. We do not know who will replace her. When the Army Library Management Office (ALMO) folded into that organization under the Policy Division, it was reduced from 4 authorized spaces to 1, with an Army Librarian, Cynthia Banicki, selected to deal with Army Library policy issues. When Ms Banicki left, a decision was made not to replace her with a librarian. Since then, Patrick Smith, in the GS-301 series, was assigned in that slot, and handles remaining library issues by coordinating with Sybil Bullock, Chair of the Army Library Committee.

I say remaining because there are other changes. In response to the guidelines of the National Performance Review and other initiatives, the Army Library Management Report (ALMRS) was discontinued this year.

A revision of our parent regulation, AR 25-1, has undergone many staffings to conform to new guidance aimed at eliminating anything in it that does not have its basis in law.

DCSLOG transferred responsibility for AR 735-17, Library Property Accountability, from ODISC4 back to the Library Program Office, Community and Family Support Directorate (USACFC). Actions for new accounts, transfers and closures must be processed through the MACOM or independent reporting agency to USACFC.

The Contemporary Military Reading List expired for lack of support. While the list was distributed by ODISC4, it was developed at the Army War College.

EGAL, the Library Installation Support Module (ISM), continued to be high on the list of candidates for implementation until the funding picture darkened. When installations prioritized projects, EGAL did not do well. Although EGAL has been somewhat taken over by technology, it still - with revisions - has viability. What it has going for it is that it fits in well with the Information Infrastructure Act of 1993.

Career Program #34, the umbrella for disciplines in Information Management, has a new Deputy Functional Chief Representative for Librarians. He is Ken Hedman, Library Director of US Military Academy at West Point. The Career Program is also undergoing streamlining. Army Librarians can look forward to re-registering with a brand new consolidated form in the next year or so. Common elements with other information disciplines will be combined on one form for consistency. We will have about 60 Librarian-specific elements. Requests for referrals are understandably down from 1989 - 132 versus 26 in 1994.

Announcements will soon be forthcoming on some Army Librarian competitive developmental assignments at the Pentagon Library, NDU Library, Library and Program Office of Community and Family Support Center, as well as other identified training in data communications and the LAN (U.S. Army Signal Center at Fort Gordon, GA) and for the Institute on Federal Library Resources.

An Army Library Institute is again being planned for 15-19 May 1995 at West Point, NY, following the one hosted by National Defense University Library this past year.

Along with several proposals to downsize the intern program intake Army-wide, the Deputy Chief of Staff for Base Operations at Training and Doctrine Command (TRADOC) drastically curtailed training programs beginning in FY 95, which eliminated all intern programs except for 3 series with legal requirements. This means that recruiting of new Librarian interns will cease at TRADOC when the remaining interns graduate in spring of 1995. No impact has been reported from other Commands with Librarian Interns.

The Army Library Committee (ALC) continues in its role as an advisory body offering recommendations on library matters to the ODISC4. In

addition to proposing some new wording in the revision to AR 25-1 (which, if accepted, should improve some of our long-standing problems), the ALC recently got involved with something called the functional process improvement (FPI). At least three library initiatives had been submitted to DOD levels without any librarian input. None of the initiatives were funded.

Recently ODISC4 invited the Army Library Committee to a briefing on the process, and to ask the ALC to develop a concept for an FPI for libraries which they hoped would be funded. After the briefing, the ALC discussed the proposition and determined that the FPI was not appropriate for libraries because there are too many disparate types and programs. The ALC also felt that the process was too costly and that no one could give up a librarian for nine months of donated staff time as required. The ALC could not see any cost benefit in any of the proposals. As an alternate, the ALC requested that ODISC4 be proactive in assuring that every library had E-mail and the capability to get on the Internet. This simple, realizable proposal would yield cost benefits beyond that of the FPI.

The Army Library Committee also sponsors a Listserve with over 200 addresses. The host is located at the Department of Mathematics, US Military Academy, West Point.

Varying degrees of diminished staffing or worse - libraries closing - are being reported and hardly anyone is unaware of the downsizing efforts. The Corps of Engineers has lost 25% of its staffing in the last 5 years. The Program Office is temporarily formed at Waterways Experimentation Station with Carol McMillan in charge. She is establishing a strategic planning team to reshape their program.

Health Services Command is now the U.S. Army Medical Command, activated on 4 October. The headquarters was reduced to 522 people. Medical Libraries at Fort Devens and Fort Ord closed. Army Materiel Command (AMC) is scheduled to lose a technical library at Watertown, MA and a post library at Vint Hill Farms, VA.

FORSCOM is no longer a joint command, but is now the Army component of the US Atlantic Command. Fort Bragg received a 50% cut in periodicals. Forts Meade and Ritchie are now repositioned under the Military District of Washington. In TRADOC, a decision was made to delegate library support to the local commander, and reduce the headquarters staff from 12 to 3. TRALINET will be disbanded on 30 September 1995; libraries will have direct access to FEDLINK and there

will no longer be centralized acquisition at Headquarters, TRADOC. The TRADOC Library office will then report to Community Resources Division.

Quickly, around the world: In Panama, the schedule for turnover remains 31 December 1999, but there is a possibility that two libraries will be turned over in 1995. I'd like to say they are enjoying their Command-wide freeze, but...

Korea currently supports 24 libraries and 1 bookmobile. They lost 1 library and 1 bookmobile this year. With retirements of many experienced Korean technicians support staff, replacement of these people is a great concern. Korea currently has two GS 1410 vacancies.

US Army, Europe shows the greatest transformation. In 1989, there were 104 main libraries; today there are 44. There were 72 remote sites, now down to 7. As of today, 31 librarians remain down from 110.

Despite reports of diminished funding and staffing, new facilities are popping up. We congratulate Martha Davis and her staff who on the 9th of November dedicated a new 96,000 sq ft library at Command and General Staff College, Fort Leavenworth, Kansas. We hope to see it and get a comprehensive tour next year when Military Librarians Workshop moves to Fort Leavenworth. New libraries opened this year also at Rocky Mountain Arsenal, at the Cold Regions Engineering Research Laboratory, and at Schofield Barracks in Hawaii. Fort Bragg's new library is funded at 6 million, and planned for 58,000 sq ft. It is now at 100% design, with a ground-breaking scheduled for the 3rd Quarter, FY 95. It is scheduled for completion in 1997. Planning for new facilities is evident for Engineering Libraries in Walla Walla and St Paul Districts. Renovations loom for Main Library in Korea, the Tripler Hospital Community Library, and for Redstone Scientific Information Center (RSIC). As a part of a package deal, the Pentagon Library is scheduled to participate in the first wedge of renovations scheduled to change the face of the Pentagon over the next 10 years.

That there is energy remaining despite the glum picture on staffing and resources can be documented by the constant reports on library systems that are being upgraded or replaced, especially for the LS2000. Library staffs are immersed in the growing variety of CD-ROM products, exploration of the Internet, and the multitude of complex "improvements" available for scrutiny. And they continue to provide expert service despite the handicaps.

