

# Bib·li·o·Tēch

NEWS FROM THE MIT LIBRARIES

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Photo by Richard Howard

**FROM THE DIRECTOR**

“Taking the fork in the road” is the compelling phrase Charles Vest, President of MIT, has used to describe the future of education at MIT. Faced with the choice between a new machine-based digital environment, and a deeply human, person-to-person endeavor conducted in a residential setting, Dr. Vest declares that MIT must deliberately choose to take both paths.

*“Taking the fork in the road”*

The MIT Libraries are also taking a fork in the road. Faced with the choice between a promising new digital publishing and distribution environment, and the rich, print-based, human-oriented traditional library, we too must deliberately choose to take both paths.

MIT operates in the world of ideas, concepts, and knowledge. These intellectual intangibles come in many formats, and are both an essential raw material of the educational process, and a fundamental outcome of

Institute research. It is the mission of MIT’s libraries to acquire, organize, and maintain relevant information, whatever form it takes, for the benefit of faculty and students.

Equally important, if somewhat less visible, is the Libraries’ related responsibility for preserving important information resources from and for one generation to the next. Indeed, no other aspect of the academy attends to this essential task. Across disciplines and over time, the MIT Libraries have continually captured, preserved, and made available advances in knowledge for the benefit of MIT faculty, students, and serious scholars everywhere.

The 1990’s were replete with scenarios that assumed print books and journals would become first obsolete, then irrelevant, as all useful information was rapidly digitized. Scholars would communicate with one another directly through the Internet, eliminating the need for publishers and libraries. Faculty and students would have no need for physical facilities, including classrooms and libraries, as bricks-and-mortar would be replaced by web-based services and door-to-door (or desktop-to-desktop) delivery of information.

Some day, this may still come to pass. But for today, the advantages of the digital environment are increasingly weighed against a resurging appreciation of traditional library resources and services. Students are rediscovering the efficiency and lucidity of the book as a medium, and the library as an important life-long venue for study and learning.

In addition, long-term digital archiving remains a hugely complicated and expensive alternative to traditional print on paper, and no political/economic system for archiving has yet emerged that inspires sufficient confidence or trust. One witness to this reality was the enthusiastic response of MIT faculty when the Libraries put out a call for early adopters to participate in the MIT Libraries DSpace digital archive.

And so like MIT itself, the MIT Libraries will take the fork in the road. Through the DSpace project and our research partnership with Hewlett-Packard we will seek answers to the difficult problems of capturing and archiving digital material. Through the foresight and generosity of an anonymous alumnus donor we will build a Preservation Center that can both steward MIT’s rare and unusual print works, and digitize those works so that they can serve the research needs of scholars around the world.

We will take the fork in the road that delivers high-quality, relevant digital resources to desktops around the Institute, and we will also take the fork that provides MIT’s students and faculty with the kind of physical facilities that reflect their world-class intellectual needs.

As everyone who knows MIT will attest, it may not be easy to go in two directions at once, but it certainly is interesting!

**Ann J. Wolpert, Director of Libraries**  
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## DSpace ANNOUNCES EARLY ADOPTERS

How can the MIT Libraries ensure the future availability of research by MIT faculty? When will a stable, sustainable environment be developed for storing digital works?

DSpace, a joint development project between MIT Libraries and the Hewlett-Packard Company to create a digital repository of MIT research, was launched in the spring of 2000 to address these questions. The project has embarked upon its Early Adopter phase with the participation of four MIT communities: the Sloan School of Management, the Department of Ocean Engineering, the Center for Technology, Policy and Industrial

Development and the Laboratory for Information and

Decision Systems. Selected to reflect different types of MIT entities representing a variety of user needs, the Early Adopters will submit digital items to collections within their own communities and will also have access to the complete content of DSpace.

This beta test of the system marks a milestone in the two-year development project that will provide MIT research communities with a reliable home for their digital research products while simultaneously distributing them for worldwide consumption. The system provides flexible submission and workflow features and powerful search and retrieval capabilities, as well as reliable digital storage and preservation safeguards.

The primary goals of the DSpace Early Adopter Program are to determine how MIT contributors will use the repository, what types of digital materials they will submit, what features they find useful in the system, and what additional features they would recommend to enhance DSpace. Data collected during this period will also help the DSpace business team predict costs and develop a business plan for long-term operation of the repository.

The Sloan School of Management, the largest community to have an early presence in DSpace, will submit the Sloan School Working Papers as its first DSpace digital collection. DSpace also will be integrated with the SloanSpace portal and collaborative system to capture working papers directly as they are completed in that system. MIT Sloan's early adoption of DSpace is indicative of the school's leadership role in management and technology.

