# Director, MIT Libraries

Academic year 2005 marks the 60th anniversary of Vannevar Bush's legendary essay "As We May Think." In this watershed paper, published in the *Atlantic Monthly* in July 1945, Bush challenged his fellow scientists and engineers to turn their postwar attention to the task of "making more accessible [the] bewildering store of knowledge."

The problem for scientists and engineers, as Bush saw it, was not that too much was being published, but that the systems and structures available to manage and organize published information had been taxed "far beyond our present ability to make real use of the record." And although Bush's technical solution ("memex") may seem quaint in hindsight, his hypothesis that humankind needed access to and command over the inherited knowledge of the ages is as true today as it was in 1945. The passion evident in Bush's essay was driven by his firm belief that "a record, if it is to be useful to science, must be continuously extended, it must be stored, and above all it must be consulted."

Vannevar Bush would be gratified at the technical progress made since 1945 toward meeting his challenge. Indeed, he would be amazed given the technical climate in which he articulated his vision. In 1945 the highest state of the art Bush could imagine for his memex was to combine microphotography with ENIAC, a 30-ton electronic numerical integrator and computer that required almost 200 kilowatts of electricity to operate its 19,000 vacuum tubes, 1,500 relays, and hundreds of thousands of resistors, capacitors, and inductors. Indeed, to be a futurist in Bush's day was to opine that "computers in the future may have only 1,000 vacuum tubes and perhaps weigh only 1.5 tons."

Sixty years later, Bush's description of a fast, responsive, easy-to-use desktop system for information searching, retrieval, and management sounds a lot like the worldwide web, internet, and networked personal computing environment we now take for granted. Quite fittingly, academic year 2005 was also the year Robert Kahn and Vincent Cerf received the Turing Prize for their work in the 1970s that now forms the basis of the nearly ubiquitous internet. So if it took 30 years to get from memex to machine networking protocols, and another 30 years to get from TCP/IP to today's functional networked environment, will the next 30 years deliver the ubiquitous, shareable knowledge network of research results about which Bush could only dream?

Ironically, the answer may well be no. While the technical ability to organize and access knowledge is well on the way to being satisfied, the researcher's legal ability to freely consult, store, and manipulate and share the record of science has been all but lost. Over the past 60 years, scientists themselves have voluntarily and systematically surrendered the ownership of their own research results to third-party publishers as a condition of publication. In the years between 1945 and 2005, the vast majority of scientific and technical papers has been swept into the private control of publishers, becoming available only to those who can both afford the high cost of access and agree to the publishers' terms of use. Indeed, because of changes to intellectual property laws, the restrictive control exercised by publishers has steadily tightened during these same years.

In arguing for a robust, open system of knowledge management, Vannevar Bush pointed to the example of Mendel's concept of the laws of genetics, which famously was lost to the world for a generation because the paper in which it was described did not reach those who were capable of understanding and extending the concept. Today Mendel's modern counterpart might meet the same fate—but for other reasons. Those who are capable of understanding new knowledge might not have the financial resources needed to access it. Vannevar Bush could hardly have imagined a situation in which access to the record of research advances was priced not at what those who contribute the editorial content might find reasonable, or even at what the market will bear, but at a level that causes scientists and society to be excluded from access, and the market to steadily shrink.

Even more disconcerting to Vannevar Bush would be the license agreements that publishers expect academic libraries to sign. Publishers routinely attempt to restrict access to their licensed resources to a community of readers that the publishers—not scientists, faculties, libraries, or universities—have the right to define. In Bush's world the role of science was to provide swift communication between individuals, to improve the health and welfare of humankind, and to provide an intellectual record enabling humankind to share information and advance knowledge beyond the ability and lifespan of the individual. In today's world, it is publishers who expect to control who has access to information, whether within a scientific and academic community or within society as a whole.

As the magnitude of these problems, and the related risk to the openness required for education and research, became clearer, a number of actions were initiated in AY2005 to begin to shape an institutional response. Provost Robert Brown sponsored discussions with senior faculty and deans to assess faculty interest in and ideas for developing an institutional action strategy. Alice Gast, associate provost and vice president for research, held discussions of the issue within the framework of the Committee on Intellectual Property. David Thorburn sponsored enlightening seminars under the auspices of his MIT Communications Forum. Deposits to MIT's own open access repository DSpace, such as CSAIL technical reports, continued to rise. The MIT Press experimented with open access publishing models. The Faculty Committee on the Library System, working together with MIT Libraries' Collections Services directorate, developed an informational website. MIT expressed its support for the National Institutes of Health policies in furtherance of public access to publicly funded research results. The director of MIT Libraries agreed to serve as a member of the NIH Public Access Advisory Working Group. The OpenCourseWare project documented for the US Copyright Office the frustrations of working within a copyright law that prevents the use of copyrighted works for 90+ years, even when the copyright owner can no longer be identified or located. And the MIT Libraries' Digital Research Group continued to improve our understanding of the remaining technical problems and worked to develop solutions to the challenge of digital archiving.

To be sure, these are small steps, but we think Vannevar Bush would approve. We also think he would approve of the exceptional progress made by the MIT Libraries in planning for the future and in delivering on our mission in the present. The MIT

Libraries may not have owned machines holding 19,000 vacuum tubes in AY2005, but they most certainly did have a dynamic research program, innovative service strategies, and a vision and service model that won them praise from the MIT Libraries Visiting Committee and highest satisfaction ratings from MIT faculty and students alike.

The following reports from the Libraries' directorates speak eloquently to the progress and accomplishments of the individuals and units within the MIT Libraries in AY2005. In addition to the advances identified in these reports, the Libraries were fortunate to add strength and depth to the Development Office in the person of Sharon Stanczak, whom we recruited from the Folger Library in Washington, D.C., to fill the position of development officer.

The standard of excellence achieved by the MIT Libraries is a reflection of the talent, commitment, and energy of the staff, whose accomplishments come from a deeply shared commitment to providing the best possible service to MIT's extraordinary community of faculty, students, and staff. It continues to be a privilege to serve with such an exceptional group.

**Ann J. Wolpert**
**Director of Libraries**

*More information about the MIT Libraries can be found online at* [http://libraries.mit.edu/](http://libraries.mit.edu/).

## Public Services

> *The future is made of the same stuff as the present.*
> —Simone Weil

The MIT Libraries adopted its new five-year strategic plan in December 2004. The plan articulates a future where faculty and students remain at the center of our work and can easily take advantage of the excellent environment for learning and research provided by the Libraries. Furthermore it provides a roadmap that enables the Libraries to shape the future to insure even more benefit for the MIT user community. This future will be built on a solid foundation. Our vital signs remain robust. Over three-quarters of a million people walked through the doors of the MIT Libraries last year. The circulation of physical items involved more than 400,000 transactions. While hits on the Libraries' website are difficult to measure and compare, we know that nearly a million and half accesses to licensed electronic journals, books, and databases were registered through the Libraries' proxy server alone, and that on average over 100,000 unique computing hosts visit our website each month. Recent survey data from the Libraries' core constituencies demonstrate the success and high regard in which the Libraries are held by faculty and students:

- The 2004 Faculty Survey placed the Libraries at the top of the list of services with which faculty were satisfied, as well as identifying the Libraries as one of the most important resources that MIT provides.

- The 2004 Graduate Student Survey also named the Libraries as the service most used and most important to graduate students.
- When asked about the quality of their academic experience in the 2004 Senior Survey, students were more satisfied with the overall quality of the Libraries than with any other academic experience.

Maintaining this level of service will continue to require our best efforts. Public Service staff have been working energetically over the past few years to transform the library environment at MIT to meet the growing expectations of our clientele—to both provide robust networked access to resources and services, and maintain a physical environment that enhances learning and community. Ongoing collaborations with faculty, students, other Libraries staff, staff across the Institute, and peers worldwide insure that our path to the future is well informed. Using the framework of the new strategic plan, this report highlights the activities, successes, and challenges of the past year.

### STRATEGIC DIRECTION I: Focus on providing immediate, quantifiable benefits to faculty and students in the Libraries' domains of responsibility

Today's world puts enormous demands on MIT faculty and students. Expectations are high, and competition is keen. Their success requires a combination of strategies from the Libraries that balances our teaching mission—to insure that they can navigate the complex information environment well—with a "just-in-time" service ethic that provides them the content and services they need when they need them.

Over the past decade, the Libraries have made enormous strides in providing the teaching, learning, and research community with networked, remote access to a rich array of digital content that has transformed the way work is done. This information network has also added to the scholarly labyrinth a student or faculty member is required to decipher in order to do quality research. Public Service staff have embraced the Institute's charge to the Libraries to become more involved in teaching students the lifelong learning skills necessary to locate, filter, evaluate, and use information effectively. Course-integrated and course-related instructional activities increased this past year by 33 percent and 36 percent, respectively. Each of the divisional libraries made substantive progress in developing detailed instructional plans (and in the case of Dewey Library, revising an already existing plan) that set realistic and sustainable goals for their specific communities, forming a basis for future assessment. They provide a foundation for creating a system-wide plan this coming year that will insure that no gaps exist between the divisional approaches.

An important element of the Libraries' instruction program is to develop effective strategies to work with faculty to improve undergraduate awareness and abilities in the information arena. Staff met with faculty on the Task Force on the Undergraduate Educational Commons to inform them of current efforts, learn more about their goals, and explore ideas on how the Libraries can contribute to those goals. Librarian involvement in classes such as 1.018, 2.009, 5.32, 6.UAT, 9.00, 11.123, 12.000, 16.621, 17.871, 21.003, 21H.421, and HST S11 have demonstrated the positive impact of faculty/librarian collaboration in undergraduate teaching. In addition the Instruction Committee is working with faculty in the Writing Across the Curriculum Program to investigate

how to strengthen our current collaboration, and continue focusing on strategies that leverage the opportunities inherent in undergraduate communication-intensive courses.

While instruction remains a core enterprise for the Libraries, efforts have also intensified both to simplify the user experience when it comes to finding the information they need when they need it, and to improve the user's productivity by providing better tools. There has been significant progress in the following areas.