CANADIAN DEPARTMENT OF DEFENCE REPORT

Tammy Whalen

Presented at the Military Librarians Workshop

14-17 November 1994

Sam Alexander, Chief Librarian, Royal Military College, Kingston, Ontario is now the Canadian coordinator for MLW. Due to the closing of the College militaire royal de St.-Jean, Gretchen Cheung, the previous Canadian coordinator, has left her position of Chief Librarian. She now has a new position with the Bestseller software company in Montreal. I'm sure her American friends from MLW will join her Canadian colleagues in wishing her all the best in her new post.

The Canadian military library news is not very encouraging. Last February, the Federal Budget proposed the closing of two military colleges, Royal Roads in Victoria, British Columbia, and the College militaire royal de St.-Jean near Montreal. This will leave only one military college open, the Royal Military College (RMC) in Kingston, Ontario. The two colleges are slated to close on 31 August 1995. Various negotiations are under way with the provinces concerned, but no final decisions have been reached. Plans are afoot to integrate the library collections with that of RMC and possibly other DND libraries. The residue of the collection will be handled in accordance with the National Library Act and the National Librarian's directive. The Federal Budget also announced the closure of several Bases and this has precipitated the closure of several base libraries.

The student (Officer-Cadet) population at RMC has increased by approximately 50% this year because of the other college closings. Next year, the numbers will increase by yet another 30% to 1200 students. The RMC Library's budget has been cut, but some extra funds have been assigned to meet the needs of increased enrollments and the provision of a fully bilingual service.

In other equally depressing news, last April many DND sections, including most libraries, were asked to provide 15% cuts to their Salary/Wage envelope. Some library employees have taken the early retirement package being offered and there is now the worry that some libraries will not survive as independent institutions. With Work Force Adjustment firmly in place, new appointments are, as far as possible, being made

from a priority list of staff who have lost their positions due to cutbacks. As you may imagine, the workplace is rife with rumors.

Canadian defence libraries are carrying on, however. We are involved with a government-wide initiative to control all sources of information within the Government of Canada (Management of Government Information Holdings). This massive task has just commenced and a working group has been formed to control the information contained within the libraries, or emanating from the libraries. As well, most of the NDN libraries have access to the Internet. I expect many DND librarians will show great interest in the MLD LISTSERV you are starting.

In conclusion, the year has been a very bad one for many Canadian defence libraries. Let's hope that the Canadian MLW report next year will contain the "good" news!

[Sam Alexander could not make it to MLW as there was much work to be done with the consideration of the merger of the Canadian Military University libraries. In his place, Tammy Whalen, Chief Librarian, Operational Research and Analysis Library, read his report]

NAVY REPORT

Joan Buntzen

Presented at the 38th Military Librarians Workshop

14-17 November 1994

On behalf of Marge Homeyard, Director of the Navy General Library Program which is managed out of the Naval Education and Training Program Management Support Center, Pensacola, I'll begin with a report on developments in Navy and Marine Corps general libraries.

- General libraries aboard 65 ships and at 7 Navy shore activities were disestablished due to decommissionings and base closures.
- Addition of Fleet and Shore Library Coordinator positions was offset by the command's SIP/VERA offerings which resulted in the loss of a technician and a secretarial position. Rebecca Slingerland became the Fleet Library Coordinator, and Carolyn Eaton the Shore Library Coordinator.
- Library support was provided for Navy's field hospital in Croatia and to Sailors and Marines deployed to Somalia, Cuba, Haiti, and other hot spots. Army/Navy library cooperation reached new heights to meet the reading needs of Army personnel deploying aboard Navy ships and short-fused Fleet needs after Navy's paperback stocks were exhausted.

There were many bright spots during FY94:

- Library collections were outfitted for 18 commissioning ships, and collections for another 15 new ships are scheduled for FY95.
- New shore libraries are being established at Naval Station, Everett and Naval Air Station, Fort Worth, Joint Reserve Base. Additionally, two Navy CONUS shore activities which disestablished general libraries in the past due to lack of local command resources are now reestablishing general libraries!
- The shipboard learning resource center (LRC) initiative has really taken off. Designed particularly for small ships and submarines which usually lack dedicated library space, the LRC provides one-stop

shopping for military training, off-duty education, and library products and services. Twenty-one LRCs were outfitted last year with computers, TVs, VCRs, audio players, study carrels and training equipment; CD-ROM is the primary LRC information source. The FY95 target of 25 additional LRCs will not be hard to meet; 15 are already in the pipeline.

- Despite funding decreases within DOD, it was a banner year for central program material support. Navy funding grew by 64% over FY93 and Marine Corps funds held at the FY93 level. Navy funding increases by another 25% this year.
- At the local command level, many technical positions were upgraded as a result of the new classification standards and more libraries than usual upgraded facilities, furnishings and equipment, added or expanded automated services, or moved to newer locations. As a positive BRAC note, Marine Corps Air Station Cherry Point, will be funded to expand library facilities/services to support personnel relocating from Naval Air Station Cecil Field.
- A consolidated effort to further improve library funding at the local level was made via the Baseline Assessment Memorandum process. Funding requirements and shortfall data were gathered for all Navy shore activities with general libraries and submitted to Comptroller of the Navy as part of the POM96 budget cycle.

And finally,

- One of the most rewarding aspects of FY94 was a real sense of progress within the Navy community to recognize the need for and value of library and information services. December 1994 marks the beginning of the 75th year of the Naval General Library Program. This occasion is approached with a network of 135 Marine Corps and Navy shore libraries, 356 ships and 315 remote site paperback reading collections and a great deal of optimism.

And, now news from the special and academic libraries of the Navy and Marine Corps. For those of you not familiar with the Navy library world, let me preface our news with a little background. As Librarian of the Navy, I am only an advisor to special and academic libraries throughout the Department. My office is a one-person operation, and unlike the

general libraries, the special, medical, and academic libraries are not centrally resourced or supported. We're approximately 120 libraries in 120 different commands. This lack of organizational and command structure provides a theoretically ideal testbed for resource sharing and networking!

A major effort was made in the last year to increase interlibrary communication and awareness. We now have a revised list of libraries and also a **Directory** which profiles 60 libraries in detail and is indexed. We have a newsletter. And, we now have an electronic discussion group.

To provide a venue for both informal networking as well as continuing education, we now have frequent Navy and Marine Corps Library Forums (5 so far this year and one coming up on December 8th). In addition to institutional tours and updates, presentations and discussions are on topics ranging from systems requirement analysis, best reference sources on the Internet, scanning and imaging technologies, budgetary resourcing, preservation and conservation, and CD-ROM networking.

In addition to the Forums, the Council of Naval Scientific and Technical Librarians (CONSATL) has met once or twice a year for a 2 or 3 day workshop since the 1950's. At the April 1994 Workshop, the members decided to broaden the scope of the organization, changed the name and by-laws to Council of Naval Special, Scientific and Technical Librarians, and voted to meet at least once a year and in conjunction with MLW. CONSSATL also met here on Monday from 9 to 5. The current chair is Kay Miller from the Naval Oceanographic Office in Bay St. Louis, MS, and the chair-elect is Mary-Deirdre Coraggio from Naval Air Warfare Center, China Lake (who is also the MLD Chair-elect).