The MIT Department of Ocean Engineering is the oldest of its kind in the United States. The need for accurate data retrieval and use has become increasingly important in the field of ocean sciences, engineering and management. The amount of data collected and processed daily is vast and is expected to increase considerably in the future.

Researchers in the Department of Ocean Engineering will submit data sets produced by geographic information systems as well as items in text format.

The Center for Technology, Policy, and Industrial Development (CTPID), a multi-industry research center, applies intellectual tools from engineering, management, and the social sciences to critical industry issues. CTPID's DSpace coordinators are working with their ten member programs to develop web materials appropriate for each

group's distinct mission. Issues for the team include access policies, easy document submission, and organizing intellectual work not associated with an existing CTPID program.

The Laboratory for Information and Decision Systems (LIDS) is an interdepartmental research laboratory with the fundamental research goal of advancing the fields of systems, communication and control. In doing this,



Photo by L. Barry Hetherington

**A visual representation of the wide range of materials that DSpace will digitally accommodate.**

it explicitly recognizes the critical role that computation plays in this research. LIDS is currently converting its collection of more than 1,500 technical reports from print to digital files. These will form the largest initial collection of items in DSpace, and will be supplemented continually with new reports.

In addition to the Early Adopters, DSpace will mount over 100 MIT Press out-of-print books in digital form and a digital collection of technical reports from the NCSTRL project, an earlier effort of the Laboratory for Computer Science and the Artificial Intelligence Laboratory. These collections will provide additional content for the repository when it goes live later this year.

Questions about setting up a community on DSpace should be directed to Margret Branschofsky. For more information about DSpace consult:

<http://www.dspace.org> or contact: [dspace-info@mit.edu](mailto:dspace-info@mit.edu)

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Illustrated page from *Istituzioni analitiche*, 18th century calculus text by Maria Agnesi.

## Rare 18th Century Italian Mathematics Book Donated to MIT Libraries

In addition to assisting with the final donation of their father's papers to the Archives, the children of Dirk Struik donated their copy of the two-volume *Istituzioni analitiche ad uso della gioventu' italiana* (Milano, Nella Regia-ducual corte, 1748) to the MIT Libraries' rare book collection.

*Istituzioni analitiche*—or Analytical Institutions for the Use of the Youth of Italy—is the great achievement of an Italian woman, Maria Gaetana Agnesi (1718-1799). Agnesi is regarded by many as the first woman mathematician of the modern Western world. The oldest of twenty-one children born to a wealthy Bolognese family, Agnesi displayed enormous intelligence at an early age. Her father provided her tutors under whose guidance she mastered many languages—Latin, Hebrew, French, Spanish, and German—all by age 13. Yet, despite her linguistic abilities, her main interests were mathematics and religion. Agnesi came under the influence of Benedictine mathematician Ramiro Rampinelli, a professor at both Rome and Bologna. At his encouragement, Agnesi wrote *Istituzioni analitiche*, her teaching text on calculus. Although some time around 1750 Pope Benedict XIV invited Agnesi to accept the chair of mathematics at the University of Bologna, she apparently declined, devoting the remainder of her life entirely to charitable work in Milan.

## STRUIK PAPERS MAKE FINAL JOURNEY TO INSTITUTE ARCHIVES

Sometime around 1978, when 84 years old, Professor Emeritus Dirk Jan Struik began to visit the MIT Institute Archives regularly, delivering small bundles of his papers with a promise that more were to come. During the fall of 2001, the remainder of this important collection was delivered to the Institute Archives. The Struik Papers—which consist primarily of correspondence, journals, notes, drawings, and manuscripts, including some from his wife, Ruth Ramler Struik—span nearly ninety years and document his participation in both the international scientific and political revolutions of the 20th century.

Professor Struik—who died in October 2000 at age 106—earned his doctorate in 1922 at the University of Leiden, Holland. While in Göttingen, Germany (the mathematicians' Mecca) on a fellowship in 1925, Struik met many famous mathematicians, among them MIT's Norbert Wiener. Learning that Struik's stipend was to end shortly, Wiener urged MIT President Samuel Stratton to offer him a short-term appointment and Struik arrived in the U.S. in 1926. Struik's wife, Ruth Ramler Struik, herself a mathematician who earned her doctorate from Charles University in Prague in 1919, joined him in Cambridge in 1927. In 1928 Dirk Struik was appointed as assistant professor at MIT. He retired in 1960 as Professor Emeritus of Mathematics and in 1972 he was made an honorary research associate in the History of Science Department at Harvard.