- The impact of electronic reserves grew dramatically. While the number of courses officially requesting Libraries' support for e-reserves remained constant over the past few years at three to four dozen, the functionality developed in collaboration with Academic and Media Production Services that allows faculty to take advantage of the fair-use provision of the copyright law has dramatically increased. Usage in spring 2005 jumped approximately 90 percent over the spring 2004 semester (Table 2).
- RefWorks, a web-based resource designed to help organize references and create bibliographies, was tested during the spring. RefWorks makes it easier to write papers, as well as post results to web pages, by allowing faculty, students, and staff to search, retrieve relevant citations, and build bibliographies. Based on the success of the trial, a site license for the campus was purchased by the Libraries allowing anyone at MIT with an Athena account to create and maintain a RefWorks account. Accounts can be created for individual and group use.
- Collaboration with Google on its product called Google Scholar now allows MIT users, either on or off campus, to connect directly to the Libraries' full-text electronic journals via Google Scholar.
- A new version of SFX, a tool linking article databases to the full text, has been implemented, enabling use of the soon-to-be-released "citation linker" that will allow users to type in the citation and be directly linked to the electronic full text if it is available from the Libraries.
- The popular Business Database Advisor, a self-service virtual database advisor, was revised to increase its functionality.
- Self-service checkout in Hayden became very popular, jumping 205 percent over the previous year due to the redeployment of the machine to a more obvious location. A new machine will be activated in Dewey Library this summer.
- The application process for courtesy cards to the Harvard Medical School Countway Library was converted from a required in-person request at a library service desk to a web-based form. This success may be transferable to other application procedures, e.g., the Boston Library Consortium, during the next year.
- Staff from the Rotch Visual Collection, Rotch Library, and the Systems and Technology Services Department developed detailed user requirements for digitizing slides and providing a delivery tool for classroom access. This work has led to the possibility of collaboration with Academic Computing to develop a pilot system during the new academic year.

Another core responsibility of the Libraries is to provide a physical environment that encourages learning and community, and enhances the intellectual curiosity and serendipitous nature of intellectual discovery. While work developing solutions to the

Libraries' long-term space requirements continues, current space limitations are severe. Despite present constraints, staff have been steadfast in developing and implementing creative strategies to maximize the space we have for the benefit of the community. Among the accomplishments in this arena over the past year:

- Recommendations from a Library Signage Task Force on best practices for signage and terminology used in public spaces throughout the Libraries. Those recommendations are now being implemented to provide a more consistent and intuitive experience for the user community throughout the Libraries.
- Development of an ambitious proposal to create more and better space for collections growth through a combination of converting space to collection shelving, storing lesser used material in the Library Storage Annex, and deploying collections in the Hayden building in a more integrated and helpful manner. Developed by staff from the Humanities and Science Libraries, the "Haystacks" proposal was approved and, with the help of a CRSP-approved project to add shelving to the basement, the plan will be executed this year.
- Creation of two new, comfortable reading areas adjacent to the popular browsery collection in the Humanities Library; and installation of compact shelving in the second floor reading room to increase its shelving capacity for highly used materials.
- A successful CRSP proposal to double the size of the popular GIS Laboratory in the Rotch Library. These changes, to be implemented this summer, will make it easier for instruction and group work to happen in the lab.
- CRSP funding to replace the aging rug in the Barker Library and make needed improvements to its multimedia room.

Another important initiative this past year contributed to enhanced community support and the nurturing of MIT's growing diversity. With a grant from the Graduate Student Office, the Libraries were able to establish a small World Literature Collection of popular adult and children's books in the native languages common in our student community.

**STRATEGIC DIRECTION II: Leverage the expertise of our staff, and the information resources we manage**

Public Service staff have focused their efforts during the past few years to create a new service model for the provision of reference and information services in ways that meet the primary needs of faculty and students. Known as the Δ (Delta) Plan, its goals are to:

- Develop a tiered information service model
- Develop a coordinated instruction program
- Increase user self-sufficiency
- Raise community awareness of library services and resources
- Realign work to better support these goals

Two key elements of the tiered information service model are the implementation of an integrated service point (ISP) in each of the divisional libraries, and the development of a virtual help service, Ask Us! Both initiatives have made great progress. The Engineering Library inaugurated its ISP in the summer of 2004, building on the experience provided by Rotch Library's previous success. The Service Desk Task Force developed a detailed

set of core competencies for service desk staff, including students. Based on the group's recommendations, two new task forces have begun work, one to create a customer service training program and the other to begin developing a strategy for creating and maintaining appropriate documentation and training in support of the core competencies for service desk workers. Intensive planning between the Humanities and Science Libraries this past year has laid the groundwork for implementing a combined ISP for the Humanities and Science Libraries within Hayden this coming fall.

The Libraries' Ask Us! service, providing virtual reference and information support via email, has improved both its accuracy and response time. A new, leaner staffing model was employed this past year, resulting in more flexibility in implementing new procedures, and the use of Request Tracker, an open source software system, as the underlying database manager has resulted in a higher degree of accuracy and a more reliable service.

This tiered information service model enables our librarians and other technical staff to focus a greater amount of their expertise on activities that increase the Libraries' outreach and contribute to the development of user self-help tools. While many of those accomplishments are detailed in the previous section of this report, it's also important to recognize the ongoing efforts that are positioning the Libraries to fulfill its goal of leveraging staff expertise and library resources on behalf of the user community. These include in-depth reference consultations provided by subject specialists, careful review and selection of resources, both digital and print, that are provided to support faculty and students, detailed inventory control of resources to insure that users can accurately identify what they need and find it where it is supposed to be, and the continuous selection and processing of materials for storage due to campus space constraints.

Another important milestone this past year was the merger of Interlibrary Borrowing Services with Interlibrary Lending Services in the Document Services Department. This change will allow us to move forward with implementing the Illiad system for interlibrary borrowing, providing users with direct access to their borrowing request information. In addition, it positions us to better explore future improvements in document delivery options for the MIT community.

### STRATEGIC DIRECTION III: Work to shape the future

The efforts detailed above describe a number of significant efforts that are contributing to the Libraries' ability to meet the future needs of MIT faculty, students, and staff. They represent creative solutions and approaches that are shaping the evolution of library services. Additional activities that will also improve our ability to design the future include the following:

- A librarian vacancy within the Engineering and Science Libraries (ESL) was reshaped into a new computer science librarian position tasked with working closely with both the Digital Library Research Group and the Computer Science and Artificial Intelligence Laboratory. Part of the position's responsibility is to examine new ideas and to help implement, when appropriate, the results of library research being conducted by these groups.

- The ESL created the "BTeam" to offer proposals for organizing efforts and expertise in support of the life sciences across all disciplines. Their work documented an enormous overlap of interests among academic departments and will help inform the Libraries' approach to best supporting this core area.
- The ESL also converted a processing position into a new information services librarian position to improve support for interdisciplinary needs and marketing and outreach efforts. This was made possible by the development of an ESL-wide processing team under the leadership of a single processing supervisor.
- With support from CMI, the Libraries have undertaken a study to better understand the issues involved in getting faculty to adopt DSpace. Working with faculty in Materials Science and Engineering, Mathematics, and Mechanical Engineering, this project will provide us with valuable information regarding marketing strategies and actual costs.
- The data services librarian, working with faculty in SHASS and Sloan and other library colleagues, conducted a thorough review of MIT's partnership with the Harvard MIT Data Center to insure that MIT's needs for access and storage of specialized social science data are being met. This review was received favorably by faculty and will lead to the initiation of a service level agreement to improve service and strengthen the partnership.

## Service Trends

### Circulation and Reserves

Traditional use of the collections showed a decline of 9% (Table 1). While regular loan activity dropped a modest 5%, reserves dropped a more dramatic 26% across the system (though two branches, Aero and Lindgren, showed increases in reserve activity of 10% and 26%, respectively). The overall decline in traditional reserve activity can be attributed to the growing use of the fair use copyright provision within the Stellar system (Table 2). For example, nearly all music faculty placed their listening assignments online, a dramatic change from the previous year, resulting in a 62% drop in reserve activity in the Lewis Music Library. Surprisingly, the number of items placed on traditional reserve increased 34% (Table 3). BookPage requests increased 52%, requests from the RSC increased 6%, and requests for book searches decreased 17% (Table 3).

**Table 1.  Regular Circulation and Reserve Activity (Loans, Renewals, and Holds**

| Library | 2004 | 2005 | Change FY04/05 |
|---|---|---|---|
| **Aero** | | | |
| Regular | 5,381 | 4,739 | -12% |
| Reserves | 577 | 632 | +10% |
| Total | 5,958 | 5,371 | -10% |
| **Barker** | | | |
| Regular | 41,567 | 34,428 | -17% |
| Reserves | 1,297 | 1,228 | -5% |
| Total | 42,864 | 35,656 | -17% |
| **Dewey** | | | |
| Regular | 49,936 | 43,916 | -12% |
| Reserves | 6,530 | 5,067 | -22% |
| Total | 56,466 | 48,983 | -13% |
| **Hayden** | | | |
| Regular | 98,666 | 97,627 | -1% |
| Reserves | 12,445 | 10,815 | -13% |
| Total | 111,111 | 108,442 | -2% |
| **Lewis Music** | | | |
| Regular | 29,574 | 26,154 | -11% |
| Reserves | 7,526 | 2,879 | -62% |
| Total | 37,100 | 29,033 | -22% |
| **Lindgren** | | | |
| Regular | 6,303 | 5,455 | -13% |
| Reserves | 527 | 665 | +26% |
| Total | 6,830 | 6,120 | -10% |
| **Rotch** | | | |
| Regular | 41,727 | 38,627 | -7% |
| Reserves | 5,047 | 3,890 | -23% |
| Total | 46,774 | 42,517 | -9% |
| **Rotch Visual Col.** | | | |
| Regular | 16,309 | 11,773 | -28% |
| Reserves | N/A | N/A | N/A |
| Total | 16,309 | 11,553 | -28% |
| **RSC** | | | |
| Regular | 4,520 | 3,709 | -18% |
| Reserves | N/A | N/A | N/A |
| Total | 4,520 | 3,709 | -18% |
| **Schering-Plough** | | | |
| Regular | 3,624 | N/A | N/A |
| Reserves | 195 | N/A | N/A |
| Total | 3,819 | N/A | N/A |
| **"Your Account"** | | | |
| Total | 135,575 | 146,917 | +8% |
| | | | |
| Total Regular | 419,118 | 396,931 | -5% |
| Total Reserves | 36,372 | 27,757 | -26% |
| **Total** | **455,490** | **424,688** | **-9%** |

