

PAMELA E. MACK

Updated 2-16-2020

EDUCATION

Ph.D. 1983 University of Pennsylvania Philadelphia PA
History and Sociology of Science

- dissertation: "The Politics of Technological Change: A History of Landsat"

A.B. 1977 Radcliffe College of Harvard University Cambridge, MA
History and Science

- thesis: "Women in Astronomy in the United States, 1875-1920"

WORK EXPERIENCE

1985 - present Clemson University Clemson SC

Assistant Professor of History of Science and Technology, 1985-1990, Associate Professor, 1990 to present, Coordinator, Science and Technology in Society, 2005 to present

1983 - 1985 Virginia Polytechnic Institute & State Univ. Blacksburg VA

Assistant Professor of History of Technology, Department of History, Adjunct Professor, Center for the Study of Science in Society

1982 - 1983 Hampshire College Amherst MA

Visiting Assistant Professor of History of Science, School of Natural Science

1981 - 1982 Worcester Polytechnic Institute Worcester MA

Visiting Lecturer, Department of Humanities

1980 - 1981 National Air and Space Museum Washington DC

Daniel and Florence Guggenheim Fellow

COURSES TAUGHT

History and Tourism (co-taught); Digital Methods for History; Survey of Science and Technology in Society (online and study abroad in Germany); Topics in History of Health Care; American Environmental History; Living in a Digital World (cotaught); Oral History; Computers and Society; The Forest in America; 2001: The History of the Future; History in the Public Eye (cotaught); The Millenium: Technology and its Critics; History, Technology, and Society; The Space Age; History of American Medicine; Mill Towns North and South; History of American Women; History of the Space Program; History of American Agriculture; Science, Gender, and Society in Modern America; History of American Technology; Western Civilization Survey (both halves); History of Science Survey (one semester); Understanding Technology (cotaught); Scientific and Technological

Controversies.

GRANTS AND HONORS RECEIVED

Co-investigator on a NSF TUES Type 1 grant: "Robots in Business and Society - A Hands-On Learning Experience" led by Timothy Burg and later Ian Walker. Total funding \$142,387, 2014-2017.

\$7500 in funding for a research project with a student on "Historical Integration of Remote Sensing Data," from Clemson CyberInstitute Call for Proposals - Seed Grants CU-CI-Seed2011, Aug. 2011-Aug. 2012

Faculty Workshop to Develop New STS Courses Sponsored by NSF (National Science Foundation) with funding of \$5000 and by the Clemson University Provost using part of total funding for STS of \$32,000, Aug. 2004 to July 2005

Summer fellowship for summer 2003 from the Beckman Center for the History of Chemistry to spend one month in Philadelphia doing biographical research on pioneer river ecologist Dr. Ruth Patrick. Funding of \$4,500 for myself and co-investigator John Mauer.

Participating agreement (a form of contract) with the Forest Service at the Savannah River Site to research and write a 50th anniversary history of the U.S. Forest Service at Savannah River. Funding of \$37,000 for travel, summer salary (myself and co-investigator John Mauer) and other expenses, June 2001-Dec. 2005.

Winner of the 2001 D.W. Bradbury Award, for outstanding contributions to the Honors Program at Clemson University.

Grant from the Honors Program to develop a course: "2001: The History of the Future." Funding of \$2150 for summer salary for course development time in summer 2000, books, and videotapes.

Grant from the Sustainable Universities Initiative for materials for my fall 1999 honors seminar: "The Millenium: Technology and Its Critics." Funding of \$450 to buy videotapes and subscribe to a teleconference on "The New Millenium: Past as Prologue."

Submitted a grant proposal to Project 2020 for "A Distance Learning Course in History, Technology, and Society for Freshman Engineers." John Mauer at Tri-County Technical College was co-PI and partner institutions include the Governor's School for Science and Math, the State Museum, the College of Engineering and Science, Jacobs Chuck Manufacturing Co., and BMW Manufacturing Corp. Project 2020 selected our proposal for partial funding in spring 1999, but we declined that funding because they offered us only \$5,000 of the \$19,702 we requested.

