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CURRENT APPOINTMENT

Professor, Department of History, University of California at Santa Barbara (since 2007)

EDUCATION

Ph.D.	Materials Science and Engineering (major); Anthropology (minor) University of Arizona	1996
M.S.	Materials Science and Engineering University of Pittsburgh	1991
B.S.	Materials Science and Engineering University of Pittsburgh	1989

PREVIOUS APPOINTMENTS

Associate Professor, Department of History, University of California at Santa Barbara	2005-2007
Co-Director of Center for Nanotechnology in Society at UCSB	2005-2007
Assistant Professor, Department of History, University of California at Santa Barbara	2003-2005
Associate Historian; Center for History of Physics, American Institute of Physics	2000-2003
Adjunct Faculty, Department of History, University of Maryland	2001
Research Fellow, The George Washington University	1999-2000
Postdoctoral Researcher, University of Arizona	1997-1999

PUBLICATIONS

Books

Keep Watching the Skies! The Story of Operation Moonwatch and the Dawn of the Space Age; (Princeton University Press, 2008).

Giant Telescopes: Astronomical Ambitions and the Promise of Technology, (Harvard University Press, 2004; paperback edition in 2006).

Glassmaking in Renaissance Venice: The Fragile Craft, (Ashgate Press, 1999).

Major Refereed Articles and Book Chapters

“From Lab to iPod: A Story of Discovery and Commercialization in the Post-Cold War Era,” *Technology and Culture*, 50, 1 (2009): 58-81.

“Will Small Be Beautiful? Making Policies for Our Nanotech Future,” included in *Technology and Society: Building our Sociotechnical Future*, edited by Deborah Johnson and Jameson Wetmore (MIT Press, 2008), p. 323-354.

Cosmic Journey: A History of Scientific Cosmology, (co-authored with Norriss Hetherington);

peer-reviewed, permanent web exhibit (approx. 15,000 words), presented by Center for History of Physics, American Institute of Physics (<http://www.aip.org/history/exhibits/cosmology/>), premiered January 2007.

“Amateur Scientists, the International Geophysical Year, and the Ambitions of Fred Whipple.” *Isis* 97, 4 (2006): 634-658.

“Will Small Be Beautiful? Making Policies for Our Nanotech Future.” *History and Technology* 21, 2 (2005): 177-203.

“Project Vista, Caltech, and the Dilemmas of Lee DuBridge.” *Historical Studies in the Physical and Biological Sciences* 34, 2 (2004): 339-370.

“The Contentious Role of a National Observatory,” *Physics Today*, 56, 10 (2003): 55-61.

“What Makes a Failure? Designing a New National Telescope, 1975-1984,” *Technology and Culture*, 42, 2 (2001): 265-291

“Entrepreneurship in Technology Transfer Offices: Making Work Visible,” with Jennifer L. Croissant, in *Degrees of Compromise: Industrial Interests and Academic Values*, Jennifer L. Croissant and Sal Restivo, eds. (SUNY Press, 2001), p. 55-76.

“Large Telescopes and the Moral Economy of Recent Astronomy,” *Social Studies of Science* 30, 5 (2000): 685-711.

“Creating Networks of Skill: Technology Transfer and the Glass Industry of Renaissance Venice,” *The Journal of European Economic History*, 28, 2 (1999): 301-333.

“Ancient Glassmaking Technology at Sepphoris, Israel,” with A. Fischer, *The Journal of Archaeological Science*, August 1999: 893-905

“An Integrative Review and Examination of Glass Furnace Technology in Renaissance Italy,” in *The Prehistory and History of Ceramic Kilns* (ed. Prudence Rice); Volume 7 in the Ceramics and Civilization series, (The American Ceramic Society, 1997), pp. 219-242.

Edited Works

Editor of three educational/historical web exhibits presented by the Center for History of Physics, American Institute of Physics: *Ernest Lawrence and the Cyclotron*, *Moments of Discovery*, and *Great American Physics Papers* (2000-2003).

Over two dozen Oral History Interviews with prominent physicists, astronomers, and science managers; conducted for the Center for History of Physics (2000-2003); part of permanent collection of the Niels Bohr Library, American Institute of Physics, College Park, MD.

Editor, *The Prehistory and History of Glassmaking Technology*, Volume 8 of the Ceramics and Civilization Series, (The American Ceramic Society, 1998).

Work in Progress or Submitted

Space Colonies, Nanobots, and the Frozen Few: Histories of the Technological Future, book project in progress; under contract with Princeton University Press with target submission of late 2010.

“From L-5 to X-Prize,” book chapter for edited collection on California aerospace history, edited by Peter J. Westwick and to be published by University of California Press, early 2011.

“Faith in Futures: California and Radical Technological Optimism, 1970-1990,” book chapter for *Minds and Matters: Technology in California and the West*, edited by Volker Janssen and to be published by University of California Press, early 2011.