**Table 2. Use of Fair-Use Copyright Functionality in Stellar***

|  | Spring 2004 | Fall 2004 | Spring 2005 | Change Spring '04 /Spring '05 |
|---|---|---|---|---|
| No. of courses using feature | 128 | 181 | 217 | +70% |
| Items "copyright flagged" | 3,295 | 4,644 | 6,104 | +85% |
| No. of accesses | 60,152 | 114,002 | 116,090 | +93% |

*Includes both courses supported by the Libraries' E-reserves service and those self-supported by faculty

**Table 3. Other Key Indicators of Circulation and Reserve Activity, Print**

| Activity | 2004 | 2005 | Change FY04/05 |
|---|---|---|---|
| Items processed for reserves | 5,043 | 6,741 | +34% |
| In-house use of material | 195,913 | 156,315 | -20% |
| Reshelving loaned items | 301,898 | 284,228 | -6% |
| BookPage requests | 1,165 | 1,770 | +52% |
| Book searches | 7,532 | 6,230 | -17% |
| RSC requests | 7,399 | 7,827 | +6% |

## *Occupancy*

Use of library facilities dropped system-wide by 12%. Some of this drop may be attributable to a 10% reduction in hours across the system due to budget cuts and the closing of Schering-Plough Library. A notable exception is Rotch Library, which saw a 5% increase. The use of the 24-hour study area in Hayden also increased 82%, jumping to 10,043 this year (numbers are included in Hayden figures).

**Table 4. Library Occupancy**

| Library | 2004 | 2005 | Change FY03/04 |
|---|---|---|---|
| Aero | 27,463 | 23,002 | -16% |
| Barker | 122,251 | 84,063 | -31% |
| Dewey | 145,848 | 128,330 | -12% |
| Hayden | 357,301 | 343,690 | -5% |
| Institute Archives | 2,622 | 2,181 | -17% |
| Lewis Music | 50,512 | 39,627 | -22% |
| Lindgren | 21,009 | 20,606 | -2% |
| Rotch | 120,170 | 125,690 | +5% |
| Rotch Visual Col. | N/A | N/A | N/A |
| RSC | 229 | 224 | -2% |
| Schering-Plough | 20,958 | N/A | N/A |
| **Total** | **873,870** | **767,413** | **-12%** |

## Instruction

Instructional activity remains healthy (Table 5). While there was an overall decrease of approximately 5 percent in both the number of overall sessions and number of participants, efforts to focus on the curriculum paid off with increases of a third in the number of students involved in course-integrated and course-related instruction.

**Table 5. Instructional Activity**

| Category | 2004 Sessions | 2004 Attendees | 2005 Sessions | 2005 Attendees | Change FY04/05 Sessions | Change FY04/05 Attendees |
|---|---|---|---|---|---|---|
| Course-integrated | 34 | 134 | 43 | 199 | +26% | +33% |
| Course-related | 80 | 914 | 85 | 1,436 | +6% | +36% |
| Independent seminar | 21 | 345 | 27 | 237 | +29% | -46% |
| Orientation / Tour | 74 | 2,158 | 50 | 2,335 | -32% | +8% |
| Special event | 25 | 1,861 | 32 | 1,110 | +28% | -68% |
| Special workshop | 79 | 766 | 56 | 564 | -29% | -36% |
| **Total** | **313** | **6,178** | **293** | **5,881** | **-6%** | **-5%** |

## Reference

Reference and other staff-mediated help requests remain in high demand, but the downward trend in reference questions at public service desks continued (Table 6). A change in the tool used for collecting reference statistics at service desks may have contributed to this 16% decrease and will bear continued monitoring going forward.

**Table 6. Help Requests (Reference and Other)**

| | 2004 | 2005 | Change FY04/05 |
|---|---|---|---|
| Reference questions at public service desks | 31,323 | 26,225 | -16% |
| Reference questions away from public service desks | 12,493 | 12,365 | -1% |
| **Total reference questions** | **43,816** | **38,950** | **-12%** |
| Other help questions at public service desks | 20,833 | 19,196 | -8% |
| **Total help requests** | **64,649** | **57,786** | **-11%** |

## Use of E-resources and Services

Use of electronic resources and services is heavy. In an attempt to better document the use of the tens of thousands of electronic journals, books, and databases the library subscribes to, an e-metrics tool was developed and put in place this past year. While it is only able to measure the number of sessions routed through the Libraries' proxy server and thus provides a very incomplete picture of the total use of these e-resources, it documents 1,434,541 sessions across these e-resources with 53% of the use coming on-campus and 47% from off-campus. Tables 7, 8, and 9 also show the ongoing use of the Libraries' website, Vera home page, and Barton.

**Table 7. Unique Hosts Served by MIT Libraries Website, Monthly Average**

|  | 2004 | 2005 | Change FY04/05 |
|---|---|---|---|
| No. of hosts served | 102,708 | 104,055 | +1% |

**Table 8. Unique Hosts Served by Vera Home Page, Monthly Average**

|  | 2004 | 2005 | Change FY04/05 |
|---|---|---|---|
| No. of hosts served | 42,484 | 42,946 | +1% |

**Table 9.  Use of Barton**

|  | 2004 | 2005 | Change FY04/05 |
|---|---|---|---|
| No. of sessions | 757,325 | 1,453,634 | +92% |
| No. of searches | 1,800,478 | 1,571,127 | -13% |

## *Interlibrary Borrowing*

Requests to borrow material from other libraries dropped 6% this past year. This decline is almost entirely due to the budget-driven decision to stop acquiring dissertations. The 24% increase in requests for material that were actually found at MIT is worth further analysis. Does it demonstrate a lack of awareness of how to use Barton and Vera productively? Or does it represent a desire by users to have someone else do the work of finding information and delivering it to them?

**Table 10. Interlibrary Borrowing Requests**

|  | 2004 | 2005 | Change FY04/05 |
|---|---|---|---|
| Photocopies requested | 8,596 | 8,360 | -3% |
| Originals requested | 4,009 | 3,083 | -23% |
| Found at MIT | 1,579 | 1,957 | +24% |
| Unfilled | 383 | 241 | -37% |
| **Total** | **14,567** | **13,641** | **-6%** |

## Recognizing Staff

None of the tremendous accomplishments described in this report could have been accomplished without the remarkable staff who make up the Libraries. Staff at all levels—professional, administrative, and support—take enormous pride in their work, and collaborate effectively cross-organizationally in support of service excellence to the MIT community. Particularly worthy of recognition within Public Services are the recipients of the Libraries' Infinite Mile Awards this past year:

- Margaret dePopolo—Margaret was recognized in the category of community for the extraordinary work she has done in contributing to the development of learning community at MIT during her 34-year career. Margaret retired on June 30, 2005. She will be missed.
- Maria Rodrigues—Maria was recognized in the category of results, outcome, and productivity for her efforts on a variety of fronts including her leadership in merging the processing staff in ESL, her contributions to the development of the local processing procedures and documentation website, and her work in coordinating the training for the recent Aleph upgrade.
- Johanna Woll—Johanna was recognized in the category of innovation and creativity for her work in reorganizing the Rotch Visual Collection's Aga Khan visual archives into a well-respected and accessible teaching collection.
- Service Desk Task Force—Jennifer Harter, Michael Leininger, Amanda Powers, Andrew Shea, and Kevin Sheehan were recognized in the category of innovation and creativity for identifying core competencies for staff and students working at public service desks.
- Hayden Circulation Staff—Dan Holland, Harolyn Hylton, Georgiana McReynolds, Denise O'Malley, Gregory Padilla, Pat Page, Alan Rostoff, Kevin Sheehan, and Matthew Van Sleet were recognized in the category of results, outcome, and productivity for their work in processing and redeploying materials within Hayden Library to accommodate the integration of the collections from a decommissioned library, achieve better inventory control, and provide growth space for new acquisitions.
- Committee Without a Name—Jim Eggleston and Jennifer Harter were recognized in the category of community for their work in breaking down the barriers within Hayden Library and bringing people from many different work units—Humanities, Science, Hayden Circulation, Lewis Music, Lindgren, and, at the time, ILB—together.

We continue to be successful in recruiting bright and energetic staff. New additions to the staff this past year were:

- Laura Andersen, collections assistant, Humanities Library
- Elissa Derby, circulation assistant, Dewey Library
- Jacqueline Gaston, customer services assistant, Document Services
- Kathryn Harris, interlibrary borrowing assistant, Document Services
- Melanie Howell, library technology expert, Rotch Library
- Oliver Mentken, administrative assistant, Humanities Library
- Gregory Padilla, circulation assistant, Hayden Circulation
- Samuel Sadow, visual resource cataloger, Rotch Visual Collection
- Mathew Willmott, branch assistant, Aeronautics and Astronautics Library

A number of other vacancies were filled from within:

- Millicent Gaskell, head, Dewey Library
- Tracy Gabridge, associate head, Barker Library
- Kevin Sheehan, circulation supervisor, Rotch Library
- Denise O'Malley, circulation and access services supervisor, Barker Library
- Gregory Padilla, evening and weekends circulation assistant, Hayden Circulation

Promotions that occurred this past year were:

- Lisa Horowitz, librarian II to librarian III
- Erja Kajosalo, librarian II to librarian III
- Kate McNeill-Harman, librarian I to librarian II

Finally, two job changes occurred:

- Stephanie Hartman, information services librarian, Engineering and Science Libraries
- Maria Rodrigues, processing supervisor, Engineering and Science Libraries

### Conclusion

The breadth of activities undertaken by the Libraries' Public Service staff to support the research and educational efforts of MIT faculty, students, and staff is a wonder to behold. It is my privilege to work with a talented group of colleagues to meet the current and future challenges that lie before us. Because of our focus on the MIT community, we will be successful in delivering and designing services that effectively contribute to MIT's mission of advancing knowledge and educating students. Our collaborations across the Institute and beyond will insure that we will contribute to shaping the future of library and information services. As I believe this report details, the future is now.