Grant from the Clemson University Innovation Fund for "Impact of Internet-based Instruction on Student Learning," spring 1998, \$8710.

Teaching Initiative grant from the College of Arts, Architecture and Humanities, spring 1998, \$551. Teaching Initiative grant for History 122 course development, summer 1996, \$1,650.

Grant from South Carolina Space Grant at the University of Charleston for summer research on the "History of Experimental Meteorological Satellites." Summer 1995, \$6,125.

Contract from the NASA History Office to write an introduction and one chapter and serve editor for a book on NASA's Collier Trophy projects (using these projects as case studies in how the process of technological change in a government agency has changed over the course of the 20th century). The contract covered the period Oct. 1994-Dec. 1995 and totaled \$24,000.

Grant from the South Carolina Universities Research and Education Foundation for a joint project with Tri-County Technical College entitled "Creating Public Awareness of Environmental Restoration/Waste Management Issues Through Infusion of Curriculum Modules Within Relevant Community/Technical College Curricula." Awarded in May 1994 for a two year project, total grant \$106,997.

Grant from the South Carolina Humanities Council for a project to develop programs on "History of Science and Technology in the Public Schools" in preparation for History Day 1990, awarded in June 1989.

Clemson University Research Grant providing a subvention to cover the cost of a color illustration in book publication of *Viewing the Earth: The Social Construction of Landsat*, Dec. 1988.

Grant from the National Science Foundation to research and write a study of "History of Science at Mount Holyoke College: The Liberal Arts College and the Scientific Community," with Dr. Miriam Levin. The award covered the period Aug. 1, 1987 to Jan. 31, 1991 and totaled \$118,000.

Grant from the W.K. Kellogg Agricultural Literacy Program at Clemson University (with Profs. Steirer, Bauer, and Hite) to develop and teach a course on the history of American agriculture, May 1986.

Seed money grant (\$2500) from Mount Holyoke College to write proposals for a history of science at Mount Holyoke (with Dr. Miriam Levin), Jan. 1986.

Clemson University Research Grant for work on the history of Landsat during the summer of 1986, Fall 1985.

Cowinner, Robert H. Goddard Historical Essay Competition, National Space Club, for the paper "Space Science for Applications," 1980.

Daniel and Florence Guggenheim Fellowship, National Air and Space Museum, 1980-1981.

BOOKS PUBLISHED

Editor, *From Engineering Science to Big Science: The NACA/NASA Collier Trophy Research Project Winners*, NASA SP-4219, (Washington DC: Government Printing Office, 1998). I wrote two chapters and edited the whole book under contract from the NASA History office. Available on the web at: <http://history.nasa.gov/SP-4219/Cover4219.htm>

Viewing the Earth: The Social Construction of the Landsat Satellite System (Cambridge: MIT Press, 1990).

ARTICLES PUBLISHED

Groff, R. E., & Walker, I. D., & Mack, P. E., "A Course on the Societal Impact of Robotics: Preliminary Outcomes" 2017 *ASEE Annual Conference & Exposition Proceedings*, Columbus, Ohio. (2017, June)

"Convincing Students... of What? Teaching STS in a Changing World," *History of Science Society Newsletter*, January 2017
<https://hsonline.org/resources/publications/newsletter/january-2017-newsletter/convincing-students-of-what-teaching-sts-in-a-changing-world/>

I.D. Walker, P.E. Mack, and R.E. Groff, "A Novel Approach to Teaching Undergraduates the Societal Impact of Robotics", *International Journal of Social Science and Humanity*, Vol. 7, No. 2, doi: 10.18178/ijssh.2017.7.2.801, February 2017, pp. 88-92.

