

Program in Science, Technology, and Society

The Program in Science, Technology, and Society (STS) is now in its 28th year at MIT. At a retirement dinner for Kenneth Keniston, Andrew W. Mellon professor of human development, in April, many of the founding members gathered to recall the early days of the program and some of the more memorable episodes from the past decades. The tone was one of celebration for how much has been accomplished and how much stability has been achieved in an interdisciplinary program with wide intellectual reach and high ambitions in research and education. There was a similar tone of celebration at a February event held in honor of professor Evelyn Fox Keller, who finished her last semester of teaching in the fall and who will officially retire at the end of 2006. (Papers presented at that event may be accessed at <http://web.mit.edu/sts/calendar/keller/keller-css.html>.) In addition, professor Loren Graham, who has been serving as professor without tenure, will retire from that position at the end of 2005. These retirements remind us how much current STS faculty, staff, and students owe to the founding generation and how much they challenge us to live up to the standards they have established for the program.

Faculty numbers in STS are now low given these retirements, as well as the departure of associate professor Joseph Dumit for the University of California at Davis, where he will serve as director of Science and Technology Studies and associate professor of anthropology. We anticipate hiring three new faculty members in the near future and are engaged in discussions about the nature and sequence of these anticipated hires. In the context of our recent retirements and a new senior administration at MIT, we are keenly aware that we have an opportunity to define the direction of our distinguished STS Program for the next generation.

Doctoral Program

The doctoral program, approved by the MIT Faculty in 1988, represents a collaboration of STS, the History Faculty, and the Anthropology Program. During the 2004–2005 academic year, the three collaborating faculties voted to change the name of the program from the History and Social Study of Science and Technology (HSSST) to History, Anthropology, and Science, Technology, and Society (HASTS) to increase name recognition and emphasize the interdisciplinary nature of the program.

During AY2005, there were 28 students in the program. We are planning to enroll four new students in the fall (the usual number). We graduated five students this year: Dr. Shane Hamilton, Dr. David Nicholas Lucsko, Dr. Eden Miller Medina, Dr. Aslihan Sanal, and Dr. Chen-Pang Yeang. At this time, we know the plans of four of the five graduates: Dr. Hamilton is assistant professor of history, University of Georgia; Dr. Lucsko is managing editor, *Technology and Culture*; Dr. Miller is assistant professor of informatics, Indiana University–Bloomington; and Dr. Yeang has accepted a faculty position at the Institute for History and Philosophy of Science and Technology at the University of Toronto beginning in fall 2006. For the coming year, he will remain on campus with a postdoctoral appointment in the Department of Electrical Engineering and Computer Science and an affiliation with the Dibner Institute.

Curricular changes proposed by the HASTS curriculum committee were unanimously approved by HASTS faculty at the spring end-of-term meeting. One new core requirement (in STS) was added; foundation classes will become electives; and a two-semester sequence of methods followed by a writing seminar will be introduced. The changes were met with enthusiasm by faculty and students alike.

Our students continue to be successful at winning competitive fellowships to support their graduate studies. Nick Buchanan was supported by a Jacob K. Javits Fellowship awarded by the US Department of Education that will continue through academic year 2007. Kieran Downes' traineeship with the Integrative Graduate Education and Research Training Program on Emerging Technologies (PoET)—a five-year program sponsored by the National Science Foundation (NSF) and managed by STS, the Technology and Policy Program (TPP), and Political Science—was renewed for the coming year. He will be joined by Sara Wylie, who will be a new trainee with PoET during the coming year. Richa Kumar was selected for an Industrial Performance Center Fellowship to pursue research on village kiosks and agribusiness in India.

In addition, the Dibner Institute renewed the graduate fellowships for Alexander Brown, Peter Shulman, Jenny Smith, and Anya Zilberstein.

Projects, Grants, and Initiatives

Professor Deborah Fitzgerald received a grant from the National Science Foundation to support her research project *A Matter of Convenience: The Food Industry in Postwar America*. This project will look at the synergistic role of the federal government, food processors, and university departments of food science and technology in defining the postwar food industry.

Leo Marx career development associate professor David Kaiser continued research on his project *Training Quantum Mechanics: Pedagogical Pressures and Curricular Reform in Modern Physics*. The Spencer Foundation continues to support this work on the changing ways in which physicists made sense of quantum mechanics in postwar United States, Europe, and Japan.