**Steve Gass**
**Associate Director for Public Services**

### Collection Services

Collection Services encompass those functions related to acquiring, providing bibliographic access to, and preserving information resources for the use of the MIT community.

### Acquiring Information Resources

In FY2005, the Libraries continued to meet the challenges posed by limited funding to purchase information resources in a market environment dominated by large commercial publishers, beholden to their stockholders. This year, we were compelled to make cancellation decisions in response to a budget allocation that was insufficient to meet price increases; at the same time, we engaged in activities directed toward facilitating an understanding of the broader issues by faculty and others at MIT.

For the first time in six years, the Libraries' materials budget increment—$300,000 for FY2005—was not sufficient to cover the price increases in journals and database subscriptions (about $500,000). In addition, while the book budget remained stable, no new monies were available to support new areas of education or research, new electronic products, or new journal titles. Fortunately, these budget constraints had been anticipated—we had opted out of multi-year agreements with two large publishers

(sacrificing the price benefits, but allowing flexibility in content selection) in the fall of 2003, and had made plans to reduce the number of journal and database subscriptions in the spring of 2004.

Elsevier Science titles were the primary focus of subscription reductions because they represented 27% of the Libraries' serials expenditures, and because their per-title costs are so high (in excess of $2,300 on average). Eighty-nine Elsevier titles were canceled for 2005, and 98 titles were converted to electronic-only subscriptions. In addition, 22 journal titles from other publishers were canceled, and several changes in database subscriptions, such as reductions in the number of simultaneous users, or different user interfaces, resulted in lower prices.

While these reductions were modest, there is continuing concern about price increases that are among the highest of all higher education expenditure categories, and growing realization that the system for distributing research output should change. To provide a handy source of information about these issues, the Libraries created a website, Scholarly Communication in Crisis: Why You Should Care (http://libraries.mit.edu/about/scholarly/), that deals with their impact on the MIT community, national and international developments, and provides tools and suggestions for faculty and students who choose to use their influence.

## Acquisition Highlights

While responding to the subscription issue described above, the Libraries' efforts to meet the information-resource needs of the MIT community continued apace. Approximately 40 percent of our serial subscriptions are now for electronic products. In addition, a growing number of one-time purchases are also electronic—notably, this year, many Geographic Information System products.

Reallocation of existing funds allowed a small number of new investments, several of which supported efforts to reform the scholarly communications marketplace:

- Membership in the Public Library of Science, a nonprofit organization of scientists and physicians dedicated to preserving unlimited access to the latest scientific research
- Contribution to an endowment for the Stanford Encyclopedia of Philosophy, a creative funding strategy for open access to an important scholarly resource
- Purchase of BioOne, an aggregation of high-impact, low-cost bioscience research journals, created through a collaboration of scientific societies, libraries, and the commercial sector
- Purchase of Faculty of 1000, a service for biologists that highlights significant research selected by a panel of researchers—in essence, a peer-review system separate from the publishing system

The Libraries continued to purchase books-on-paper at its usual rate of approximately 20,000 per year. We realized that with the emphasis on building up our digital collections during the last decade, we had a pent-up demand for new print reference sources, and we allocated one-time funds to respond to that demand.

Approximately 3,000 monographs were added to our collections through the Gifts Program, the most significant being a gift of linguistics and philosophy monographs from Sylvain Bromberger and a gift of art and architecture monographs from Santiago Calatrava.

Acquisition of the administrative records of MIT president Charles M. Vest constituted the largest set of paper records received to date by the Institute Archives. In addition, electronic records from the Office of the President were transferred to the Archives for the first time. A large collection of records from the Laboratory for Computer Science was also received, as the Lab completed its move into the Stata Center.

New manuscript collections were acquired from Jeanne Bamberger (Music), Gordon Pettengill (Earth, Atmospheric, and Planetary Sciences), and the CREN (Corporation for Research Educational Networking) Foundation. Additions to many existing collections were received, and formal gift agreements were completed for several collections previously received.

All of these efforts supported our ongoing goals for acquisition of information resources:

- To support MIT's teaching and research programs with all of the critical and necessary resources
- To provide information for current users in formats that best serve their needs
- To ensure access to the retrospective research record for future students, faculty, and researchers
- To provide the historical record of MIT to administrators and researchers at MIT and beyond, today and into the future

### Providing Metadata and Tools for Discovery of Information Resources

Historically, Collection Services staff have been engaged in creating and maintaining bibliographic records for the Libraries' catalog and in processing and creating finding aids for permanent Institute records and faculty papers. Over the last several years, there has been a substantial increase in the number of information discovery tools that Collection Services contributes to and supports, including Barton, the online catalog; Vera, the e-resource access tool; SFX, a link resolver tool; DSpace, the institutional repository; OCW, the opencourseware system, and the Institute Archives and Special Collections website. Staff have contributed to this complex information environment with both conceptual planning and analysis and hands-on activities.

### *Planning*

Significant rethinking of our tools for resource discovery was carried out by two groups. The Task Force on Cataloging Records for Electronic Information Resources submitted a report with two major recommendations:

- Employ the MARCit service to provide records for packages in Barton (including large journal aggregator packages not yet represented)
- Maintain the piggybacking approach (i.e. describing a print resource and its electronic counterpart on a single record) via loader matching scripting

A decision on the Task Force recommendations will be made in the fall of 2005 following consideration of the recommendations of another group: the SFX/Verde Group.

The SFX/Verde Group worked simultaneously to plan the implementation of SFX version 3 and to consider the implementation of Verde at MIT. This group will make an interim report in September 2005 and a final report in December 2005. Verde is an electronic resource management system codeveloped by Ex Libris (our library system vendor) and the MIT and Harvard libraries. The codevelopment work continued throughout the year, and the general release of the product is imminent.

In addition, staff from Cataloging and Metadata Services (CAMS) and Acquisitions and Licensing Services (ALS) were heavily engaged in preparing for an upgrade to Aleph, the library management system. Implementation of version 16.02 of the software is scheduled for July 2005. CAMS staff also planned for a software migration from Passport to Connexion by OCLC, the Libraries' bibliographic data supplier.

With planning by a small group of staff from ALS, Systems and Technology Services (STS), and Public Services, and with programming carried out by an STS staff member, we launched an e-metrics tool in December 2004 that monitors usage of our electronic information resources through Vera (the Libraries' e-resource access tool). Over time, it will provide critical information for product assessment and for demonstrating the value of our investment in these resources.

### *Barton, the Online Catalog*

Cataloging of newly acquired monographs and serials in many formats, both tangible and digital, continued as usual. Planning for and implementation of record loading for electronic government documents resulted in over 20,000 new records for these important resources. A seven-year project to create online records for monographs in the Libraries' Dewey Decimal Collection was completed with approximately 82,500 titles from this important collection now represented in our catalog. Of these records, 11,750 were created this year; in addition, serials cataloging staff accelerated the pace of creating records for DDC serials, with over 800 new records this year. Work remains to be done on the "grey literature" in the collection.

Efforts to create records for our rare book collections also continued this year, representing many unique and valuable items in Barton for the first time. Examples include:

- A pocket-sized "ready reckoner" printed in Italy in 1589
- An anti-slavery tract by noted abolitionist M. D. Conway, inscribed to William Barton Rogers
- An illustrated 1919 architect's proposal for a lavish redesign of the Harvard Bridge

### Vera, the Electronic Resources Discovery Tool

Support of Vera continued with the addition of records for new resources, maintenance of existing records, and resolution of over 500 access problems reported by users or public services librarians. Support of digital resources is a "matrix" endeavor, involving the digital resources acquisitions librarian, the e-journals team chaired by the head of serials acquisitions, and the Dig-Prob team, drawn from several acquisitions units and the director's office. This year, the Dig-Prob team utilized Request Tracker (RT) case management software.

### SFX, the Link Resolver

The SFX database manager (a serials cataloger) worked with STS personnel to plan for the transition to Version 3 of the SFX software. SFX continued to be supported by staff in serials cataloging, who process monthly knowledge base updates. The software upgrade required special efforts to verify data and clean up the database.

### DSpace, the Institutional Repository

Staff from the Institute Archives and Special Collections and CAMS contributed to planning for the transfer of MIT theses to DSpace. In preparation for the transfer, CAMS staff defined a MARC-to–Dublin Core metadata crosswalk and created an authorized list of MIT departments.

### OpenCourseWare

The Metadata Unit has contributed metadata for over 1,100 OpenCourseWare titles and associated objects since April of 2003. The metadata specialist participated in CWSpace, an iCampus-funded project to promote interoperability among collaborative learning environments.

### Institute Records

Progress on several projects resulted in improved and expanded access to Institute records, both temporary and permanent:

- Approval of record schedules for financial data retention by the secretary of the Corporation, the executive vice president, and the head of the Institute Archives and Special Collections
- Creation of a records management website, to be launched early in FY2006
- Processing of three sets of administrative records spanning the period from the 1960s to the 1990s—namely, the records of Provost Walter Rosenblith, Executive Vice President Constantine Simonides, and Vice President James Culliton
- Mounting of several finding aids, in PDF format, on the Archives' website

### Preserving Information Resources

#### *Archival Storage Center*

The completion of the Archival Storage Center (ASC) was the most significant preservation event of the year. Planning for this facility and preparation of the materials in the Rare Book Room (RBR) of Hayden basement had taken place over the previous two years. The Archives staff, the Preservation Services staff, and the rare book cataloger were heavily involved in these efforts. An inventory of the rare books and a complete shelflist of all the collections were completed, previously uncataloged materials were cataloged, over 45 archival and manuscript collections were reviewed, and all fragile materials were stabilized. Bibliographic control of these collections, as well as the staff's knowledge of them, was greatly enhanced by this project. A HOBO system for environmental monitoring was installed, with procedures developed for its use, and water alert units were put in place. Working with the Libraries' facilities and operations manager, protocols for incident reporting and response were developed with MIT Facilities. In addition, planning for and documentation of the use of security features of the space were completed. Over 6,000 rare book volumes, 1,300 linear feet of MIT publications, and 2,000 linear feet of administrative records and manuscript papers were moved during February and March and are now housed in environmental and security conditions that will contribute substantially to their long-term preservation.