"A Personal Reflection on Elder Care and Life/Work Issues," *History of Science Society Newsletter*, January 2011. (While this is titled a personal reflection, it has a research aspect as well and was informally refereed. 1500 words.)

"Issues in Survey Assessments of STS Courses" Pamela E. Mack, Todd Campbell, and Nor Hashidah Abd-Hamid, *Bulletin of Science, Technology & Society*, Oct 2008; vol. 28: pp. 408 - 413.

"What Difference Has Feminism Made to Engineering in the Twentieth Century" in: *Feminism in Twentieth Century Science, Technology and Medicine* edited by Angela N. H. Creager, Elizabeth Lunbeck, Catharine R. Stimpson, and Londa Schiebinger (Chicago: University of Chicago Press, 2001).

Pamela E. Mack and Gail Delicio, "The Authority of Experience: Assessing the Use of Information Technology in the Classroom," *The Journal of Electronic Publishing*, September, 2000, Volume 6, Issue 1, Fall 2000.
<http://www.press.umich.edu/jep/06-01/mack.html>

P. Mack and Ray Williamson, "Observing the Earth from Space: Meteorological and Remote Sensing Satellites," in John M. Logsdon, with Roger D. Launius, David H. Onkst, and Stephen J. Garber, eds., *Exploring the Unknown: Selected Documents in the History of the U.S. Civil Space Program*, Volume III: Using Space, NASA SP-4407 (Washington DC: Government Printing Office, 1998).

"Making Big Technology Serve the User: U.S. Remote Sensing Programs," *History and Technology* 9 (1992): 95-107. The same volume was also published as *Choosing Big Technologies* edited by John Krige (Switzerland: Harwood Academic Publishers, 1993).

"Research and Development for Whose Benefit? The Relationship Between NASA and the Users of Earth Resources Data," in Martin J. Collins and Sylvia D. Fries, *A Spacefaring Nation: Perspectives on American Space History and Policy* (Washington DC: Smithsonian Institution Press, 1991), pp. 207-224.

"Straying From Their Orbits: Women In Astronomy," in G. Kass-Simon and Patricia Farnes, eds., *Women of Science: Righting the Record* (Bloomington: Indiana University Press, 1990), pp. 72-116.

"Strategies and Compromises: Women in Astronomy at Harvard College Observatory, 1870-1920," *Journal for the History of Astronomy* 21 (1990): 65-76.

"Review Essay: Space History," *Technology and Culture* 30 (1989): 657-665.

"Commercialization, International Cooperation, and the Public Good," in Daniel S. Papp and John R. McIntyre, eds., *International Space Policy: Legal, Economic, and Strategic Options for the Twentieth Century and Beyond* (Westport CT: Quorum Books, 1987), pp. 195-202.

"Satellites and Politics: Weather, Communications, and Earth Resources," in Alex Roland (ed.), *A Spacefaring People: Perspectives on Early Space Flight* (Washington, DC: NASA SP-4405, 1985), pp. 32-38.

"Space Science for Applications: The History of Landsat," in Paul A. Hanle and Von Del Chamberlain, eds., *Space Science Comes of Age: Perspectives on the History of the Space Sciences* (Washington DC: National Air and Space Museum, 1981), pp. 135-148.

CURRENT PROJECTS

Led the preparation of curriculum and Commission on Higher Education proposals for Clemson's new PhD in Digital History.

LECTURES AND WORKSHOPS

Presentation on "Managing future shock from Thoreau to the present" at the Thoreau Society Annual Gathering, July 12, 2019.
<https://www.thoreausociety.org/previous-annual-gatherings>

Keynote Address, "Convincing students... of what? Teaching STS in a Changing World." The 10th Annual Southern History of Science and Technology Conference, April 15, 2016, Auburn University.