These activities have greatly enhanced awareness of resources and expertise within our community. Navy and Marine Corps librarians are not only dynamic participants in professional organizations, they are also generously sharing their knowledge and resources closer to home. To recognize and highlight just a few for their activities in the last year: Bob Schnare (War College) for being our preservation and disaster planning expert and submitting DOD Legacy proposals that if approved will benefit all Navy libraries;

Kathy Wright (NRaD) for hosting our electronic discussion group; Ruth Hennessy (Academy) and Erika Johns (ONI) our experts in CD-ROM networking; Karen Pollok (NEHC) for representing Navy on AFLIRT; Katherine Wallace (NSWC) and Dr. Maxine Reneker (NPG) for their

efforts on our interconnectivity paper; Stephanie Williams (ONI) for providing resources for the Joint Union List project; and all the hosts of our Forums: Pearce Grove, Sue Roach, Brenda Corbin, Karen Pollok, and Evy Englander.

We're all dreading the BRAC-95 announcements, rumoured to be the mother-of-all BRACs. Several Navy BRAC-92 decisions are still in the process of implementation, and there is still uncertainty concerning closing dates and allocating resources to execute realignment decisions. Costing library services for Intra-service Agreements among commands is a current issue. Several of our libraries have experienced significant budget reductions and also lack of authority to fill vacancies as part of the general downsizing trend and organizational re-engineering of so-called overhead functions.

But, on the bright side, downsizing pressures are working to place a new imperative on automation of library functions, networking, and resource sharing. Several of our libraries are in the process of systems installation and upgrade: STILAS has been a popular selection; and the Academy selected Innopac after an intensive evaluation.

And, the world of the Internet has brought a new level of general awareness by our users of the role of libraries that offers both challenge and opportunity in library planning and management. The Naval War College Library will become part of the future Maritime Strategic Research Center, a \$28M building in which new strategies for information access that are complementary or integral to war-gaming will be explored.

This year, we completed a concept paper on interconnectivity for our special and academic libraries to assist library managers in gaining recognition and support for resourcing their needs in this area. In November, we formed a task team to write a proposal for a CD-ROM network.

Other items in the good news department:

On October 20th, we achieved a class Determination and Finding for Navy-wide use of Fedlink.

We're about to begin actual work on the Army-Navy Joint Union List of Periodicals (JULIP) with TRADOC. The result will be a CD-ROM of the holdings of the TRADOC libraries merged with those of participating Navy special and academic libraries.

Brenda Corbin (Naval Observatory) cracked the DOD Legacy jackpot, getting \$120K for a rare-book cataloging project.

And finally, we think Pearce Grove at Marine Corps University may have set a record for hiring professionals this year. Leave it to the Marines to carry out a successful raid on Army and hire away BJ Fox, Wendy Hill and Delores Knight. And we also welcome Ralph Lowenthal from Western Washington State University to our community.

I'm pleased to say that 41 Navy and Marine Corps librarians are here at MLW this year and hope that we'll be able to match this level of participation in 1995.

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ARMY LIBRARY COMMITTEE MEETING REPORT

HEADQUARTERS, DEPARTMENT OF THE ARMY

Office of the Administrative Assistant

Pentagon Library (Louise Nyce)

Networking developmental assignments--announcements forthcoming on some Army librarian competitive developmental assignments; three new librarians on board; technician slots being recruited; down to 29 people--trying shared positions and cross training in reference, systems, and circulation for survival; Pentagon library is scheduled to participate in the first wedge of renovations at the Pentagon.

Office of the Surgeon General (Diane Zehnpfennig)

OTSG ceiling 96 people - reorganization undergoing. The new MEDCOM holding at 407 TDA. Joint Medical Library has a new staff member, a former intern, who is serving as reference librarian. Tri-Service grateful Med contract established and extended to Madigan, Tripler, Fitzsimmons, and Fort Hood.

MAJOR ARMY COMMANDS

US Army Materiel Command (Mary Ann Nowell)

Closed no libraries this year but will in FY 95; Fort Belvoir RD&E on BRAC list; next Watertown, MA; third library is Vint Hill Farms in FY 97-98.

US Forces Command (Charles Ralston)

1. In Fiscal Year 1994, libraries throughout U.S. Army Forces Command (FORSCOM) continued to support the recreational and education needs of soldiers and their family members as well as Department of Defense civilians. In general, restructuring of FORSCOM installations meant fewer library staff and reduced operating budgets.

2. Notwithstanding greater mission demands on FORSCOM due to deployments to Rwanda, Haiti, Kuwait, and other countries, funds for the

sustaining base were reduced. Soldiers and their family members, however, continued to rate libraries high on their list of desirable Morale, Welfare, and Recreation (MWR) activities.

3. FORSCOM's mission is to train, mobilize, and deploy ground combat forces. During FY 94, FORSCOM changed from a joint, specified command to the Army component of the U.S. Atlantic Command (ACOM). FORSCOM, additionally, has maximized the combat readiness of our Reserve Component forces in coordination with its major subordinate command, U.S. Army Reserve Command.

4. These major organizational changes effect our library service in two ways. First, libraries must position themselves to support mobilized and deployed soldiers on a moment's notice, and serve family members left behind. Second, libraries must support increasingly our Reserve and National Guard soldiers and their families during training and mobilization. Bottom line is increased demand for soldier, family, and community support during times of dynamic and stressful change.

5. Two major factors have kept our libraries stable during a time of limited resources and increased demand for services--professional librarians and automated systems. In the short run, libraries with OCLC services, in-house on-line public access catalogs, and CD-ROM databases have adjusted well to staff and budget reductions. Whether or not they can continue to do so over the long haul remains to be seen. Libraries lacking such systems or without adequate professional staffing are struggling to provide services at the level of quality required by Headquarters Department of Army standards. Dollars (or lack thereof) drive the train. The FORSCOM library program, however, will continue to emphasize the importance of professional library service and the necessity of automated information systems to do the job. A snapshot look at each installation library program illustrates this point.

6. **Fort Bragg** (44000 military; 9000 civilians). Patricia Javaher and her staff are focused on getting a new library facility built. Project is at 100 percent design, awaiting completion of a related water pipe project. Ground breaking scheduled for 3rd quarter FY 95 with completion targeted for FY 97. Staff is steady. GEAC automated system was upgraded. Recent budget cuts have meant 50 percent reduction in periodical subscriptions. Organizationally, the Library Services Division reports directly to the Director, Community Activities.