#### *Wunsch Conservation Laboratory*

In addition to the work on stabilizing the RBR collections, the laboratory staff carried out preservation treatments on 467 items in the Libraries' and Archives' collections. They also took the first steps along a path of expanding preservation program activities to include non-text information resources:

- Barker Library film loops of fluid mechanics demonstrations, still highly useful to students and faculty, were in an obsolete format and could only be played on one machine in Barker. Appropriate vendors were asked to provide estimates for reformatting these film loops, and the work was sent out in March. New DVDs and BetaSPs will be ready for use in July.
- Reformatting standards and contract specifications were created for the Music Library's Epstein collection of audiotape recordings of the MIT Symphony Orchestra.

The experience gained from these two projects will be useful as we expand preservation activities for audio and visual formats in the future.

- A proposal was submitted to the National Endowment for the Humanities in July 2004 to conserve and improve access to the papers and books of William Barton Rogers. In March, we were informed that the proposal would not be funded. The proposal was revised to address the comments of the reviewers and prepared for resubmission in July 2005.

### *Storage Facilities*

Space constraints in the divisional libraries continue to mandate the move of substantial portions of the collections to storage, with 55,411 volumes moved this year. Additional volumes from the RetroSpective Collection brought the total number of volumes moved to the Harvard Depository (HD) to 65,378, the largest number yet in a single year. In addition, 1,212 boxes of permanent records were also transferred to HD.

Planning continued to better utilize Building N57. A CRSP proposal for building improvements was funded for FY2006 at the level of $100,000.

To respond to confusion on the part of users about the names of the RetroSpective Collection (RSC), in Building 57, and the Harvard Depository (HD), where additional storage capacity is leased, planning was undertaken to change the names. The new names, Library Storage Annex and Off Campus Collection, respectively, will be implemented in July 2005.

### Organizational Structure and Staffing

This was the first year for the two newly restructured departments that emerged from last year's organizational planning: Cataloging and Metadata Services (CAMS) and Acquisitions and Licensing Services (ALS). Rebecca Lubas assumed the position of head of CAMS in July. Kim Maxwell was promoted to the position of associate head of ALS, and a search was carried out for the associate head of CAMS. That search resulted in the hiring of Selina Wang, who begins work on September 1, 2005. This will complete the Technical Services Management Group, as defined in the planning process last year. The integration of serials and monograph cataloging in one department (CAMS) has already proven especially useful in the analysis process carried out by the Task Force on Cataloging Electronic Resources. The head of ALS led her staff in an effort to write a mission statement to define their role.

Other personnel changes included the following:

- David Van Hoy, principal serials cataloger, retired.
- Lisa Harrington was hired in the new position of serials acquisitions supervisor.
- Liz Phillips was hired as an archivist I on a special project to process administrative records.
- The position of head, Serials Cataloging Section, was posted.

The staff of the RSC (Moses Carr, Arly Cassidy, Melissa Feiden, Cassandra Fox, and Liz Philips) were awarded the Libraries' 2005 Infinite Mile Team Award for communication and collaboration.

Space vacated in Hayden basement by the move of STS to E25 was reallocated as processing space for the Archives staff.

**Outreach**

The Metadata Unit of CAMS launched a marketing campaign, including distribution of a postcard advertising its services and a follow-up presentation in the Libraries' Information Intersection in the Stata Center.

Staff of the Wunsch Conservation Lab conducted 12 tours/presentations for outside visitors, MIT alumni, and Resource Development staff, and presented two classes during IAP. They also prepared a case book for use in development efforts.

The digital resources acquisitions librarian presented an IAP session on licensing and rules of use for digital resources with MIT's intellectual property counsel, who covered fair use and copyright issues.

## Institute Archives and Special Collections

The Archives hosted a celebration of the 200th birthday of MIT's founder, William Barton Rogers, in the lobby of Building 7. It included remarks by the director of Libraries, Ann J. Wolpert, and MIT's new president, Susan Hockfield, as well as a birthday cake and a kazoo chorus. More than 700 members of the MIT community attended.

The Archives staff also contributed to the Physics Department's celebration of the "World Year of Physics" with an exhibit honoring the 100th anniversary of the birth of MIT space physicist Bruno Rossi.

The Object of the Month displays continued to highlight MIT's history in the hallway outside the Archives and on the Archives' website, and, this year, in the Information Intersection as well. Several exhibits were created for display within the Archives reading room in conjunction with the inauguration of the new president. The following new website exhibits were spotlighted on MIT's homepage: "Learning about MIT: A Bibliography," "Physics Sources in the Institute Archives," "Inaugural Addresses of MIT Presidents," and "William Barton Rogers: MIT's Visionary Founder."

Presentations were given during IAP, Alumni weekend, and the Visiting Committee meeting, in addition to instructional sessions in two classes. A slide show was mounted in the Building 4 corridor in honor of MIT's "charter day" (April 10). The head of the Archives and Special Collections was the cohost of two live webcasts, one for the president's inauguration and one for Commencement.

The Archives collections continue to be used regularly by the administrative and academic offices of MIT, as well as by outside users from colleges and universities throughout this country and abroad. Monographs published this year based on intensive use of the collections included Mark Jarzombek's *Designing MIT: Bosworth's New Tech*, Julius A. Stratton and Loretta H. Mannix's *Mind and Hand: The Birth of MIT*, and Perry Merling's *Fischer Black and the Revolutionary Idea of Finance.*

### Summary

This report documents the special achievements of Collections Services staff this year. It barely mentions the regular daily activities undertaken to guarantee that faculty and students have access to the information resources they need to teach, learn, and carry out research:

- Purchase of 18,000 monograph titles, 300 music scores, 250 videos, and 600 computer files
- Management of 22,000 subscriptions for print and digital content
- Cataloging of 21,000 monograph titles, 1,500 music scores, 1,000 print and electronic journals, 6,000 MIT theses and technical reports
- Binding of 19,000 items and repair of 6,000
- Receipt of 233 cubic feet of manuscripts and 555 cubic feet of administrative records

All of this activity went on in the background of the more notable activities described above. Cumulatively, they once again demonstrate the remarkable output of a dedicated and expert staff.

**Carol Fleishauer**
**Associate Director for Collection Services**

## Administrative Services

In pursuit of its mission to provide effective operational infrastructure for the MIT Libraries, Administrative Services made progress in a number of areas this past year. Completing its first full year under the leadership of a new assistant director for administration, the department initiated changes to improve efficiency within Administrative Services, to improve system-wide processes, to increase the financial independence of library departments, and to collect and present more useful data for library decision makers.

### Staffing in Administrative Services

The position of staff administrator was eliminated following the retirement of Karin O'Loughlin a year ago. Her two most substantial responsibilities were reassigned as follows:

- Delivery services—supervisory and managerial responsibility for the unit was shifted to Greg Raposa, the facilities and operations administrator. In addition, the support staff was reduced in size by one-third, from three down to two full-time-equivalent (FTE) staff.
- Payroll—administrative responsibility was shifted to Macrina Rizzo, the financial administrator, after being held temporarily for most of the year by Robin Deadrick, the personnel administrator. The position of payroll coordinator (.2 FTE) was created and staffed by Judith Gallagher, who continues to be the financial assistant in Document Services (.8 FTE).

Following the departure of administrative assistant Kristin Blank in August of 2004 and a vacancy of several months, Tina Brown Celona was appointed as the new administrative assistant in February 2005. In addition to a variety of tasks in the financial and personnel areas, Tina has also taken on the substantial filing load which was formerly carried out by student assistants.

The net result of these changes is a decrease of nearly two FTEs in the department. This substantial savings has not been at the cost of a lower service level in either the payroll or delivery areas. On the contrary, there have been significant improvements in both areas, and clear signs that changes that improve support of the Libraries' core mission will continue to be welcomed.

## Budget and Finance

### Restricted Budget

This was the second of two years of reductions in Institute funding for the Libraries, attained through the following actions:

- A salary freeze for many administrative staff, as well as very limited salary increases for the remaining staff
- Cancellation of nearly $200K in serials subscriptions, due to underfunding of serials inflation costs
- Reducing operating budgets for all library units by an average of 13 percent
- Cutting back open hours in some library locations, allowing reductions in student staffing
- Eliminating the provision of free dissertation copies through the interlibrary borrowing service
- Continuing to hold open support staff positions for a mandatory six-week period prior to posting

The Libraries continue to struggle with the need to fund most operations from lapsed or unused salary lines. Were it not for this funding source, our ability to meet even the basic service needs of the MIT community would fall critically short. Everything from computing equipment and online searching to furniture and book delivery is supported by these funds. On the other hand, giving up staff positions to fund operations severely limits our ability to carry out the teaching collaborations and service enhancements that are in high demand by faculty. While we continue to improve our control and analysis of expenses so as to stretch resources as far as possible, the current practice of funding most library operations by leaving staff positions vacant is not sustainable in the long term.

### Payroll

In early FY2005, the Libraries' support staff payroll records were audited, bringing to light several practices that required attention. The auditors' recommendations for changing these practices coincided with the retirement of the Libraries' payroll coordinator, who had held the position for over 30 years. These two events provided us with an opportunity to update procedures and practices and to ensure their compliance

and efficiency going forward. The work was carried out under the temporary leadership of the personnel administrator with added administrative support from the part-time financial assistant in Document Services.