"Interdisciplinary Learning about Robots: Approaches and Assessment" poster presentation and co-leader of a discussion group on "Evaluation and Assessment" at Envisioning the Future of Undergraduate STEM Education: Research and Practice, a conference sponsored by NSF and AAAS, April 27, 2016. <http://www.enfustem.org/wp->

content/uploads/2016/04/EnFuseSymposiumProgramBook_2016.pdf

Invited panel member, NEH Grant Writing Workshop, Digital Humanities in the Southeast, Atlanta GA, Oct. 30, 2014

Poster presentation: "Historical Aerial Photographs as a GIS Data Source," at Digital Humanities in the Southeast, Atlanta GA, Oct. 30, 2014.

"Historical Aerial Photography for GIS" in THAT Camp Upstate, April 18, 2014.

"The Rise and Fall of the Space Age" public lecture given in a series on the 1960s at Lander College, January 31, 2013.

Kris Robertson and Pam Mack, "Historical Integration of Remote Sensing Data: Can GIS Extract Information from Grey Scale Aerial Photographs?" Cyberinstitute lunch talk, May 24, 2012.

"Feminism, Spousal Caregiving, and Appropriate Technology" in the Gender, Bodies and Technology conference at Virginia Tech, April 22-24, 2010.

"The Cold War and the Red-Cockaded Woodpecker," presented at the annual conference of the American Society for Environmental History, Feb. 28, 2009

"The Internet and Individualized Medicine," presented at the annual meeting of the International Association for Science, Technology, and Society in Rochester NY on April 4, 2009.

"The Artificial Creation of the Natural: The USDA Forest Service Restoring Historic Ecosystems", presented to the Department Seminar of the University of Oklahoma History of Science Department, Jan. 25, 2008.

"The Intentions and Impact of Science, Technology, and Society General Education Courses for Undergraduates," with Todd Campbell, Utah State University, presented at the annual meeting of the International Association of Science, Technology, and Society, Feb. 2, 2008 in Baltimore, MD.

"The USDA Forest Service Restoring Historic Ecosystems: The Savannah River Site" at the annual Meeting of the Society for the History of Technology, Oct. 19, 2007, Washington DC.

Facilitator and speaker ("Approaches to thinking about girls and computing") at a meeting on Girls and Computers for secondary school teachers. Concord Academy, Concord MA, April 26, 2007

Presentation: "New STS Courses at Clemson University", at Science, Technology, engineering & Mathematics (STEM) Education, Sept. 14, 2006, Madren Center, Clemson.

"Thoreau: Technology and the Wild" presentation at the annual gathering of the Thoreau Society, Concord, MA, July 7, 2006.

Paper on "General Education and STS at Clemson University" given at the annual meeting of the International Association for Science, Technology, and

Society, Feb. 3, 2006, Baltimore MD.

"Does Remote Sounding Work: The Developers of the Operational Forecast Model React to Satellite Data," paper presented at the American Society of Environmental History annual meeting, Mar. 18, 2005.

"Progressive Reform and Women Engineers," paper given at the annual meeting of the History of Science Society, Nov. 21, 2003 in a session on "Science Shaping Service, Service Shaping Science" that I co-organized.

Gave a talk on "Ruth Patrick, the Chemical Industry, and Pollution Monitoring before the Clean Water Act of 1972," at the Chemical Heritage Foundation in Philadelphia, July 23, 2003.

Gave a paper on "The Atomic Energy Commission and the Forest Service: Federal Agencies and Environmental Protection at the Savannah River Site" at the annual meeting of the American Association of Environmental History meeting, March 29, 2003 in a session I organized on "Federal Intervention and the Environment in the Southeastern United States: Ironies."

"Technological Expertise Outside of Engineering," paper given at the Berkshire Conference of Women Historians, June 7, 2002.

"Garbage, Sewage, and Politics: Engineers Tackle Urban Filth: 1890-1920" talk given at the Spring Initiation Banquet of Chi Epsilon, the National Civil Engineering Honor Society, Apr. 16, 2002.

"50 Years of the Forest Service at the Savannah River Site" lecture given at the 50th anniversary celebration of the Forest Service at the Savannah River Site on March 20, 2002.