Professor Graham continued his study, supported by the NSF, of the changes in the organization of the scientific workforce and financing of the basic sciences in Russia since the collapse of the Soviet Union.

Professor Theodore Postol and the Technical Working Group he leads continued research on their project *Preserving and Enhancing Technical Security* with ongoing support from the John D. and Catherine T. MacArthur Foundation.

Associate professor Hugh Gusterson and Frances and David Dibner associate professor David Mindell, along with Professors Dumit, Sherry Turkle, and Susan Silbey (from Anthropology), continued their work on *Computation, Visualization and Changing Professional Identities*. This project, funded by NSF, is examining how various professions are being transformed in the digital age, especially through the use of virtual experience.

Educational Activities

The STS Program offered 23 undergraduate subjects and 23 graduate subjects in AY2005. Three of these were new graduate subjects and two were new undergraduate subjects. Undergraduate enrollment totaled 436. Graduate enrollment totaled 253. In our teaching program, we emphasize collaborations with other parts of MIT. This year we offered 19 subjects jointly with other departments (Anthropology, History, Electrical Engineering and Computer Science, Health Sciences and Technology, Linguistics and Philosophy, Media Arts and Sciences, Political Science, Women's Studies, Engineering Systems Division [ESD], and Aeronautics and Astronautics [Aero/Astro]). Some examples follow.

- Professor Mindell's new class STS.471J Engineering Apollo, which explores the Apollo mission to the moon as an example of a complex engineering system, has been joint-listed by ESD and Aero/Astro.
- Cutten professor of the history of technology Merritt Roe Smith teaches a class designed for MIT's new Program on Emerging Technologies. The seminar, STS.462 Social and Political Implications of Technology, attracted MIT graduate students from ESD, Architecture, and Materials Science and Engineering, Political Science, and STS, as well as students from Harvard.
- Professor Michael Fischer teaches Ethics and Law on the Electronic Frontier with Professor Harold Abelson from Course 6, where students meet and question technologists, activists, law enforcement agents, journalists, and legal experts; an ethnography course with Professor Dumit for HASTS graduate students, as well as students in Comparative Media Studies and the Sloan School of Management; and a course offered jointly with Health Sciences and Technology, HST.930J Social Studies of Bioscience and Biotechnology, with Harvard Medical School professors Byron and Mary Jo Good.

This year, STS had one undergraduate major, four minors, and 60 concentrators (35 of whom graduated in June 2005). We offered five undergraduate HASS Distribution (HASS-D) subjects and four communication intensive (CI-H) subjects. Our HASS-D class, STS.011 American Science: Ethical Conflicts and Political Choices, continues to draw the largest enrollment among STS subjects (69 students in fall 2004).

The STS program offered one Undergraduate Research Opportunity Project, supervised by Robert M. Metcalfe professor of writing Rosalind Williams, on Images of Laboratory Life at MIT. This project involved the creation of a digital documentary archive and database of the approximately 3,000 black-and-white photographs taken by MIT undergraduate Scott Globus in 1983–1984 of MIT laboratories and the scientists and students who worked there.

Ongoing Activities of the Program

Ongoing activities of STS bring a wide variety of distinguished scholars to the MIT campus on a regular basis. The longest running of these activities is the STS Colloquium series, which this year gave 11 scholars an opportunity to speak on subjects in the history or social study of science and technology, as well as meet informally with students and faculty.

Every year the STS Program also sponsors the Arthur Miller lecture on Science and Ethics, which is advertised to the larger MIT and Boston area communities. This past fall the Miller lecturer was James J. Mongan, MD, president and CEO of Partners HealthCare Systems, Inc. Dr. Mongan discussed how the move to a “market paradigm” in health care raises important ethical issues as well as economic and political ones.

The Siegel Prize is an award of \$2,000 for the best essay on issues relating to science, technology, and society written by an MIT student in the previous year. HASTS graduate student Anya Zilberstein was the winner of this year’s Siegel Prize for her essay, “Objects of Distant Exchange: Traces of the Pacific Northwest Coast Fur Trade in New England.” This year’s Siegel Prize committee consisted of associate professors Stefan Helmreich (Anthropology) and Thomas Levenson (Program in Writing and Humanistic Studies) and Professor Fitzgerald (committee chair, STS). Six papers were submitted for this year’s competition by students from Aero/Astro, TPP, ESD, and HASTS. The entries covered a wide range of topics, from evaluating the health effects of passive smoking to describing the “Americanization” of German rocket scientist Wernher von Braun.