These two individuals devoted substantial time to reviewing current practice, consulting with MIT central payroll staff to familiarize themselves with proper policies and practices, and soliciting input from local unit payroll coordinators, as well as Library Delivery Services, to ensure the most efficient workflow with the least overall impact on staff. Significant changes included (1) the transition of most payroll entry from MITVMA to SumMIT, (2) the direct mailing of support staff pay stubs to individuals rather than to Administrative Services for distribution, and (3) the transition of those who received paper paychecks to direct deposit.

A significant change to past practice, as recommended by MIT auditors, was the central collection and retention of all timecards, which required collaboration with Library Delivery Services staff to arrange for weekly coordination and service. Timecards may now be used for verification purposes by the Libraries' payroll coordinator to authorize time reported in the payroll system by those in the local units. Other recommendations included (1) completion of all required information on timecards, including the report of "In" and "Out" times, proper leave codes, and consistency between top and bottom portions; (2) proper approval and signature by supervisor or other designee on all timecards; and (3) initials to any changes made on timecards by employee or supervisor.

The patience and cooperation of staff enabled Administrative Services to address these important payroll issues and to create a more efficient process for everyone. Responsibilities associated with the program were finalized recently with administrative duties resting with the financial assistant from Document Services, who increased her percent effort from 80 to 100 percent. In addition, payroll oversight and authorization transferred to the Libraries' financial administrator, while policy issues remain with the Libraries' personnel administrator.

### Other Budget and Finance Activities

- Responsibility for the purchase and payment of records management services from Iron Mountain Inc. was transferred from the Institute Archives to the office of MIT's executive vice president.
- A review was carried out by the MIT Audit Division addressing the need to set guidelines for library staff on personal reimbursement for collections purchases. Such guidelines were subsequently set.
- An improved system for tracking travel expenses was put in place, and responsibility for approving most travel documents was transferred from the financial administrator to the administrative assistant.
- Library thesis fees, historically paid through the Cashier's Office, were incorporated into the billing process of Student Financial Services.
- The Libraries' Sponsored Research Program continues to demand administrative support to manage budget, operations, HR, travel, and proposal preparation/submission.

- A review of the Libraries' Fund Accounts was undertaken to improve our awareness and stewardship of gifts and other financial reserves. Coincidentally, the Institute has asked that information about such assets be included in future budget requests, so much of that work has already begun.

## Human Resources

### *Recruitment*

The Libraries filled seven administrative staff positions during FY2005. As was the case last year, two of these were head librarian positions. We also filled the position of director of development and appointed a project archivist to a one-year term. The remaining three appointments were to nonlibrarian, supervisory positions that have traditionally represented excellent advancement opportunities for qualified library support staff. While serious searches were conducted in all three cases, each resulted in the promotion of an internal candidate and support staff member. This is a very positive testament to the quality of the support staff in the MIT Libraries as well as to the benefits of a work environment conducive to personal development and growth.

The number of support staff positions filled this year was 14—one less than in FY2004. Ten of these were library assistant positions; one an administrative assistant position; another customer services assistant; and a local technology expert. Applicant pools for support staff positions remain healthy and promising with the majority of applicants possessing solid library experience.

There was only one sponsored research staff (SRS) position filled this year, that of DSpace programmer. This represents a significant but only temporary decrease in recruitment activity for the Libraries' sponsored research program. Renewed funding allowed the continuation of terms for four library SRS members this year.

It is worth noting that one-quarter of all library positions filled in FY2005 were temporary term appointments, and that an additional 10 temporary appointments, all made in FY2004, were extended during this year. Temporary appointments now represent nearly 10 percent of the total library staff. This staffing model, in practice for several years now, has been an effective approach in maintaining the flexibility to respond to new and evolving service needs, support programmatic developments, and sustain the MIT Libraries' leadership position in the library world. In the case of temporary positions such as project archivist and metadata production specialist, appointment terms are limited because the projects are funded by soft money.

Also worthy of note is the increasing number of MIT alumni or former MIT students in the Libraries' employ. Two additional library assistant hires this year bring that total to 11—almost 6 percent of the total staff. Four of these individuals are librarian staff, three are technical staff, three are library assistants, and one is a member of the sponsored research staff.

The voucher/casual employment program remained steady. This type of employment enables the Libraries to maintain a high standard of service and to carry out short-term

projects in the face of staff vacancies and student recruitment difficulties. In FY2005 the Libraries employed about a dozen voucher employees.

In mid-March, the Libraries became the first MIT department to transition its voucher program to MITemps. A time was scheduled for Veritude and NextSource—the two outside vendors chosen by MIT to provide this service—to meet with us and our current voucher employees. The agenda included an introduction to the program, an opportunity to receive help completing the required paperwork, and preparation for the online time reporting and verification. By the beginning of April, the Libraries had successfully transferred all seven current voucher employees to the MITemps program, and have since signed on an equal number of new "associates."

### Affirmative Action and Diversity

One of the seven appointments made to the Libraries' administrative staff in FY2005 was identified as a minority. This appointment brings our total of underrepresented minorities to seven, or 8 percent of the total administrative staff. Minority representation among support staff remains slightly higher at 10 percent.

In FY2005, 10 percent of all applicants for administrative staff positions were identified as possible minorities. More than half of these minority applicants did not meet the basic education or experience qualifications for the positions for which they applied. Three applicants who met those qualifications on paper were contacted for telephone screening interviews and did not demonstrate fulfillment of other required qualifications such as "a strong commitment to positive public service," "excellent interpersonal skills," "initiative and flexibility," or "ability to work and learn in a rapidly changing environment." Of the seven serious searches conducted, two minorities were invited to MIT for an interview. One resulted in an appointment; the other did not.

### Retention

The Libraries' retention rate dipped slightly below 90 percent in FY2005. Sixteen support staff employees left the Libraries' employ. The term appointments for three of those staff members had expired; one was a layoff and another was due to a reduction in hours; two left to further their education; one was the result of a relocation; and several cited greater job opportunities (one of those being at the Institute). While the tuition assistance benefit remains an effective recruitment tool for support staff who wish to pursue a master of library science degree, it has an impact on the Libraries' retention rate as those staff members most often complete the program and move on to librarian positions in other organizations. Armed with MLS degrees and excellent pre-professional experience in the MIT Libraries, three departing staff members joined the ranks of professional librarians.

Ten percent of the Libraries' administrative staff—five librarians and four other professionals—terminated their employment in FY2005. Four were the result of relocations, and two individuals accepted positions of greater responsibility in other academic institutions. The remaining three individuals retired from the MIT Libraries—each after completing over 30 years of library service.

### Salaries

Unfortunately, after a consistently successful run in improving our salary ranking among peer institutions over the past few years, the MIT Libraries lost ground in FY2005 in both the beginning professional salary and the average professional salary categories. This is understandable considering the constraints on the FY2004 merit pool and salary freezes for promotions and other staff changes. However, it is disappointing since significant improvement had been realized over the past four years and a slight competitive edge had been gained over Harvard last year.

According to the Association of Research Libraries (ARL) Annual Salary Survey for 2004–2005, MIT professional librarian salaries still rank within the top quartile among 113 academic and research libraries. However, the MIT Libraries has dropped from the rank of 13th to 21st in average salary and from 5th to 7th in beginning salary (Table 11). Among 21 selected peer institutions in this ARL group,* MIT fell from 7th to 11th in average professional salary (Table 12), relinquishing our first-ever, one-year lead over Harvard.

**Table 11. Association of Reserach Libraries Annual Salary Survey Ranking of MIT Professional Libarian Salaries**

|  | 2001–2002 | 2002–2003 | 2003–2004 | 2004–2005 |
|---|---|---|---|---|
| Beginning professional salary | 17 | 9 | 5 | 7 |
| Average professional salary | 18 | 16 | 13 | 21 |

**Table 12. Association of Reserach Libraries Annual Salary Survey Ranking of MIT and Harvard Professional Libarian Salaries Among Selected Peer Institutions***

|  | FY2000 Ranking | FY2001 Ranking | FY2002 Ranking | FY2003 Ranking | FY2004 Ranking | FY2005 Ranking |
|---|---|---|---|---|---|---|
| MIT | 16 | 12 | 9 | 9 | 7 | 11 |
| Harvard | 8 | 9 | 8 | 8 | 8 | 9 |

*MIT, Harvard, UC Berkeley, UCLA, Connecticut, Princeton, Columbia, USC, Dartmouth, Yale, UMass Amherst, Brown, Michigan, Northwestern, Virginia, UT Austin, Duke, Wisconsin, Penn, Georgia Tech, Purdue

### Other Notable HR Activities

- **Promotions.** Three librarians were promoted in FY2005 following the established librarian promotion policy, one from librarian I to librarian II, and two from librarian II to librarian III. Promotions are noteworthy achievements, and criteria for advancement include demonstration of significant development in areas such as collaboration, service, and leadership, as well as substantial contributions to the profession. Two other librarians were promoted to vacant associate department head positions as a result of departmental reorganizations. Searches for these two positions were waived since, in both cases, we were confident that national searches would not produce better-qualified candidates for the positions. These promotions created two vacancies for which the serious search process was employed.

- **Vacation Tracking.** Vacation balances for all administrative staff were collected and submitted to central HR in May in preparation for the transition to SAP-Payroll. This was not so tedious a process since the Libraries have collected this information from staff in this format on an annual basis for the past several years. There were only a few individuals with vacation balances exceeding or in danger of reaching the 40-day maximum, and they were strongly encouraged to decrease those balances before the September 1 deadline. Support staff balances were monitored as well, and individuals in similar "excess balance" situations were also alerted to the September 1 deadline.
- **Position Review.** A closer review of the computer support assistant positions in the Libraries was a task left over from the Support Staff Reclassification Project of 2003. Work began this year with library managers and MIT Compensation staff to review those positions to determine whether they are classified appropriately and how they relate to similar positions at the Institute.
- **Headcount Inventory.** An inventory of all positions in the Libraries was developed to improve our ability to track and manage staff resources. It includes information about currently filled and unfilled positions, their historical precedents, and the position transfers between units that have occurred over many years.
- **Temporary Appointments Log.** An inventory of all temporary appointments in the Libraries, together with end dates and extension dates, was created to improve tracking of funding commitments and to keep Human Resources as well as incumbents up to date on appointment details.
- **Salary Review Data.** Information on staff rank, department, gender, race, and the like was collected and analyzed as part of our regular support staff and administrative staff salary reviews.