From the Ground Up: Developing an Interdisciplinary Course Focusing on Materials Science and Society in Green Technologies (with Meredith Murr, et al.); submitted September 2009 to *Journal of Materials Education*

Other Publications

“Beyond the Hubble Space Telescope: Early Development of the Next Generation Space Telescope ” (co-authored with Robert W. Smith) in *Astrophysics in the Next Decade*, edited by Harley Thronson and et al. (Amsterdam: Springer, 2009), 31-50.

“Beautiful and Cantankerous Instruments: Telescopes, Technology, and Astronomy’s Changing Practice,” *Experimental Astronomy*, 2009, 23, 1-11.

“How Spintronics Went from the Lab to the iPod,” *Nature Nanotechnology*, 4, 1 (2009): 1-3.

“It’s Like That, but Different,” *Science Progress*, Spring-Summer 2008: 92-94 (also available at: <http://www.scienceprogress.org/2008/05/its-just-like-that-except-different/>).

“Exploring Nanotechnology’s Hidden History,” AIP History Newsletter; Spring 2007: 4-5.

“MBE Deserves a Place in the History Books,” *Nature Nanotechnology*, 2, 5 (2007): 259-261.

“Leo Goldberg,” reviewed entry for *The New Dictionary of Scientific Biography*, (New York: Charles Scribner's Sons, 2007).

“Jesse L. Greenstein,” reviewed entry for *The New Dictionary of Scientific Biography*, (New York: Charles Scribner's Sons, 2007).

“Anthropological Research at the UCSB Center for Nanotechnology in Society,” with Barbara Herr Harthorn and Terre Satterfield. *Practicing Anthropologist* 28, 2 (2006): 38-40.

W. Patrick McCray. “Killing the Messenger: Robert Oppenheimer and Caltech's Project Vista.” *Reappraising Oppenheimer: Centennial Studies and Reflections*. Eds. Cathryn Carson and David

A. Hollinger. (Berkeley: Office for History of Science and Technology, 2005), 253-266.

“Telescopes,” *Encyclopedia of 20th Century Technology*, (New York City, Routledge Press, 2004).

“A History of Glassmaking,” *The Oxford University Press Encyclopedia of Economic History*, (Oxford University Press, 2003).

“Astronomical Optimism,” historical perspective for *AURA Yearbook*, 2003.

“Gemini South Dedication: A Historian’s Perspective,” Gemini Observatory Newsletter #24, June 2002.

“Studying Recent Science as it Happens,” *The Recent Science Newsletter*, Fall 2000.

“Glassmaking in Renaissance Italy: The Innovation of Venetian *crystallo*,” *The Journal of Materials* (Archaeotechnology series), May 1998: 14-19.

“The Unusual Optical Properties of Two Venetian Glasses,” with W.D. Kingery; *Glass Technology*, 1996, volume 37 (2), 57-68.

“The History and Technology of Renaissance Venetian Chalcedony Glass,” with Z. Osborne and W. D. Kingery; *Rivista Della Stazione Sperimentale del Vetro*, 1995, No. 5, pp.259-278.

“Venetian Girasole Glass: Investigation of its History and Properties,” with Z. Osborne and W. D. Kingery; 1995; *Rivista Della Stazione Sperimentale del Vetro*, 1995, No.1, pp.19-35.

“Technology of Venetian Girasole Glass,” with Z. A. Osborne and W. D. Kingery; 1995; *Materials Issues in Art and Archaeology IV*, MRS Press: Pittsburgh, PA, 201-211.

Recent Book and Exhibit Reviews

Rocket Men: The Epic Story of the First Men on the Moon (by Craig Nelson, 2009); reviewed for *Journal of American History*; forthcoming 2010.

Earthrise: How Man First Saw the Earth (by Robert Poole, 2008); reviewed for *Isis*, 100, 3 (2009): 686-687.

The Telescope: Its History, Technology and Future. (by Geoff Andersen, 2007); reviewed for *Technology and Culture*, 49, 3 (2008): 788-790.

Holographic Visions: A History of a New Science (by Sean F. Johnston, 2006); reviewed for *Technology and Culture*; 48, 3 (2007): 675-677.

Nano-Hype: The Truth Behind the Nanotechnology Buzz. (by David M. Berube, 2006); reviewed for *Isis* 97, 3 (2006): 586-587.

Stargazer: The Life and Times of the Telescope. (by Fred Watson, 2005); reviewed for *Technology and Culture* 47, 3 (2006): 641-643.

“Viewing America’s Bomb Culture: A Review of the Atomic Testing Museum.” *The Public Historian*, Winter 2006: 152-155.

“A Scientist Who Knew Sin: Feature Review *American Prometheus: The Triumph and Tragedy of J. Robert Oppenheimer.*” (by Kai Bird and Martin J. Sherwin, 2005); reviewed for *Diplomatic History* 30, 2 (2006): 321-326.