History faculty and STS cosponsored the Modern Times, Rural Places Seminar Series at MIT. This series was coorganized by Professor Fitzgerald and Arthur J. Conner professor of history Harriet N. Ritvo and brought seven speakers to campus to give talks on environmental history.

STS also sponsored or cosponsored several special events throughout the year, including the following: a public lecture by Jose Bové, the French antiglobalization activist (with History faculty, the France–MISTI program, the Department of Urban Studies and Planning [DUSP], and the Kelly-Douglas Fund); graphic artist Ilavenil Subbiah exhibited her handmade books and gave a gallery talk entitled “Past Lives.” Subbiah brings together images and text created through various techniques, such as printmaking, painting, collage, and sewing and tells the stories of families, friends, and strangers (with School of Humanities, Arts, and Social Sciences, Council for the Arts, and the associate provost for the arts).

This past year, STS hosted two visiting professors. Koffi Maglo, a historian and philosopher of science, continued his appointment for a second year as a Martin Luther King visiting scholar, cosponsored by the Philosophy faculty and STS, with the cooperation of the Dibner Institute. Manuel Castells, the Marvin C. and Joanne Grossman distinguished visiting professor of technology and society, whose home base is now the Open University of Catalonia, was brought to MIT for two weeks in April by STS, the Media Lab, and DUSP. Over the next four years he will return annually for two-week visits to teach a graduate seminar and develop research projects.

On October 1–3, 2004, HASTS graduate students hosted the first of what is hoped will become a series of annual Workshops on the History of Environment and Agriculture through Technology and Science (WHEATS). The goal of WHEATS is to provide a forum for graduate students and other young scholars working on the intersecting histories of agriculture, environment, science, and technology to discuss works-in-progress with peers and established scholars. The first full day of the workshop was devoted to the

presentation and discussion of precirculated papers by graduate students from six northeastern universities. The workshop concluded with a panel discussion on academic publishing. WHEATS was organized by graduate students at MIT and Harvard with support from MIT's Program in Science, Technology, and Society and the Dibner Institute for the History of Science and Technology.

Knight Science Journalism Fellowship Program

Now entering their 23rd year, the Knight fellowships continue to attract science journalists from around the world to learn more about the science and technology they cover. During his 7th year as director of the program, Boyce Rensberger organized weeklong intensive fellowships for science journalists in medical evidence and investigative science journalism. In January the Knight fellows traveled to Puerto Rico to meet with scientists, tour Arecibo radio telescope, El Yunque Rain Forest, and the bioluminescent bay at Vieques.

The 22nd class of fellows includes Brian Bergstein, technology reporter for the Associated Press; Ingfei Chen, a freelance science writer whose work appears in *Science Online*, the *New York Times*, and *Discover*; Judy Fahys, environment reporter of the *Salt Lake Tribune*; Justin Gillis, biotechnology reporter for the *Washington Post*; Taro Mitamura, television science reporter for NHK, the Japan Broadcasting Corporation; Colin Nickerson, foreign correspondent for the *Boston Globe*, who will be preparing to make a transition into full-time science reporting; Valeria Roman, science and medical reporter for *Clarín*, the largest daily newspaper in Argentina; Jeff Tollefson, science reporter at the *Santa Fe New Mexican* newspaper; Martin Uhlir, science reporter for *Lidove Noviny*, one of the biggest daily newspapers in the Czech Republic; and Sylvia Pagán Westphal, reporter for *New Scientist* magazine.

Fellows attend over 60 seminars with faculty, which are specially organized for them, as well as other seminars and workshops devoted to science and technology and their wider impacts. The fellowships are supported by an endowment contributed by the John S. and James L. Knight Foundation of Miami and by alumni and foundation gifts. More information about the Knight Science Journalism fellowships can be found at <http://web.mit.edu/knight-science/>.