### *Rewards and Recognition Program*

Interest and participation in the Libraries' Rewards and Recognition Program were rekindled this year through the creative and diligent efforts of the R&R Committee. To promote the Infinite Mile Award program, committee members attended local departmental meetings to make a brief pitch and generate enthusiasm for the program. Carabiner key chains, imprinted with the slogan "Raise the Praise," were purchased for a nominal fee and distributed to all staff.

In an effort to support participation in the nomination process and, specifically, to encourage more support staff participation, the committee held several workshops/open labs in the Libraries' Digital Instruction Resource Center, where past committee members provided brief tips about what makes a good nomination. Participants had computer access in order to write their nominations while present, and light refreshments were provided. In addition, committee members drafted several sample nominations and, with a list of tips for writing nominations, posted them on the Libraries' staff website for quick and easy reference.

By all accounts the efforts of the FY2005 R&R Committee were well rewarded. Infinite Mile Award nominations were up by more than 50 percent over the previous three years. Nearly as many were received this year as were received in the first year of the program. Support staff participation in the nomination process soared from 3 percent

in FY2004 to 21 percent in FY2005—the highest since the program's inception. Staff who attended the open labs attributed the success of this initiative to the opportunity provided for individuals to take a few moments, away from their desks and phones, to produce an actual nomination. (All who attended the open labs submitted one or more nominations.)

The Infinite Mile awardees were recognized at the fifth annual Rewards and Recognition luncheon and ceremony on June 9. Twenty-five of our colleagues, four individuals and four teams, received certificates and cash awards for individual and collective accomplishments in the areas of innovation and creativity, communication and collaboration, results, productivity, outcome, and community. Administrative Services' own Judith Gallagher, in her role as the Libraries' new payroll coordinator, received the individual award for communication and collaboration for her exemplary work to implement the numerous changes to payroll practices this past year.

The Libraries' Spot Award program remains robust, with thank you submissions up by another 20 percent this year, reaching an average of 225 per month. The program provides for a monthly drawing of four names from the pool of submitted "thank you"s and a final drawing at the end of the year (at the annual R&R Ceremony) from all of the names that were not drawn during the year. In addition to the actual thank you notes, the 52 winners receive $100 in gift certificates to vendors such as Home Depot, Amazon. com, and Simon Malls.

The Libraries' support of the Rewards and Recognition Program extended Institute-wide this year as both Ann Wolpert and Lewis Music librarian Peter Munstedt served on the Institute's Excellence Award Committee.

## Facilities and Operations

### CRSP Projects

The Libraries have made excellent progress toward realizing their goals for space improvement over the past several years. With the continued support of MIT's Committee for the Review of Space Planning (CRSP), as well as the careful use of limited library funds, the Libraries were able to accomplish in FY2005 a number of projects, both large and small, that significantly enhance their ability to offer world-class services to the MIT community.

- The Archives Storage Center was finally completed. This facility now houses many of the most important and valuable materials from the Archives collections, all in a state-of-the-art controlled environment. Special systems include HVAC, water detection, access control, and security. All are monitored around the clock by MIT Facilities, MIT Police, and the Archives staff.
- The second space change funded primarily by CRSP allowed relocation of both Systems and Technology Services and the Digital Library Research Group into a space in Building E25 that formerly housed the Schering-Plough Library. The project included demolition of the former library space, the weeding, relocation and/or storage of all print materials, and the fit-out of the new space. Three existing walled spaces were converted to two new offices and a small conference

room. The large reading room was converted into individual cubicles for twenty-two staff members, a small meeting space, a large conference room, and a small kitchenette for staff and visitors. All of this work was done with landscape partition furniture and removable walls and doors.

### Library Space Improvements (Non-CRSP)

Although CRSP funds support the major part of space changes within the Libraries, several minor renovations and moves were completed with library funds during FY2005.

- The largest initiative was the relocation of the InterLibrary Borrowing (ILB) unit from Hayden Circulation (Hayden first floor) to Document Services (Hayden basement). This project included the disposal of outdated furniture and equipment in Document Services and the relocation of existing but unused cubicle furniture into the cleared-out space in Document Services. The cubicle furnishings came from 14-0330, the former Systems and Technology Services space. New counters, shelving, and a custom shipping table made the relocation of the three ILB staff members complete.
- The Institute Archives reclaimed the space in Hayden basement (14-0330) that had been vacated by Systems and Technology Services and improved its functionality for Archives processing by removing its cubicles, installing heavy-duty shelving and replacing a carpet with vinyl tile.
- To address the need for more meeting space in Hayden, an oversized office vacated by the Digital Library Research Group was repurposed as a small conference room. Only minor modifications were needed: removal of old furniture, removal of existing shelving and standards, painting, the addition of a white board, and sound treatments on two adjacent doors.

### CRSP Projects Pending for FY2006

Several projects have been approved for the upcoming CRSP cycle:

- Building N57, the Library Storage Annex (formerly the RetroSpective Collection), will receive badly needed upgrades and improvements: its loading dock will be fitted with a weather barrier; a new patron reading area will be created; the existing entry on State Street will be upgraded; and bathrooms and lighting will be improved. This near-campus facility is an important element of the Libraries' strategic planning for the management and servicing of its print collections, so these improvements are a critical first step in preparing for future years.
- The Hayden Library, Building 14, will renovate basement space emptied by the relocation of the Archives' collections to the new Archives Storage Center. The former Rare Book Room will be upgraded and divided to house additional print materials from the Humanities and Science collections, as well as a new space for the Gifts Section of Acquisitions and Licensing Services. This new location for the Gifts Section will yield additional space elsewhere in the Hayden basement for more Humanities and Science materials, and it will also facilitate a major improvement in the overall layout of print materials in Hayden.
- After many years of stoic acceptance of worn-out carpeting by users and staff, Barker Engineering Library (10-500) will receive CRSP funds to re-carpet all

public areas and to create a new media room on the fifth floor. The media room will allow users to watch videos and DVDs in a single or group environment, and will also serve as a small group study space.

- The Libraries' Geographic Information Systems (GIS) activities have grown significantly over the past several years. CRSP has agreed to fund minor renovations to the current GIS space in the Rotch Library to meet this growing demand. The renovations will include new counters, switched lighting, computer data and power connections, and a video viewing screen. It will also include the installation of two blackout-style curtains for projection and video viewing.

### Delivery Services

The Delivery Services unit underwent major changes over the summer of 2004, including the appointment of a new manager and a reduction in staff. The department is now supervised by the facilities and operations administrator, who took over in June of 2004. Shortly thereafter, the position of section head was eliminated and the hours of the other full-time staff member were reduced slightly. Together, these changes effectively reduced the unit's weekly hours by one-third.

This significant resource saving was made possible by a fresh assessment of staffing-level needs, and it has resulted in what is widely regarded as much improved service to library departments and ultimately to library users. The unit has flourished through this change, adding additional services to the Libraries such as special deliveries, gifts pickup, remote book drop locations, coordination of weekly timecard delivery, and the easing of package delivery limits. It has also improved delivery efficiency with the purchase of new mail sorting and delivery equipment and improved communication with library departments.

### Looking Ahead

In addition to its regular operations, Administrative Services expects to focus special attention next year on several areas:

- Implementing the new SAP Payroll functionality in the Libraries
- Updating salary review benchmarks
- Several cost analyses
- Proceeding with building planning if/when it is approved—e.g. for a new Engineering and Science/Humanities Library; a new Dewey Library
- Recruiting underrepresented minorities to the library staff
- Targeted training for administrative assistants working in library departments

**Keith Glavash**
**Assistant Director for Administration**

## Technology Planning and Administration

FY2005 saw the continued rise of the MIT Libraries as a leader in the innovative use of technology and in digital library research. Yet many challenges remain not only in maintaining high quality technology-based services, but in moving the Libraries' most successful research projects into full-scale production. These challenges are being addressed on a number of fronts, particularly as we define approaches to solving them in foundational ways. MIT is now a world leader in digital library research, and through innovative faculty/library collaborations we are creating new paradigms for moving faculty-based research into operational use that benefits the entire institution.

This year, as an effect of increased growth, the Libraries brought together widely distributed groups of staff into new quarters in Building E25. As a result, staff members of the Systems and Technology Services department are now physically co-located with the sponsored research staff of the Digital Library Research Group, and share the common aim of better leveraging the different areas of expertise represented in these groups and working more efficiently to help the MIT Libraries with technology-related projects, systems, and services. At the same time, the various units of the MIT Libraries have been increasing their staff allocation for servicing local technology needs, primarily desktop computer support, so that full-time staff are available in almost all parts of the library system to manage that work. This has allowed the central technology staff to focus their efforts on more specialized technology and on library-enterprise projects such as Barton, the online integrated library system, and DSpace, the digital archive system.

In the larger context of sharing important innovations beyond MIT, DSpace continues to play a major role in the transition of libraries and archives worldwide toward professional stewardship of digital research and teaching materials. It also serves as a platform for exploring critical issues such as public access to scholarship, the role of copyright in controlling the creation of digital materials, the preservation of digital content through archival time frames, and the interoperability of the expanding universe of digital data with other emerging technologies and work practices, such as MIT's OpenCourseWare and the new course management system Sakai.

MIT Libraries' technology staff also worked with Google this year to help define the Google Scholar search engine, and to ensure that it will allow MIT-affiliated students and researchers to use the Libraries' licensed electronic journals and databases no matter where they are or how they find them. We continue to work closely with the library software vendor community, particularly the Ex Libris company, by codeveloping products such as the Verde Electronic Resource Management system and by advising vendors on their strategic planning for the future.