7. **Fort Buchanan** (500 military; 2000 civilians). John Tejera has maintained steady growth in systems (OCLC and CD-ROM databases) and awaits the installation's own automated growth before the library can surf the INTERNET. Staff and operating budget have been stable.
8. **Fort Campbell** (22000 military; 5300 civilians). Mary Nell Wooten and her staff continue to drive a dynamic program. Major goals are to expand library facility itself and upgrade the Bookmark automated system. Staff and budget are stable.
9. **Fort Carson** (17000 military; 3800 civilians). Rebecca Harris and staff installed a Dynix system (11 terminals) in May 94. System is part and parcel of the Dynix system at the U.S. Air Force Academy Library. This is a significant example of joint service cooperation. Library staff is stable. The FY 94 budget was reduced substantially, but elevated adequately for FY 95.
10. **Fort Devens** (2300 military; 1000 civilians). Daniel Norum and staff are preparing to close the library by Sep 95 when Fort Devens will close. A substantial portion of the library's military history collection has been transferred to the U.S. Army Military History Institute. A children's collection (1000 items, K-6 emphasis) is available to interested parties (DSN 256-2431).
11. **Fort Dix** (1500 military; 7000 civilians). Carol Marvos will transfer in Dec 94 to the Defense Language Institute, Presidio of Monterey. Organizationally, the library is co-located with the Education Center. Library needs automation.
12. **Fort Drum** (11000 military; 2700 civilians). Marilyn Mancuso and her staff, in coordination with the Marketing Branch, have published a marketing study of the library. Study depicts soldier demands for library support of continuing education. One result has been the hiring of library staff funded by a local university to support Army continuing education programs. Greatest need is a new library facility. Automation (Drumnet) is supported well.
13. **Fort Hamilton** (500 military; 800 civilians). Linda Duncan, Education Services Officer, oversees the library with one library technician. Since Jun 94, professional library support has been provided under contract to Pro Libra, Inc., out of New York.

14. **Fort Hood** (45000 military; 4500 civilians). Mary Frances Rogerson and her staff are installing a Datatrek system at this writing. Expect the system to go live 15 Nov 94. Also, on track is a plan to relocate the library into a renovated facility that will double the available space. Staff and budget are stable.

15. **Fort Hunter Liggett** (500 military; 600 civilians). Betty Lewis, Library Technician, runs this library, formerly a branch of the now disestablished Fort Ord library. Plans are underway to establish a position and recruit a librarian. Professional support is provided now by Fort Lewis per agreement with Fort McCoy. Both installations are under U.S. Army Reserve Command.

16. **Fort Indiantown Gap** (500 military; 600 civilians). Maryjane Hesse, Library Technician, operates this library. Professional librarian support is provided by Fort Drum. The library, located in an historic facility which was originally a Dunker church, is undergoing a major renovation.

17. **Fort Irwin** (4600 military; 3100 civilians). Christopher Losee, contract librarian, recently resigned his position as librarian. Library needs attention on all fronts: staffing, budget, automation, facility.

18. **Fort Lewis** (18500 military; 4500 civilians). Patricia Louderback and staff continue to deliver quality services. Staff and budget are stable. The Dynix system has completed its first year of service. Greatest need is for a larger facility.

19. **Fort McCoy** (600 military; 1900 civilians). David Onstad, Skills Development Officer, Community Recreation Division, DPCA, oversees the library.

20. **Fort McPherson** (1800 military; 3100 civilians). Terry Kiss and her staff continue to plan for an on-line system. Operating budget is stable and the facility is holding up well.

21. **Fort Polk** (9500 military; 5600 civilians). Stephanie Jones and staff are working on an upgrade to the library's Datatrek system. One project is linkage with LOUIS (Louisiana On-line University Information System). Staffing and budgeting are marginal. Recent expansion of service hours from 45 to 70 per week will strain delivery of services.

22. **Fort Riley** (15000 military; 2600 civilians). Barbara Eussen and staff are delivering basic library service. Staffing and budget levels remain marginal. Lack of automation support hampers program delivery.

23. **Fort Sam Houston** (9700 military; 7600 civilians). Mary Ann Deason and staff continue to provide outstanding service. The Innovative Interfaces system continues to work well and the renovated facility has helped to increase patronage. The program's biggest loss will be Mary Ann Deason, who will retire 17 Nov 94.

24. **Fort Stewart** (15000 military; 4400 civilians). Malinda Johnson and staff deliver a good library program that includes service to **Hunter Army Air Field** (3800 military and 800 civilians). Program needs a larger facility and an automation on-line system. Staffing level is marginal. Operating budget continues to be good.

25. In sum, the FORSCOM library program continues to provide fundamental support to the recreational and educational needs of our soldiers, their family members, and civilians. It plays a major role in sustaining the morale of our Army's ground combat forces. Its greatest need, notwithstanding reduced staffing levels and operating budgets, is to maintain its professional librarians and to continue to optimize automation efforts.

US Army Training and Doctrine Command (Janet Scheitle)

1. Command gave 160K to Center for the purchase of mmpcs in academic/technical libraries. Purchased 486 mmpcs, laser jet printers and interactive media. Bought out periodicals for 50% of the command libraries, costing \$200K. TRALINET Center released centralized acquisitions to the field. Release generated by the loss of staff and the cumbersome flow of funds from the field to Center to FEDLINK. Now every TRADOC library must have it's own IAG and handle its own funds.

2. **Zero-Based Review:** Exercise at HQ TRADOC where everything was considered for elimination. Over 6,000 line items were reviewed. Fifty percent of TRADOC Commanders had to recommend a line item for elimination before it would be considered. TRADOC, DCG, General Miller, recommended general libraries consider consolidating with school libraries.

3. HQ Mandated Reduction: CG Franks directed a 30% cut in HQ staff. TRALINET was cut from 12 to 3 (75%) effective 1 Oct 95. General Hartzog is new commander of TRADOC.

4. TRADOC eliminated all intern programs except Safety/Environmental Training and Transportation. TRALINET still has two interns; they graduate Spring/Summer 1995.

5. TRALINET Center goes away as a FOA on 1 Oct 95. Command wants to transform Center into a staff office.

6. TRALINET Center is pursuing a joint initiative, JULIP, Joint Union List of Periodicals, with the Navy.

US Army South (Joyce Ullrich)

The two libraries that will close are Fort Espinar and Fort Davis on the Atlantic side. Staffing continues to be a problem but funding remaining constant. The main library at Fort Clayton is scheduled to remain through 1998. A post-2000 presence is a possibility but only speculation.

US Army Pacific (Richard Hanusey)

USARPAC: APF money is okay; Veterans Administration building a Center for Aging on Tripler Army Hospital grounds--this cost savings agreement provides for Community Army Library support of VA function. New JCAHO standards for hospitals expands Army Community Library involvement with Medical Command's Patient Education--joint effort being coordinated; a librarian retirement resulted in reclassification of position to Senior Technician per MIVER recommendations; USAFISA review of positions in Hawaii recommended two additional work years; SIRSI AIS in Hawaii 100% implemented; DATATREK for Alaska 20% implementation; funding fenced for Japan.

**38th Annual
Military Librarians Workshop**

"Reinventing Libraries: Challenges and Change"

PROGRAM

**November 14 - 17, 1994
Huntsville, Alabama**

Sunday
November 13, 1994

2:00 p.m. - 5:00 p.m.

Registration

Lobby

Hospitality Center
Suite 328

Monday 2:00 p.m. - 5:00 p.m.
Tuesday/Wednesday 7:00 a.m. - 5:00 p.m.
Thursday 7:00 a.m. - 12:00 noon

Services include: photocopy
fax
courier to Redstone
computer

Monday
November 14, 1994

8:00 a.m. - 5:00 p.m.	Registration	Lobby
8:00 a.m. - 5:00 p.m.	Air Force Meeting	Heritage Room 1
	Navy Meeting	Heritage Room 2
4:00 p.m. - 6:00 p.m.	MLW Board Meeting	Von Braun Room
6:00 p.m. - 7:00 p.m.	Service Meetings	
	Air Force	Heritage Room 1
	Navy	Heritage Room 2
	Army	Heritage Room 3
	Canada	Hunt Room
	DIA/DOD	Von Braun Room
7:00 p.m. - 9:00 p.m.	No-Host Bar	Azalea Room

**Tuesday
November 15, 1994**

7:00 a.m. - 4:00 p.m.