"Policy and Values: The Nixon Administration Almost Bans Clearcutting" paper given at the Lilly Fellows Program National Research Conference on Ecology, Theology, and Judeo-Christian Environmental Ethics, University of Notre Dame February 21-24, 2002.

"The Municipal Housekeeping Movement and the Profession of Engineering", paper given at the Society for the History of Technology annual meeting in La Jolla Calif. on Oct. 5, 2001.

Co-facilitated a workshop on: "Philosophical and Pedagogical Issues in Using Computer Technology in the Classroom: A Chance to Argue," co-sponsored by the Pearce Center for Professional Communication and the Office of Teaching Effectiveness and Innovation. February 16, 2001.

"Women, the Progressive Movement, and Engineering," paper presented at the conference: "Writing the Past, Claiming the Future: Women and Gender in the History of Science, Medicine and Technology" held at Saint Louis University Oct. 12-15, 2000.

"Using Assessment to Match Information Technology to Course Goals," paper presented in a conference on "New Information Technologies and Liberal Education" sponsored by Furman University, May 7, 2000.

Co-led a discussion of "Enhancing Teaching with Technology" at the

symposium: "Celebrating Teaching in the College of Architecture, Arts, and Humanities," held January 11, 2000.

Gave a 50 minute presentation at a full day workshop for schoolteachers about National History Day. This workshop was held October 30, 1998, in Columbia under the sponsorship of the South Carolina Archives and History Center.

"What Difference Has Feminism Made to Engineering in the 20th Century?", pre-circulated paper and presentation given at a conference at Princeton University on "Science, Technology, and Medicine in the Twentieth Century: What Difference Has Feminism Made?," October 3, 1998.

Organized and was one of five Clemson University faculty members who spoke at a workshop on History Day for secondary school teachers, Sept. 19, 1998, 9 am - 1 pm, Greenville, SC.

"Cloudy Seeing: Developing New Sensors for Weather Satellites," paper presented at the annual meeting of the Society for the History of Technology annual meeting, London, England, August 1996.

One of four speakers in a symposium on Climate Change at Stanford University, Feb. 10, 1995. My paper was titled "The Role of Technology: Earth Observation Satellites."

"Making Big Technology Serve the User: U.S. Remote Sensing Programs," paper presented at a symposium on "Choosing Big Technologies," European University Institute, Florence, Italy, Nov. 14, 1991.

"History of the Education of Women in Science," (written with Dr. Miriam R. Levin) invited presentation to the Committee on Equal Opportunities in Science and Engineering, National Science Foundation, Jan. 25, 1989.

"Strategies and Compromises: Women in Astronomy at Harvard College Observatory, 1870-1920," invited presentation at: "Astronomy at Cambridge: A Symposium on the History of Astronomy to Celebrate the Sesquicentennial of the Harvard College Observatory and the Centennial of the Smithsonian Astrophysical Observatory," Cambridge, Mass., Jan. 7, 1989.

"The History of Women in Science: Changing Strategies for Success," invited presentation at the Naval Research Laboratory, Dec. 14, 1988.

Coauthor of "The Transformation of Science Education at Mount Holyoke in the Gilded Age," presented by Dr. Miriam R. Levin in a joint session at the annual meetings of the History of Science Society and the American Historical Association, Cincinnati, Ohio, Dec. 28, 1988.

"The History of Women in Science: The Role of Liberal Arts Colleges," lecture at Carleton College, Northfield, Minn., 21 April 1988.

"Government and Enterprise: Commercialization and Privatization of the U.S. Space Program," paper presented at the Annual Meeting of the American Historical Association, Washington DC, Dec. 29, 1987.

"Building a Program Gradually: Science, Technology, and Society at Clemson University," at a "Conference on the State of Science, Technology and Society

Programs in Western Europe, North America, and Australia,” Worcester MA, Nov. 18, 1987.