## Systems and Technology Services

### Goals and Priorities

The Systems and Technology Services department provides support for the Libraries' technology operations and leadership in the creative use of current computer systems. The department works hard to maintain the stability and reliability of the Libraries'

hardware and software, and it provides or coordinates continuing education and training for library staff on a wide range of technology-related topics. Perhaps its greatest ongoing challenge is finding a balance between supporting local initiatives and involvement in larger centralized projects—a position from which it can encourage technological creativity throughout the library system without compromising support to the many existing services.

## Accomplishments

### Production Operations

- **DSpace@MIT.** The STS department assumed responsibility this year for supporting MIT's DSpace digital repository system—an important milestone for the Libraries. DSpace@MIT is an increasingly important part of the Libraries' information environment and moving its support out of the Digital Library Research Group and into the production operations group demonstrates the Libraries' commitment to the DSpace@MIT service. But DSpace@MIT is a new and rapidly evolving system, so it is complex and time consuming to maintain, requiring effort from many people to support its different aspects. The challenge of providing operational support for DSpace@MIT without new resources was considerable.
- **Barton.** STS managed a major project to plan, coordinate, and implement an upgrade of the Libraries' integrated library system, Barton. This was the first major upgrade since the ALEPH 500 system was first implemented four years ago. Barton is the main business system of the Libraries, so almost every staff member depends on it to perform their job, and the entire MIT community depends on it to use the Libraries' collections. Although an upgrade of this magnitude represented a significant risk of disruption to the work of many people, the process went extremely well.
- **MIT Libraries' public website.** Usage of the Libraries' public website continues to increase dramatically. The usage statistics show more than a five-fold increase since the website's rollout in 2001, and a doubling since last year.
- **SFX.** The Libraries' web link resolver is an important part of the infrastructure that supports access by MIT students, faculty, and researchers to the remotely held, licensed electronic resources that are the most heavily used part of our collections. This year SFX was upgraded to a new version (3.0) which supports new features as well as integration with other Ex Libris products in the future. We continually evaluate SFX to find ways to improve its use and usability by the MIT public.

### Support for New Initiatives

- **Verde.** A new SFX-Verde Group was convened to perform extensive analysis leading to a recommendation about whether and how to implement the new Electronic Resource Management system from Ex Libris, and how to provide a public interface to it. STS staff are managing that group and providing significant input to its analysis.
- **Management system for digitized images** from the Rotch Library's Visual Collections (RVC). STS staff worked extensively on an analysis of the

requirements and possible solutions for digital image management in the MIT Libraries, and is developing recommendations for infrastructure to support digitizing the RVC slide library collection.

- **Interlibrary Loan.** STS assisted the Document Services and Access Services departments in investigating and analyzing the ILLiad software for potential use at MIT for interlibrary borrowing.
- **Virtual Reference Services.** STS helped evaluate and implement Request Tracker, a software system to support the Libraries' Ask Us! online reference service. The support requirements were defined to transition Ask Us! from a prototype phase into a true production service.
- **Web access to the digital image catalog.** Functional requirements and preliminary testing were completed for a simple web interface to the IRIS (digital image metadata) catalog in Rotch Library.

**Digital Library Research Group**

### DSpace

While the DSpace@MIT production service has transitioned to full support by the Systems and Technology Services department, the DSpace open-source software and the DSpace Federation continue to be managed and developed by the Digital Library Research Group.

The DSpace open-source software project (http://dspace.org/) stands out as one of the definitive projects in the international digital library arena, as well as in the digital media lifecycle management domain in general. The MIT Libraries continue to collaborate not only with Hewlett-Packard on the DSpace project, but with a growing number of other research institutions and organizations worldwide. Serious adoption of the DSpace platform stands at more than 100 organizations worldwide, and DSpace has become an exemplary open-source software project for higher education and cultural heritage organizations, with potential for adoption well beyond that.

Among many other accomplishments in FY2005, MIT helped to organize the second annual DSpace user group meeting, held in Cambridge, England, and attended by more than 140 individuals from 22 countries. MIT also contributed significant new features and functions to the system and honed the definition of services built on the platform. MIT is working with the international community on the important intellectual property issues that DSpace helps to bring into focus—principally, how to provide open access to research and teaching materials produced by the faculty at research organizations like MIT.

### Research Projects

The Digital Libraries Research Group continues to develop and execute a range of projects in the digital library research domain, and to perform extensive outreach for projects in the library and archives community, among others. In FY2005, the DLRG worked on five grant-funded research projects ranging from pure research to advanced development, and from the highly technical to the purely sociological. Current projects include:

- DSpace@Cambridge, a collaboration with the University of Cambridge Library in the United Kingdom, with funding from the Cambridge-MIT Institute (CMI) to deploy DSpace at the University of Cambridge, promote DSpace in the United Kingdom, and develop the system in the areas of digital preservation and support for educational technology. This project has developed significant new functionality in DSpace in support of the long-term preservation of digital content in various technical formats. It is also supporting collaboration with important educational technology initiatives such as Sakai and LRN (in use at the MIT Sloan School). Cambridge is taking on a more noticeable leadership role in the DSpace community, particularly in the United Kingdom and Europe, and the collaboration with MIT provides both institutions with important insights into how the DSpace platform can function in very different environments.
- LEADIRS, a second CMI-funded collaboration with the University of Cambridge Library in the United Kingdom, developed and ran a successful workshop series on institutional repository issues for UK institutions. The series was attended by a sold-out audience of more than 25 institutions, and has had a major impact on understanding and adoption of this technology and related services in the United Kingdom. Materials from the LEADIRS workshop were published via the DSpace Federation website, and have been turned over to the SPARC Europe organization for continued development of similar workshops in the future.
- SIMILE, an MIT Libraries' collaboration with MIT's Computer Science and Artificial Intelligence Laboratory, the W3C, and HP Labs to bring semantic web technology into the real-world domain of library metadata, and to integrate that technology into DSpace. FY2005 marked the end of the collaboration with HP, and the inauguration of a new phase of the project working with the Andrew W. Mellon Foundation. SIMILE had a very successful year, producing several important prototype tools, including Longwell (a faceted metadata browser), Piggy Bank (a personal metadata management tool that works with the Firefox web browser), and Welkin (a tool for exploring and analyzing RDF-encoded metadata). The project team has hit its stride and is now attracting world-wide attention for their cutting edge yet practical approach to leveraging this technology. The project's collaborations between research faculty, standards organizations, and the Libraries are providing a new model for how research universities can leverage their own research for local benefit.
- CWSpace, a Microsoft iCampus-funded project to investigate the standards and protocols necessary to archive educational materials produced for the OpenCourseWare initiative in long-term digital repositories like DSpace. This year the project finished the standards specifications and built a prototype system to archive a sample of OCW's courses. The project team has already built a prototype DSpace that interoperates with various campus learning management systems to support reuse of OCW's course websites and teaching materials, and is making significant improvements to DSpace's support for interoperability in general.
- DSRB, a project funded by the US National Archives and Records Administration through the NSF's National Program for Advanced Computing Initiatives, collaborating with the University of California, San Diego Libraries and the San Diego Supercomputer Center on integration of new data grid technology for

content storage with digital library and archive technologies like DSpace. The project concluded its first year of work with the successful integration of DSpace and the SRB software from the Supercomputer Center, and demonstrations of archived digital collections in the integrated system. The project was recently reviewed in a feature article in MIT's Technology Review magazine.

## Other Issues and Initiatives

### Computing Infrastructure

The MIT Libraries have acquired new DSpace hardware from HP, including more than 10Tb of storage capacity and two new servers. We continue to invest in new hardware for production systems and are working with MIT's Information Services & Technology department on how to scale up our production operations in the future without replicating IS&T's infrastructure in the Libraries. As a visible part of MIT, the Libraries' computer systems are always under threat from network intruders, and we must also uphold increasingly complex rules about access control and security for the networked digital material we license for MIT or provide directly through systems like DSpace. The tension between good network security and user convenience continues to be a challenge, and MIT is beginning to think about new approaches to online security (e.g. Shibboleth) as these threats and challenges become ever more time consuming.

### Libraries and Educational Technology

The Libraries continue to play an important role in educational technology development both at MIT and beyond. This year the MIT Libraries were involved in initiatives to develop closer integration of legacy library technology (e.g. the integrated library system, e-reserves systems, e-resource provision systems, and the like) with emerging open-source educational technology platforms like Sakai and the LRN system in use at the MIT Sloan School, among other institutions. The MIT Libraries are committed to insuring that library resources, including collections and services, remain as central to the teaching mission and as easy to use in the online environment as they always have been in print. Consequently the MIT Libraries are heavily involved in all educational technology architectural and service planning on campus.

### Service Framework for Digital Libraries

The MIT Libraries began collaboration in 2005 with a number of other research and library organizations under the aegis of the Digital Library Federation (DLF) to begin to define a "service framework" for the emerging digital library. This work continues, but already it has proven to be instrumental in building communication channels with other, related communities of practice (e.g. educational technology, publishing, records management, e-science, and so on). The DLF group will create a service framework and define a set of core services against which digital libraries will be able to measure themselves and their position in the digital environment. Staff from across the MIT Libraries have been participating actively in this work and are using it to better understand where we ourselves need to go for the Libraries' services to remain relevant and distinguished in the digital future.

## Conclusion

FY2005 has once again been a year of major progress for technology in the MIT Libraries. Production systems continue to improve and become more reliable as we continue to bring new systems online. New technology-based projects and initiatives are being undertaken with increasing ease and success. The MIT Libraries' digital library research program continues to establish itself as one of the premier programs in the world, and is attracting an increasing amount of attention and funding. The opportunities to exploit technology and advance the work of the MIT Libraries and of libraries in general are becoming more achievable with each year. FY2006 will mark the beginning of at least two new research projects, and an increased sophistication in deploying technology to support the library in its ongoing transition to the digital environment.

**MacKenzie Smith**
**Associate Director for Technology**

*More information about the MIT Libraries can be found online at http://libraries.mit.edu/.*