Registration

Lobby

8:00 a.m. - 8:45 a.m.

Grand Salon

Welcome Addresses

Honorable Steve Hettinger, Mayor, Huntsville
Dr. William C. McCorkle, Director, RD&E Center
Representative, Governor Folsom's Office
Ann Nathews, President, Alabama Chapter, SLA

8:45 a.m. - 9:15 a.m.

Grand Salon

"The Shrinking National Collection"

Dr. Anna Perrault, School of Library and Information Science,
University of South Florida

9:15 a.m. - 10:15 a.m.

Grand Salon

KEYNOTE ADDRESS:

"Politics of Reinventing Government Libraries"

Dr. Herbert S. White, School of Library and Information Science,
Indiana University

(Tuesday, continued)

10:15 a.m. - 10:30 a.m. **BREAK** Azalea Room

10:30 a.m. - 11:30 a.m. Grand Salon

“Customer Service: An Executive Order to Reinvent Government”

Ms. Linda Walker, Special Assistant to the Director,
National Performance Review

11:30 a.m. - 12:15 p.m. Grand Salon

**“The Mosaic Multimedia Internet Access to the White House
and the Interactive Citizens’ Handbook”**

Mr. Jonathan Gill, White House, Office of Media Affairs
Information Policy Committee

12:15 p.m. - 1:30 p.m. **BUFFET LUNCH** Heritage Ballroom

1:30 p.m. - 2:15 p.m. Grand Salon

“Ethics and Culture of Special Librarians”

Dr. Marion Paris, Professor, School of Library and
Information Science, University of Alabama

(Tuesday, continued)

2:15 p.m. - 2:45 p.m.

Grand Salon

“The Value of Military Library Resources to Academic Libraries”

Dr. Sue Medina, Executive Director, Network of Alabama
Academic Libraries

2:45 p.m. - 3:00 p.m.

BREAK

Azalea Room

2:45 p.m. - 5:00 p.m.

EXHIBITS

Azalea Room

3:00 p.m. - 4:30 p.m.

Redstone Arsenal

Demonstration Electronic Meeting System (EMS)

Group Decision Room (Limited to 60 attendees)

Bus leaves Hilton at 3:00 p.m.

Bus leaves Redstone Arsenal at 4:30 p.m.

4:00 p.m. - 5:30 p.m.

Redstone Arsenal

Demonstration Electronic Meeting System (EMS)

Group Decision Room (Limited to 60 attendees)

Bus leaves Hilton at 4:00 p.m.

Bus leaves Redstone Arsenal at 5:30 p.m.

6:45 p.m.

Dutch Treat Dinners

**Wednesday
November 16, 1994**

7:00 a.m. - 5:00 p.m.	Registration	Lobby
8:00 a.m. - 8:05 a.m.	Administrative Announcements	Grand Salon
8:05 a.m. - 8:40 a.m.	Armed Services Updates	Grand Salon
8:40 a.m. - 9:15 a.m.	"Policy for Retention of Electronic Messages" James J. Hastings, Director of Records Appraisal Division, National Archives and Records Administration	Grand Salon
9:15 a.m. - 9:30 a.m.	BREAK	Azalea Room
9:30 a.m. - 11:45 a.m.	"The Learning Organization, Based on <u>The Fifth Discipline</u>" Dr. Jerome B. Brightman, Innovation Associates, Inc.	Grand Salon

(Wednesday, continued)

12:00 p.m. - 1:30 p.m. **LUNCHEON SPEAKER** Heritage Ballroom

“Education in the Age of Connectivity”

Dean Philip M. Turner, University of Alabama,
School of Library and Information Science

1:30 p.m. - 2:15 p.m. **CONCURRENT SESSION A**

A-1 “Systems, Subsystems & Technology Integration:
An Approach to an Integrated Information System” Grand Salon A

Larry Nelson, Sparta, Inc

A-2 “DTIC Update” Grand Salon B

Kurt Molholm, DTIC

A-3 “Serials Survey” Grand Salon C

Kathleen Born, EBSCO Subscription Services



We wish to take this opportunity to express our thanks to the following companies for their generous donations to defray the cost of refreshments.

Blackwell's
FAXON
Foreign Language Services, Inc.
Information Handling Services
Sirsi Corp



(Wednesday, continued)

2:20 p.m. - 3:00 p.m.

CONCURRENT SESSION B

B-1 "FEDLINK Update"

Grand Salon A

Joseph Banks, FLICC

B-2 "Document Imaging"

Grand Salon B

Tim Deaton, Third Wave Technologies

B-3 "Toxic Substances and Public Health"

Grand Salon C

Gayle Alston, U.S. Department of Public Health
and Human Services

B-4 "Technical Libraries and OSD"

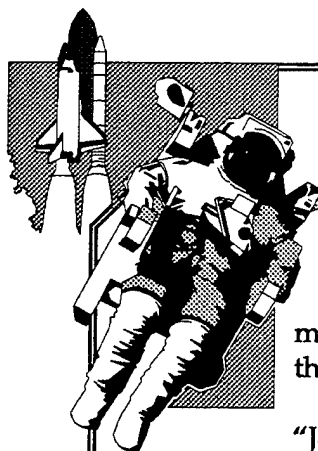
Heritage Room 3

David A. Appler, Director, Science Technical and
Information Policy at Office of Science Defense (OSD)

3:00 p.m. - 3:15 p.m.

BREAK

Azalea Room



SPECIAL EVENT HIGHLIGHT

**U.S. Space and Rocket Center
Huntsville, Alabama**

The evening at the Space & Rocket Center opens with the Omnimax movie "Blue Planet," in the Space Dome Theater. A reception follows in the museum with an open bar and hors d'oeuvres.

Experience a shuttle lift off as you take a futuristic motion-based "Journey to Jupiter." The Gift Shop will be open during our visit.

Dinner of Top Sirloin Steak and Teriyaki Chicken will be served at 8:00 p.m. Buses will leave at 9:00 to return you to the Hilton.