Professor Struik's long career in differential geometry led to many great mathematical papers and books. The drafts and notes to a *Concise History of Mathematics* (1948), *Yankee Science in the Making* (1948), and *Lectures in Classical Differential Geometry* (1950), among others, are all part of this collection at the Archives. His abiding interest in Marxism attracted attention during the McCarthy period and in September 1951 Struik was indicted by a Middlesex County jury on charges of advocating the overthrow of the United States and Massachusetts governments. This case, which garnered enormous public attention and is well documented in the collection, was dropped without trial due to lack of evidence.

There was great curiosity about the interests and habits of Struik the centenarian. When once asked how he accounted for his long life he replied, "It is natural that people ask me to what I attribute my long life in good health... the best answer is the three M's: mathematics, marriage, and Marxism."

This tremendous resource will be available to the public once the collection is appropriately processed. Due to the age and physical condition of many of the materials, the Struik Papers are extremely fragile and therefore difficult to use or handle. The Institute Archives are endeavoring to identify potential sources of funding to cover costs associated with processing this collection.

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Two items from Struik Collection: 1994 letter from President Clinton on Struik's 100th birthday, and Struik's 1934 passport.

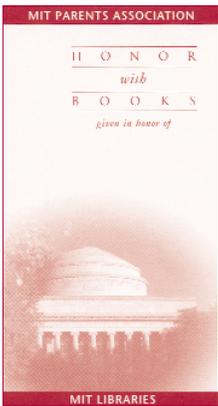
## SUPPORTING THE LIBRARIES: *Honor with Books*

*"Is there a unique way to recognize the accomplishments of our sons and daughters at MIT?"*

Members of the MIT Parents Association were asking this question at the same time MIT Libraries' staff were exploring ways to increase the involvement of parents in the Libraries. Both groups—parents and staff—came together at Family Weekend this past fall to consider this challenge. As a result, the Parents Association, led

by Thomas and Nicole Hynes, P'02, decided to launch a new program: *Honor with Books*.

*Honor with Books* provides parents—or other relatives or friends—of MIT students, with an opportunity to acknowledge their special student with a lasting recognition in the MIT Libraries.



For each gift of \$100 a bookplate, recognizing the student, is placed in a book in a field of study chosen by the parent or friend. The name of the selected book and facsimile bookplates are sent to the donor and the student.

According to Nicole and Tom Hynes, "This gives us the chance to thank MIT for what has been made available to our son, and shows our son how very proud we are of him!"

Participation in *Honor with Books* will provide an enduring resource for MIT by augmenting the collections. For years to come, the bookplate will be a symbol to students and faculty of tremendous pride in a student's accomplishments. And, the contribution creating the bookplate will support MIT students now and in the future.

For additional information on *Honor with Books*, please contact: M.J. Miller, **Director of Development** 617 452 2123 [mjmiller@mit.edu](mailto:mjmiller@mit.edu)



Photo by Ming-Tai Huh

**Nicole and Thomas Hynes, P'02, National Chairs of the Parents Fund**

## SIGNIFICANT GIFTS RECOGNIZED

*At the luncheon following the MIT Corporation meeting in December, Director of Libraries, Ann Wolpert was joined by President Charles Vest and Chairman of the Corporation Alex d'Arbeloff to recognize two members of the Corporation, Shirley Ann Jackson and Marjorie Yang, for significant gifts they have made to the MIT Libraries.*



Photo by Joshua Touster

**Shirley Ann Jackson and Charles Vest**

**Shirley Ann Jackson**, President of Rensselaer Polytechnic Institute, received her PhD in Physics from MIT in 1973. From April 1995 until June 1999, she served as chair of the Nuclear Regulatory Commission. Dr. Jackson has designated the MIT Archives as the permanent repository for her papers covering her tenure at the Nuclear Regulatory Commission.

**Marjorie Yang**, a 1974 graduate of the Department of Mathematics, is the chair of the Esquel Group of Companies in Hong Kong, a manufacturer of garments



Photo by Joshua Touster

**Ann Wolpert, Marjorie Yang, and Alex d'Arbeloff**

and textiles. Ms. Yang presented to the MIT Libraries an extraordinary digital resource: the *Siku QuanShu*—a collection of some 3,400 classical works on Chinese culture, covering the period from antiquity through the 18th century. It includes works in philosophy, history, literature and art, political systems, social studies, economics, astronomy, geography, mathematics, and medical studies, and represents a major Chinese cultural legacy and the essence of Chinese civilization.