Faculty Activities

Professor Dumit's second book manuscript, "Drugs for Life: Managing Health and Identity through Facts and Pharmaceuticals," has been accepted for publication by Duke University Press. He coedited a forthcoming issue of *Social Science and Medicine* on "Patient-Organized Movements." He was a plenary speaker at the National Undergraduate Bioethics Conference and elected to the council of the Society for the Social Studies of Science. He is currently coediting a volume entitled *Psychiatric Culture: Disordered Mood, Remedies, and Everyday Life* (Duke University Press).

Besides his graduate and undergraduate teaching, Professor Fischer helped write two grant proposals; won a Carnegie Foundation Fellowship; published a book (*Mute Dreams, Blind Owls, and Dispersed Knowledges: Persian Poesis in the Transnational Circuitry*, Duke University Press, 2004), five articles, one journal special issue introduction, and

book reviews; and gave conference talks and colloquia in Beirut, Toronto, Irvine, Santa Fe, Harvard, Arizona State, and the University of Washington (Seattle).

Professor Fitzgerald received an NSF grant for her new project “Convenience and Necessity in the American Food Industry.” In addition to being President of the Agricultural History Society, she co-organized (with Professor Ritvo) the Modern Times, Rural Places seminar series co-sponsored by STS and the History Faculty, and served on the Committee on Student Life. In April she was named Associate Dean of SHASS.

Professor Graham has a three-year grant from NSF to research and write a history of what has happened to science in Russia since the collapse of the Soviet Union. (He is assisted on this project by Dr. Irena Dezhina, a Russian scholar in Moscow). This book will discuss organizational changes, funding changes, and efforts to make science more commercially oriented and to increase Russia’s strength in high technology. Another book by Professor Graham, entitled *Moscow Stories*, has been accepted as a trade book by Indiana University Press and is scheduled for publication in December 2005. Professor Graham and French mathematician Jean-Michel Kantor have published an article entitled “Russian Religious Mystics and French Rationalists: Mathematics, 1900–1930” in the spring 2005 issue of the *Bulletin of the American Academy of Arts and Sciences*, and they have another article accepted for publication in *Isis*. The leading Russian-language journal in the history of science (*Voprosy istorii estestvoznaniia i tekhnika* [Issues in the History of Science and Technology]) published a major article entitled “Ia – pliaralist, beseda s Loren Graham” (“I am a Pluralist: A Conversation with Loren Graham). Professor Graham was given a distinguished service award by the US Coast Guard Auxiliary for 2004, the 12th award he has received from the Coast Guard for search-and-rescue assistance on Lake Superior during the last 25 years.

Dr. David Jones spent the past year completing his training as a psychiatrist and beginning his work at STS. He begins full-time work at MIT as assistant professor of the history of science in July 2005. In addition to his clinical work at Massachusetts General Hospital and the MIT Medical Department, he has served as an assistant editor at the *Harvard Review of Psychiatry* and has two articles in press in psychiatric journals. He has also continued his research in the history of medicine and medical ethics, giving several invited lectures and conference talks, including a History of Science Colloquium at Harvard University. He has one paper, about the history of health disparities among American Indians, in press with the *American Journal of Public Health*. At MIT he reactivated the Center for the Study of Diversity in Science, Technology, and Medicine, which is funded by the Andrew W. Mellon Foundation. The center has hired a postdoctoral fellow for the 2005–2006 academic year and has begun planning a conference on Race, Pharmaceuticals, and Medical Technology which will take place at MIT in April 2006. As a lecturer in STS, Jones taught a graduate seminar on the history of psychiatry and neuroscience and an undergraduate lecture course, STS.003 The Rise of Modern Science. He has also developed two new HASS-D/CI courses to be offered next year: STS.005 History of Disease and Medicine in America and an interdisciplinary study, STS.006/24.06 Bioethics, cotaught with Professor Caspar Hare from the Philosophy Department.

Professor Kaiser was pleased to receive copies of both of his new books this spring: *Drawing Theories Apart: The Dispersion of Feynman Diagrams in Postwar Physics* (University of Chicago Press, 2005) and a volume he edited, *Pedagogy and the Practice of Science: Historical and Contemporary Perspectives* (MIT Press, 2005). Three articles were published in refereed journals, including a review article on particle cosmology in the journal *Science*; two more are currently in press (in the journals *Representations* and *Social Studies of Science*); and another is currently under review (at *Physica A*, a journal on statistical mechanics). He also published five chapters in various edited volumes and an invited feature article in the magazine *American Scientist*. He has also served for the past year as a consultant and on-screen contributor for a new NOVA documentary film about Einstein, scheduled to air during autumn 2005. He delivered nine invited seminars and colloquia as well as two professional conference presentations and has recently completed a book proposal for his new book project, currently under review at several major publishers. He continues to enjoy working with several collaborators in MIT's Physics Department on topics in early universe cosmology.