(Wednesday, continued)

3:15 p.m. - 4:00 p.m. **CONCURRENT SESSION C**

C-1 "Huntsville: Where Technology Meets Tradition" Grand Salon A

Melinda Joiner, Author

C-2 "Silent in the Land" Grand Salon B

Chip Cooper, Director of Photography,
University of Alabama, and Harry Knopke,
co-authors

C-3 "Cooperative Partnerships for University and
Government Libraries: An Alabama Model" Grand Salon C

Jim Kuhlman, Associate Dean, University
of Alabama Libraries

C-4 "LABLINK/Minerva: Deputy Director,
Defense Research and Engineering for Laboratory
Management (DDR&E [LM]) Homepage" Heritage Room 3

Margaret Brautigam, DTIC

4:00 p.m. - 5:00 p.m. **EXHIBITS** Azalea Room

5:45 p.m. - 10:00 p.m. **SPECIAL EVENT**

Alabama Space and Rocket Center
Dinner/Film/Tour
Bus Service provided from Hilton Lobby

Thursday November 17, 1994

7:30 a.m. - 9:00 a.m. **Breakfast/Announcements** Grand Salon

“The Library of Tomorrow”

Speaker: David Penniman, Council on Library Resources

9:00 a.m. - 9:10 a.m. **Break**

9:10 a.m. - 10:10 a.m. **“A Vision for Digital Libraries”** Grand Salon

Dr. Victor Rosenberg, University of Michigan

10:10 a.m. - 10:20 a.m. **Break**

10:20 a.m. - 11:00 a.m. **“MSFC/PAO Shuttle, Space Lab,
Space Station, Future Projects”** Grand Salon

Carmine De Sanctis, Director, Advanced Systems
and Payload Systems Office, MSFC

11:00 a.m. - 11:05 a.m. **Conference Wrap-up** Grand Salon

11:05 a.m. - 12:00 p.m. **MLD Executive Board Meeting** Grand Salon

(Thursday, continued)

12:00 p.m. - 1:30 p.m. **Lunch on your own**

1:30 p.m. - 4:30 p.m.

Optional Tour of Redstone Scientific Information Center

Bus Service provided from Hilton Lobby

SPEAKER BIOGRAPHIES

☐ **Gayle Alston**

Gayle Alston is a health education specialist at the Agency for Toxic Substances and Disease Registry (ATSDR), Public Health Service, U.S. Department of Health and Human Services. She has a B.S. in Library Science from Appalachian State University and an M.L.S. from Emory University. At ATSDR, she is responsible for the development and implementation of information dissemination strategies including lectures and presentations.

In addition, she co-authored a series of articles on environmental information for Database journal and does an annual update. She is a past chair of the Environment and Resource Management Division of the Special Libraries Association. In 1992 she was a U.S. delegate to the international conference, "Health Aspects of Chemicals Accidents."

☐ **David A. Appler**

David Appler is the Director, DOD Scientific and Technical Information Policy. He holds a B.S. degree in Marketing from the University of Maryland and has been in the Federal Service since 1968.

Mr. Appler currently prepares the DOD policy directives and conducts program oversight of the DOD Scientific and Technical Information Program.

☐ **Joseph S. Banks**

Joseph S. Banks started his career at the Library of Congress in August 1992 when he assumed the post of Business Manager of FEDLINK. Prior to joining the FEDLINK program, Mr. Banks was a financial executive with Martin Marietta. In 1990, he received the Thomas Jefferson Cup, Martin Marietta's highest corporate award for design and implementation of financial management reporting systems.

Mr. Banks is responsible for planning, developing, controlling, and administering FEDLINK fiscal activities necessary to ensure a viable and efficiently managed service program for the 1300 plus federal libraries, information centers and other federal agencies that purchase database retrieval, publications acquisitions, and library support services.

□ **Kathleen Born**

Ms. Born is the Director, Academic Division of EBSCO Subscription Services in Birmingham, Alabama. Planning the serials budget is a challenging task riddled with uncertainties. The Periodical Price Survey examines the factors influencing the cost of periodicals for the coming year. The annual study based on cost history, cost evaluation of foreign and domestic publications, and currency fluctuations provides an historical perspective of costs by subject area and country of origin. A model for projecting costs in the future is proposed.

□ **Margaret Brautigam**

Margaret Brautigam is a Technical Information Specialist/Cybrarian in the Information Program Support Division of the Defense Technical Information Center (DTIC). She provides information services to the Office of Secretary of Defense which include the creation and management of World Wide Web Home Pages for DDDR&E, Office of Laboratory Management, and DDDR&E, Office of Technology Transition. She is a member of the Special Librarians Association.

Prior to coming to DTIC in 1991, Ms. Brautigam was at Air Force Flight Test Center, Edwards AFB, California, as the Chief of Technical Services which included the Technical Library, STINFO, and the Photo Lab Services. In 1986, she was awarded the Air Force and the Air Force Systems Command awards as the Technical Librarian of the Year.

Ms. Brautigam began her technical information career in 1968 at the Naval Weapons Center (NWC), China Lake, California, where she remained until 1985. At NWC, she held staff and management positions in both the Technical Library and the Intelligence Library. She received the NWC Commander's Award for contributions to the salvage of 75,000 classified documents during the 1994 flood.

□ **Dr. Jerome B. Brightman**

Dr. Jerome Brightman is the President of Global Management Institute (GMI). His work focuses on making organizations around the world more productive, more purposeful, more competitive and more receptive to change by better understanding and utilizing the practical ideas of the Learning Organization. Dr. Brightman accomplishes this through creating short management education programs, speeches, facilitation, and consulting. He has a doctorate in business (DBA) from George Washington University, an M.B.A. from American University, and an A.B. in Economics from Clark University. In his career, Dr. Brightman has been a college professor, an international chemicals and minerals marketer and trader, China trader, Executive Director of the International Marketing Institute (founded at Harvard in 1960) and a protégé of Peter Senge and his colleagues at Innovation Associates. He helped pioneer trade with the Peoples' Republic of China in the early 1970's, and has run seminars, consulted, and negotiated business in approximately 104 countries around the world.

□ **Chip Cooper**

Chip Cooper is Director of Photography, University Relations, and adjunct instructor of photography in the Department of Art at the University of Alabama. His previous books include Hunting: The Southern Tradition and Alabama Memories. His current book, Silent in the Land, represents the culmination of a project he has been nurturing for several years. Mr. Cooper has exhibited his work internationally in museums and galleries. Mr. Cooper has won over 75 awards, the most recent being the Award of Excellence Book Series 1994 in the Communication Arts Magazine annual issue for his recent work in Silent in the Land.

□ **Timothy N. Deaton**

Timothy Deaton is President of Huntsville based Third Wave Technologies, Inc., holds a B.S. in Electrical Engineering from Purdue University and an M.B.A. from the University of Alabama. He has over 13 years' experience in complex information management systems and has worked closely with key Fortune 500 and government executives to integrate document imaging systems. Third Wave's diverse areas include litigation support, business applications of imaging, and sensitive data

acquisition and dissemination. Mr. Deaton has spoken to several groups on the unique aspects of the electronic management of technical and engineering documents and the effective management of large-scale document conversion projects.

□ **Jonathan P. (Jock) Gill**

Jonathan Gill is the Director of Special Projects in the Office of Media Affairs at the White House. Among his responsibilities are Electronic Publishing, Electronic Public Outreach, Media Affairs Technical Support, Public Spokesperson and New Technologies Evaluation. In the spring of 1993, he led the effort to form the Americans Communicating Electronically (ACE) project. In June of 1993, he was instrumental in the opening of the first ever Internet email access to public White House documents. In February 1994, Mr. Gill participated in the first publication of a proposed budget on CD-ROM. Currently he is exploring ways the White House could use WWW and Mosaic technologies.

In February 1994, Mr. Gill was selected by Federal Computer Week as one of the "Federal 100 of 1994" - executives from government, industry, and academia "...judged to have had the greatest impact on the government systems community in 1994." The group was selected for "the differences they made in the way agencies and companies develop, acquire and manage information technology in the federal world."