# GEOGRAPHIC INFORMATION SYSTEMS (GIS) SERVE MANY FIELDS

The MIT Libraries have recently established a Geographic Information Systems (GIS) Services program, creating both a virtual and a physical laboratory space, and adding to the Libraries' staff the position of GIS Specialist. The physical laboratory, located in Rotch Library (Building 7-238) provides a place where MIT faculty, staff and students can not only become familiar with GIS, but also access data and the necessary software and hardware resources to conduct GIS research and analysis. The program also provides training and information in the use of GIS.

GIS is often referred to as mapping software packages, yet this description underestimates its capabilities, as GIS systems give users the ability to analyze complex spatial data. The analysis performed in GIS can be seen in everyday life, as municipalities use it to study traffic patterns and manage infrastructure. Emergency Medical Services (EMS) use GIS to determine the best route to an accident, and environmental scientists use it to estimate effects of environmental hazards. GIS has come to be more than a mapping tool, as applications of this new technology can be found in fields as diverse as urban studies and planning; architecture; real estate; public policy; civil and environmental engineering; earth and planetary sciences; science, technology, and society; public health; epidemiology; economics; business; and marketing.

Geographic Information Systems have been defined by Ron Eastman, Director of the Graduate School of Geography at Clark University, as "tools for managing data about where features are (geographic coordinate data) and what they are like (attribute data), and for



Photo by L. Barry Hetherington

Sarah Williams views map of Afghanistan with downloaded elevation data.

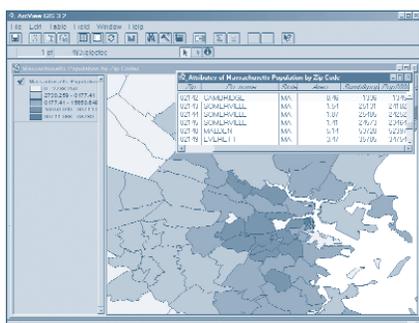
providing the ability to query, manipulate, and analyze those data." A good example is census data, where the attribute data provides information about the people who live in a census tract, while the geographic coordinate data tells us where a census tract is located and its relationship to the geographic features around it. Whether for the census block groups or soil types, geographic information systems provide a way to classify attributes of our world, thereby allowing explicit spatial relationships to be made. Spatial data is one of the key components to any GIS system; it is therefore important for users to understand how to obtain and create spatial data, as well as manipulate that data in GIS software products.

Lab resources at Rotch Library can be used to facilitate output (print or digital) of GIS analysis. Users can make appointments with the GIS Specialist, Sarah Williams, to learn more about applications or locate spatial data. Training is also offered. A series of well-attended courses were presented during IAP 2002; classes included the Basics of Geographic Information Systems, Locating Spatial Data, Understanding Geographic Metadata, Hands-On ArcView, and Working with Digital Elevation Models. An intensive three-day GIS refresher course is planned for this spring.

Through the virtual GIS laboratory, information related to the use of GIS can be accessed without having to enter a physical laboratory space. One of the major components of the virtual lab is the GIS laboratory web page (<http://libraries.mit.edu/gis>) with links to resources on services, spatial data, training, hardware and software, and research and teaching applications. Athena terminals make up another component of the virtual laboratory as the GIS software accessible through these terminals allows users to perform analysis anywhere on campus.

Those interested in learning more about this new service of the MIT Libraries are encouraged to stop by the GIS lab space in Rotch Library or contact Sarah Williams. Efforts are being made to continue developing both virtual and physical GIS resources and programs in the future.

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Screen shot of population measurements by zip code for the Boston Metropolitan Area.

## NEW AERO/ASTRO LIBRARY INTEGRATES INFORMATION RESOURCES WITH STUDENT DESIGN LABS

*"This place is great...and it's right here!"*

We often hear such enthusiastic comments from students about MIT's "newest" library, the Aeronautics and Astronautics Library.

There has been an Aeronautics Library in the MIT Library System as long as there has been an Aeronautics Department. According to records in the Institute Archives, the first Aeronautical Library was established in 1928 as part of the newly constructed Guggenheim Aeronautical Laboratory (Building 33). For about 70 years the Library served the students and staff of the Department from a location on the third floor. It was most heavily used by graduate students. Undergraduates, with their labs on the first floor and in the basement, found it too time consuming to go to the third floor library unless they absolutely had to.