“Chemistry at Mount Holyoke, 1880-1937: The Effect of the Development of the University on College Science Teaching” (written with Miriam R. Levin), invited presentation in a session on “History of the Tradition of Research,” Division of Chemical Education, American Chemical Society Annual Meeting, New Orleans LA, Sept. 2, 1987.

“Research and Development for Whom? The Relationship Between NASA and the Users of Earth Resources Data,” invited presentation at the National Air and Space Museum-NASA History Office Symposium on Space History, Washington DC, June 12, 1987.

“Technological Change in the Government Context: A Case Study from the Space Program,” Annual Meeting of the Society for the History of Technology, Oct. 22, 1983.

“Why Don't Labor-Saving Devices Save Labor? The History of Household Technology,” presented to the Five College Faculty Seminar on History of Science, Smith College, April 12, 1983.

“Half Way Between the Moon and the Ghetto: Using Satellites to Monitor Resources,” paper presented at the Annual Meeting of the History of Science Society, Dec. 28, 1981.

“History of Landsat,” at a conference entitled “Space Science Comes of Age: Perspectives in the History of the Space Sciences,” National Air and Space Museum, Washington DC, March 24, 1981.

“Space Applications,” invited presentation at a conference entitled “The Space Age: How Do You Like It So Far?” Yale University, Feb. 6, 1981.

“The Interagency Politics of Technological Change: The History of Landsat,” Annual Meeting of the Society for the History of Technology, Oct. 17, 1980.

SELECTED PROFESSIONAL ACTIVITIES

Selection committee, NASA-SHOT Fellowship, 2011-2013. Member of a three person selection committee for this fellowship, chair in 2012.

Mentor for Dr. Carmen Harris, who spent academic year 2003-2004 at Clemson on a Ford Foundation Postdoctoral Fellowship.

Member, Finance Committee, Society for the History of Technology. 2000-2004, chair of that committee in 2001.

Selection committee, NASA-AAH Fellowship, 2000-2005. I am one of five members of a committee that once a year reads proposals and recommends a candidate to receive a fellowship in aerospace history. I serve as the representative of the History of Science Society on this committee.

Listowner for an internet mailing list for the History of Science Society's Women's Caucus, 1998-present. As listowner I monitor the list to keep the

discussion on track and deal with subscription problems.

Member, National Science Foundation panel for Science, Technology and Society, 1998-2001. Met twice a year to read and rank grant proposals.

Member, National Science Foundation panel to evaluate graduate fellowship applications in history of science and technology and in economics (three day meeting in Washington DC). I served in 1996, 1998, and 1999.

History of Science Society Treasurer, Jan. 1993 - Dec. 1996. As treasurer I supervised a \$1.5 million endowment and a \$230,000 annual budget and was a member of the executive committee. Member, Council (the governing body of the society), 1991 & 1992 and 1998-2000. Other committee service for History of Science Society (all on a calendar year basis): Finance committee 1997-present, member of the Committee on Education, 1991 & 1992, Co-chair, Committee on Women, 1990 & 1991 and 2001 & 2002. Chair, Committee on Independent Scholars, 1987-1990, member of the committee 1986-1990. As chair of that committee also served as a member of the Committee on Research and the Profession.

Member, Earth Studies Committee, a subcommittee of the Space Studies Board of the National Academy of Sciences/National Research Council, 1993-1997.

Co-Organizer, Symposium on Transcending National Boundaries in the History of Space Flight (co-sponsored by the NASA History Office, the National Air and Space Museum, and the European Space Agency), Washington, DC, Oct. 14, 1993. More than 130 people attended.

Member, Executive Council (the governing body of the society), Society for the History of Technology, 1989-1991. Chair, Program Committee, 1987, member of the committee, 1986-1988.

Editor for Space of a newsletter on aerospace history put out by the Albatrosses, an official special interest group of the Society for the History of Technology, 1985-1996.