Prior to his present position, Mr. Gill founded and served as the President of Penfield Gill Inc., an information technologies consulting firm. Working as a consultant to the Clinton/Gore 1992 Presidential Campaign, Mr. Gill was responsible for operation of the Campaign's email and electronic publishing activities.

□ **James J. Hastings**

James Hastings is the Director of the Records Appraisal and Disposition Division in the Office of Records Administration in the National Archives and Records Administration. The division determines which Federal records are to be preserved for future research at the National Archives and authorizes the disposal of those that do not have permanent value.

Mr. Hastings has been with the National Archives since 1972. He has previously held various positions in the Office of the National Archives and the Office of Presidential Libraries. Throughout the 1970s he was responsible for records that presented access issues. From 1979 to 1988 he was the Director of the Nixon Presidential Materials Project, where he managed the processing of and access to the Nixon papers, tapes, audiovisual materials, and museum items. From 1988 to 1991, he was the liaison of the National Archives to the White House Office of Records Management.

Mr. Hastings holds a B.A. and an M.A. from Xavier University in history.

□ **C. Les Johnson**

Les Johnson received a B.A. in Chemistry and Physics from Transylvania University-Kentucky in 1984 and was named an Outstanding Young Man of America that same year. He received his Masters degree in Physics from Vanderbilt University in 1986. His thesis was titled: "The Interactions of Neutral and Ionic Oxygen Beams with Space-Relevant Materials."

Following graduation, Mr. Johnson worked with directed energy systems for General Research Corporation, Huntsville, Alabama. He also helped direct early US Department of Energy (DOE) research in high temperature superconductors for directed energy applications. Later as an independent technical consultant, he provided in-depth technical analyses of neutron and gamma-ray detector designs for use with directed energy systems.

In 1990, Mr. Johnson joined the NASA team and began working on projects such as the Superconducting Gravity Gradiometer mission, and the Space Exploration Initiative (SEI) Lunar Space Physics payloads.

In continuing his education, he participated in, and graduated from, the International Space University, Toulouse, France, in 1991.

In 1992, Mr. Johnson became project manager responsible for leading a team of scientists and engineers in the design and definition of the \$80M Magnetosphere Imager spacecraft and mission concept.

□ **Melinda Gorham Joiner**

Melinda Joiner is the assistant managing editor of The Huntsville Times. During 14 years at The Times, Ms. Joiner has worked as a reporter, bureau chief, copy editor, and lifestyle editor. She has won numerous writing awards for stories on such subjects as children with AIDS, homeschooling, mothers in prison, interracial relationships, and infant mortality. Ms. Joiner has received state writing awards for poetry and regional honors for essay-writing. Her book, Huntsville--Where Technology Meets Tradition, was published last year.

□ **Dr. Harry J. Knopke**

Dr. Harry Knopke is Vice President for Student Affairs of the University of Alabama, Director of the Center for Communication and Educational Technology, and Professor of Behavioral and Community Medicine in the College of Community Health Sciences, the Tuscaloosa program for the University of Alabama School of Medicine. He is also the 1988 recipient of the university's Outstanding Commitment to Teaching Award. Dr. Knopke has published extensively in the areas of primary health care, medical education, and behavioral science, including three books and two monographs. Silent in the Land is his fourth book.

□ **Jim Kuhlman**

Jim Kuhlman is the Associate Dean of Libraries for Collections and Information Services at the University of Alabama. His career includes reference, collection development, and bibliographic instruction positions at the University of Georgia, the University of North Carolina--Ashville, and Kentucky Wesleyan College, as well as four years as a remarkably junior Naval officer. In addition to an M.L.S. from Peabody College, Jim earned a B.A. in International Studies at the University of Louisville and an M.A. in Political Science at the University of Georgia.

□ **Dr. Sue Medina**

Dr. Sue Medina directs the Network of Alabama Academic Libraries, a statewide consortium engaged in resource sharing since 1985. Dr. Medina, who received her Ph.D. from Florida State University, has worked in academic, state, public, and school libraries. She is a frequent contributor to the professional literature.

□ **Larry Nelson**

Larry Nelson is the Director of Information Systems at SPARTA, Inc. He currently is the Chief Engineer for the R&D Information Management System (RIMS) development project for the US Army Missile Command, HQ TRADOC and STRICOM. He also is developing an integrated information system for the US Naval Medical Research and Development Center. Mr. Nelson is a former US Air Force Captain with over 12 years experience in developing integrated information systems for the government. These systems involve Commercial-Off-The-Shelf (COTS) products and utilize tailored databases, video, digital imagery, networks, CD-ROM, and other emerging technologies.

□ **Dr. Marion Paris**

Dr. Marion Paris is an Associate Professor in the School of Library and Information Studies at the University of Alabama, Tuscaloosa, where she is responsible for courses in special libraries, library and information center management, research methods, sources of business information, and records management. She is the author of numerous articles and Library School Closings: Four Case Studies, published in 1988 by Scarecrow Press.

Dr. Paris received her Ph.D. from Indiana University in 1986 after a career in the information industry that included employment at Boyden International, Coopers & Lybrand, the New York Zoological Society, and the Central Park Conservancy.

She is the immediate past president of the Alabama Chapter of the SLA and serves as chair of SLA's Academic Relations Committee and advisor of the student chapter at the University of Alabama. She is a longtime member of the American Library Association, the Association of Records Managers and Administrators, and the Association for Library

and Information Science Education. Dr. Paris is a member of the Mortar Board and Beta Phi Mu, and is a frequent speaker and consultant.

□ **Dr. W. David Penniman**

Dr. David Penniman is President of the Council on Library Resources, Inc., an operating foundation that has been a leader since 1956 in solving problems in information availability. In today's environment, the Council's mission extends to all types of libraries and emerging information services including those that will be carried by the proposed national "information highway." As an operating foundation, the Council performs projects and awards grants and contracts to other organizations to put emerging technologies to use in modern libraries and information systems.

Before joining the Council in 1991, Dr. Penniman served as Director of the Information Services Group. He has served as Vice President for Planning and Research for Online Computer Library Center (OCLC), where he also established the Research Department in 1978.

Dr. Penniman is a Senior Member of the IEEE and is a member of the American Library Association, the Special Libraries Association, and the Association for Computing Machinery. He holds an undergraduate degree in engineering from the University of Illinois and a Ph.D. in Behavioral Science from Ohio State University.

□ **Dr. Philip M. Turner**

Dr. Philip Turner holds a bachelors degree in Mathematics and double masters in Educational Media and Library Science. His doctrate is in instructional technology. He has been a junior high school teacher and a school library media specialist. For the past 17 years he has been with the School of Library and Information Studies at the University of Alabama, where he is currently Professor and Dean of the school.

Dr. Turner has published over 50 articles and books. In 1993, the second edition of Helping Teachers Teach was published by Libraries Unlimited. He has served on numerous committees and has held office in state and national associations. For the past two years, he has served as Assistant Vice Chancellor of Academic Affairs, Telecommunications in the

University of Alabama system. In this role he has managed the creation of the Inter-campus Interactive Telecommunications Systems (IITS) which currently connects ten sites in Alabama. In April of 1994, Dr. Turner received an award for achievement in Managing Information Technology, sponsored by Carnegie Mellon University and American Management Systems.