In 1999, the Library was invited to be a part of the creation of the Aeronautics and Astronautics Department's Learning Laboratory for Complex Systems. The new Laboratory's goal was to integrate a full range of engineering process skills into the undergraduate curriculum. To the traditional disciplines of analysis and design were added those of Conceive, Design, Implement and Operate (CDIO). The entire building was renovated and expanded by Cambridge Seven Associates to create highly flexible and open space that allowed students and faculty to work in modern team environments. The goal was to integrate classroom, library, computer and shop into a compact and interactive system.

The Library was relocated to a first floor location in the Robert C. Seamans, Jr. Laboratory. The Laboratory's open spaces, modular furniture, and rows of computers provide students with an inviting place for recitation sessions with faculty and teaching assistants and for gathering in groups to work on design projects. The Arthur and Linda Gelb Laboratory on the lower level provides space for project fabrication and implementation. The Gelb Laboratory is connected to the Seamans Laboratory and the Library by an internal staircase, encouraging easy movement from research to design to construction.

The relocation to newly renovated space provided an opportunity to create a library of the 21st century. Although the new library has half the square footage of the old, careful design of the space by Steven Imrich, lead architect, and his team resulted in a decrease of only two study carrels. Use of rolling compact book shelving allowed most of the paper collection to be absorbed into the new space. Every study space provides power and Internet connections and eight of the twenty study carrels have Sun or Dell workstations. A wireless transmitter allows use of laptops in the book stacks. Special maple cabinets were designed as attractive covers for file drawers to hold the half million technical reports on microfiche. The tops of these cabinets have power and Internet connections for printers and other electronic equipment.

The new Library is located on the perimeter of Building 33; the windows on the exterior wall look out on Massachusetts Avenue. The interior wall of fritted glass provides an open and welcoming view to the students in the laboratory while filtering out the

**Right: The Robert C. Seamans, Jr. Laboratory with internal stairs leading down to the Arthur and Linda Gelb Laboratory.**



Photos by L. Barry Hetherington

**Above: Study carrels: space saving is achieved through flat screen monitors designed to use as little space as possible and placement of CPUs on the floor.**

noise of group work taking place just outside the doors. Although the MIT Libraries offer remote access to many of their research resources online, students find the Library a quiet place to use those electronic journals and databases as well as resources provided by the Aero/Astro Department.

With its move into the Seamans Laboratory, the new Aeronautics and Astronautics Library has become more a part of the flow of the Department's academic life. Department Chair, Professor Edward F. Crawley said, "The Library has become even more integrated into the work of all the students in the Department." Architect Steven Imrich noted, "We have taken traditionally separate activities, such as the library and the fabrication shops, and created communication between them." All in all, the new library configuration significantly benefits education and research for Aeronautics and Astronautics at MIT.

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**MITLibraries**

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## WHAT'S NEW IN THE LIBRARIES?

### SOCIAL SCIENCE DATA

The Dewey Library for Management and Social Sciences recently established the position of Data Services Reference Librarian to assist members of the MIT community in gaining more effective use of social science data. The appointment of Katherine McNeill-Harman to the position adds a valuable resource for social science researchers. Through services such as individual consultations and instructional sessions, she helps users to identify and utilize data sets, as well as to understand resources on campus available to them for data research.

For more information about social science data resources at the MIT Libraries, see: <http://libraries.mit.edu/dewey/data/> or contact Ms. McNeill-Harman at [mneillh@mit.edu](mailto:mneillh@mit.edu) or 617 253 0787

### *knovel: Engineering & Scientific Online Handbooks*

In their continuing efforts to make useful resources available to the desktop of MIT faculty, students, and staff, anytime day or night, the MIT Libraries have licensed online access to many important handbooks in engineering and science through *knovel*. Some popular titles are McGraw Hill *Chemical Properties Handbook*, the *CRC Handbook of Chemistry and Physics*, and *Marks' Standard Handbook for Mechanical Engineers*. A complete list of titles is available at:

<http://www.knovel.com/knovel/titlelist.html>.

Handbooks available through *knovel* are searchable by both full text and numeric property values, and are provided as PDF documents. The system gives the reader the ability to browse tables of contents, and some handbooks include interactive, searchable tables, graphs, and equations.

### WIRELESS NETWORK ACCESS

Wireless access to the MIT network is now available to members of the MIT community in all divisional and branch library reading rooms. To take advantage of the Libraries' wireless capability, users need a portable computer equipped with an Ethernet card, MIT web certificates, an IP address registered for DHCP access, and a wireless network card configured for use at MIT.

For more information on this service, see: <http://libraries.mit.edu/help/mitnet> and for details on wireless on the MIT campus, see: <http://web.mit.edu/is/help/wireless>



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