Professor Keller published four articles. In addition, she was chosen as plenary speaker, International History of Science Congress, Beijing, July 2005; Rothschild lecturer, Harvard University, April 2005; Radcliffe Institute fellow (Matina Horner visiting professor), spring 2005; Dean's Lecture, Radcliffe, April 2005; and she lectured as Winton visiting chair of interdisciplinary studies, University of Minnesota.

Professor Mindell will be promoted to full professor (joint with ESD), effective July 1, 2005, and signed a contract with MIT Press for his book *Digital Apollo: Human and Machine in the Six Lunar Landings* (expected late 2006). He has continued to serve as a member of the Task Force on the Undergraduate Educational Commons. The DeepArch Research Group organized by Professor Mindell is conducting an underwater robotic survey of a 4th-century BC classical shipwreck in collaboration with the Woods Hole Oceanographic Institution and the Greek Ministry of Culture in Chios Greece. He developed and cotaught a class in Course 16 entitled Engineering Apollo: The Moon Project as a Complex System.

Professor Postol continues his work on policy issues connected with missile defense systems in collaboration with the Technology Working Group, supported by the MacArthur Foundation.

Professor Smith and his coauthors have completed the revisions for the second edition of their American history textbook, *Inventing America* (W. W. Norton), which will appear in January 2006. He continues to serve as coprincipal investigator for the PoET program, as well as designing and teaching a new graduate seminar for PoET on The Social and Political Implications of New Technologies. He was asked to serve on the Lincoln Prize Advisory Committee (Gettysburg College) and as a nominator for the Heinz Awards (the Heinz Family Foundation). He continues to work on a monograph about technology and technological change during the Civil War and is serving as housemaster of the Burton-Conner undergraduate residence at MIT.

Professor Turkle continues her work as director of the MIT Initiative on Technology and Self. This year she was on leave and devoted the majority of her time to three dissemination projects for this initiative. The first is titled *Evocative Objects: Thinking with Things*; the second, *Objects in Mind: Falling in Love with Science, Technology, and Design*; and the third, *Technology and Self: New Mediations of Minds, Bodies, and Machines*. The three volumes should all be released by the beginning of academic year 2007 and will present an object-oriented perspective on the research and practice of science and technology. They will also shed new light on questions of why some children become interested in these fields and some do not. They are meant to address these questions from a point of view of interest to researchers as well as to educators. Additionally, her personal research involves her concept of “tethering,” a new form of social/psychological encounter facilitated by digital technology and the new kind of self it generates, as well as on “relational artifacts.” She is writing a book on these topics with the working title “Intimate Machines.” She studies robots, digital pets, and simulated creatures, particularly those designed for children and the elderly.

Professor Williams continues as director of the STS Program. She attended annual meetings of the Society for the History of Technology (SHOT) in Amsterdam (October 7–10, 2004) and the History of Science Society in Austin (November 18–21, 2004) and began her term as SHOT president on January 1, 2005. Professor Williams was invited to give the annual Neale Wheeler Watson Lecture at the Nobel Museum in Stockholm in May. Her talk was entitled “Science and Technology Studies: Future Horizons.” While she was in Stockholm, she participated in a lecture series at the Royal Institute of Technology (KTH) by giving a talk on “Community and Creativity.” She also gave two lectures at Virginia Tech (“STS: Rifts and Ranges” and “The Identity Crisis in Engineering”), was the opening speaker at a symposium in honor of President Hockfield’s inauguration (“Interdisciplinary Research at MIT: Making UnCommon Connections”), and served on a peer review committee at the University of Maastricht. In addition to coteaching a graduate reading seminar and class Humanistic Perspectives on Science and Technology) with senior lecturer and professor emeritus Leo Marx, she organized and hosted the STS Colloquia and Brown Bag Lunch series.

Rosalind H. Williams

Director

Robert M. Metcalfe Professor of Writing

More information about the Program in Science, Technology, and Society can be found online at <http://mit.edu/sts/>.