□ **Linda Walker**

Linda Walker is a Staff Specialist for Vice President Gore's National Performance Review, where she is primarily responsible for evaluating and encouraging the progress of more than 100 Reinvention Labs in every agency around the country. Additionally, she is responsible for identifying exceptional reinvention success and organizing events for the Vice President to recognize these successes.

Mrs. Walker joined Vice President Gore's staff in 1985 as East Tennessee Field Director, when the Vice President served in the Senate, remaining until he was elected Vice President. Following the election, she joined the Administration in Washington and served on Vice President Gore's Domestic Policy Staff before becoming associated with the National Performance Review.

Mrs. Walker attended the University of Tennessee at Chattanooga and Chattanooga State Community College.

□ **Herbert S. White**

Herbert White is currently at Indiana University, School of Library and Information Science as a Distinguished Professor. For 16 years, Mr. White served as Professor, Dean, and Director of the Research Center, School of Library and Information Science, Indiana University. He holds a B.S. in Chemistry from the College of the City of New York and an M.S. in Library Science from Syracuse University.

Mr. White has written more than 150 books and articles on topics of library administration, supervision, and library automation. His most recent accomplishment is a book on Management Case Studies, published in 1994.

Mr. White is a member of many professional organizations, to include the American Library Association, the Special Libraries Association, and the American Society for Information Science. He has also received numerous awards and recognitions for his accomplishments, which include being named in "Who's Who in America."



Joseph S. Banks



Herbert S. White



Dr. Jerome B. Brightman



Timothy N. Deaton



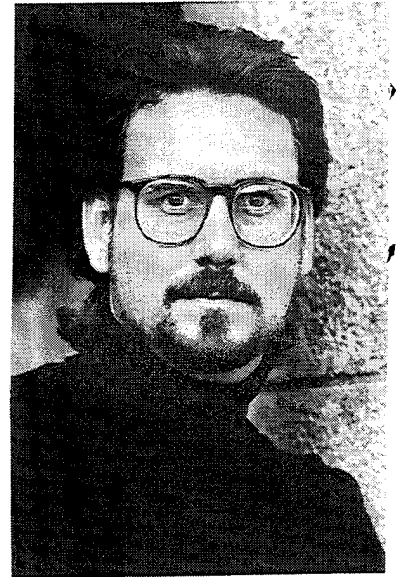
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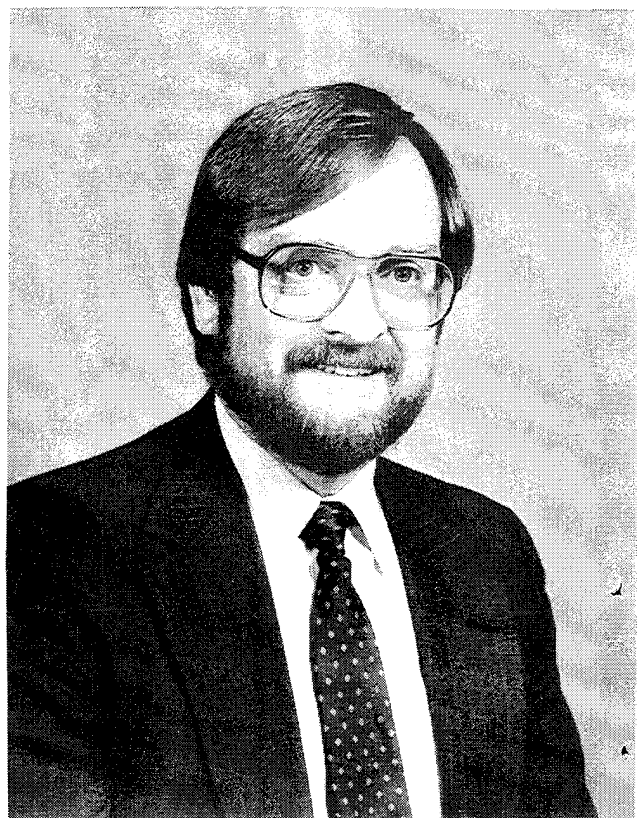
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38th Annual MILITARIAN LIBRARIANS WORKSHOP

Evaluation Form

In order to help plan future workshops, it is important that we evaluate the content of this year's program. Please complete the following questionnaire and turn it in at the MLW Information/Registration Desk.

1. Which of the following best describes your organizational affiliation?

CHECK ONE:

- ☐ Army
- ☐ Air Force
- ☐ Navy
- ☐ Canadian
- ☐ DIA/DOD
- ☐ Other (Specify) _____

2. Which category **best** describes your profession or current position?

- ☐ Information Specialist (e.g., librarian, professional searcher, etc.)
- ☐ Information Manager
- ☐ Publishing/Composition
- ☐ Technical Writer/Editor
- ☐ Computers/Information Systems
- ☐ Translation
- ☐ Researcher/Scientist
- ☐ Other (Specify) _____

3. Please rate the quality of the following items. **Check only one box on each row:**

	Excellent	Good	Fair	Poor	NA or Don't Know
Meeting room					
Hotel accommodations					
Break refreshments					
Length of breaks					
Luncheons					
Space & Rocket Center					
Scheduling of sessions					
Exhibits					
RSIC Tour					

4. What aspect(s) of the meeting would you most recommend? Why?

5. What aspect(s) of the meeting would you least recommend? Why?

6. What is your overall rating of the general sessions?

☐ Excellent ☐ Good ☐ Fair ☐ Poor

7. What is your overall rating of the concurrent sessions?

☐ Excellent ☐ Good ☐ Fair ☐ Poor

8. What is your overall rating of the workshop?

☐ Excellent ☐ Good ☐ Fair ☐ Poor

9. We would appreciate any other comments/suggestions you have concerning this year's workshop.

**THANK YOU FOR ATTENDING THE 38TH MILITARY LIBRARIANS WORKSHOP
AND FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE.**

Presentations not included due to copyright restrictions are:

The Value of Military Resources to Academic Libraries presented by **Dr. Sue Medina**, Executive Director, Network of Alabama Academic Libraries.

Serials Survey presented by **Kathleen Born**, EBSCO Subscription Services.

The Library of Tomorrow presented by **Dr. W. David Penniman**, Council on Library Resources.

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ACKNOWLEDGEMENTS

SPONSOR: Special Libraries Association, Military Libraries Division

HOST: Redstone Scientific Information Center (RSIC)
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We are especially indebted to Doris Cornett for planning, organizing and managing the registration of attendees at the 38th Military Librarians Workshop.

Special thanks to TEC-MASTERS personnel (RSIC support staff) who helped make this workshop a success: James Carter, Clayton Pitts, James Caldwell, Charles Pindell, Edwin Rodriquez, Joe Cox, Sonya Mathews, and Trevor Powers.

Librarians from other local agencies who generously volunteered their time and talents were Judy Kennedy and Mignon Thistle, Defense Intelligence Agency, Deborah Wills, National Aeronautics and Space Administration, Mark Hines, OMMCS Technical Library, and Anna Dumas, Space and Strategic Defense Command.

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