Blackett: Physics, War, and Politics in the Twentieth Century. (by Mary Jo Nye, 2004); reviewed for *American Scientist*, March-April 2005, 186-187.

History of Glass Forming. (by Keith Cummings, 2002); reviewed for *Technology and Culture*, April 2003, pp. 383-384.

Traces of the Past: Unraveling the Secrets of Archaeology through Chemistry (by Joseph Lambert, 1998); reviewed for *Technology and Culture*, January 2000, pp. 127-128.

Selected Presentations, Panels, and Workshops

Invited panel member, “States of Innovation: Where Are We after 10 Years of Nanotechnology Policy?”, University of Lyon, France, 2010.

“Hidden Histories of Nanotechnology,” Northwestern University (Doha, Qatar campus), 2010.

“Galileo, the Universe, and God,” public talk, Santa Barbara Museum of Natural History, 2009.

Invited commentator, “Instruments and Manufacturing,” NSF-sponsored history workshop at Rice University, 2009

“Of Fringes and Futures: Technological Enthusiasm, 1970-1990,” talk at University of California, San Diego, 2009.

“Of Fringes and Futures: California’s Technological Enthusiasts, 1970-1990,” paper presented at *Mind and Matter: Technology in California and the West*, Pasadena, 2009.

“‘My God! Its Full of Stars’: Astronomers, Computers, and the Coming Data Deluge,” invited talk given at *Institut Méditerranéen de Recherches Avancées*, Marseille, France, 2008.

“Seeing the World Through Spencer Weart’s Eyes,” paper session co-organized (with David Kaiser) for the annual meeting of the History of Science Society, Pittsburgh, 2008.

“‘Beautiful and Cantankerous Instruments’: Telescopes, Technology, and the Changing Practice of Astronomy,” invited talk for *400 Years of Telescopes* conference, Amsterdam, 2008.

“Citizen-Scientists, Sputnik, and the Dawn of the Space Age,” invited public talk given at the

Kavli Institute of Theoretical Physics, Santa Barbara, 2008 (numerous other similar talks given 2008-2009)

“When Space Exploration and Nanotech Met Again at the Fountains of Paradise,” (with Mary Ingram-Waters), paper presented at annual meeting of the Society for History of Technology, Washington, DC, 2007.

“From Space Colonies to Nanobots: Exploring a Hidden History of Nanotech,” (with Mary Ingram-Waters), paper presented at annual meeting of the Society for the Social Studies of Science, Montreal, 2007.

“Spintronics, Novelty, and Over-the-Horizon Technologies,” paper presented at the Spintech IV conference, Maui, 2007.

“Over the Red Brick Wall: Spintronics as an Over-the-Horizon Technology,” paper presented at Wharton-Chemical Heritage Foundation Symposium on Social Studies of Nanotechnology, Philadelphia, 2007.

“Nanotechnology and History,” presentation given to National Science Foundation, March 2007.

“Amateur Satellite Tracking during the IGY and Cold War Cultures,” presented at the annual meeting of the History of Science Society, Vancouver, 2006.

“Nanotechnology and Society at UCSB,” invited talk (with Barbara Herr Harthorn) given to UCSB Affiliates, 2006.

“Conference on Trading Zones, Interactional Expertise and Interdisciplinary Collaboration,” invited panelist at NSF-funded international conference hosted by Arizona State University; 2006.

Panel Chair for “Teachers’ Conference on Nanoscience and Quantum Computing” held at the Kavli Institute of Theoretical Physics, Santa Barbara, 2006.

“The Center for Nanotechnology in Society at UCSB,” presentation given to the annual meeting of American Association for the Advancement of Science as part of the “Social Science Engages Nanotechnology” panel; St. Louis, 2006.

“Forbidding Science? Balancing Freedom, Security, Innovation, and Precaution;” invited panelist for international conference hosted by the Center for the Study of Law, Science, and Technology; Arizona State University, 2006.

“Citizen Scientists of the Cold War,” presentation for Center for Cold War Studies salon. 2005.

“Much Ado About Next to Nothing: Making Policies for Our Nanotech Future,” talk given to UCLA History Department, 2005.

“Caltech, Project Vista, and the Path not Taken,” paper presented at annual meeting of the History of Science Society, Austin, 2004.

“Caltech in War and Peace,” paper session organized for the annual meeting of the History of Science Society, Austin, 2004.

“Planning Astronomy’s Next Big Machine: Reflections on Some Recent History,” invited talk given at the Kavli Institute of Theoretical Physics, Santa Barbara, 2004.

“Killing the Messenger: Robert Oppenheimer and Caltech’s Project Vista,” paper presented at University of California at Berkeley as part of the *J. Robert Oppenheimer Centennial Conference*, 2004.

“For the Record: A Workshop on Conducting Oral Histories of Science,” instructional workshop co-organized by McCray and held in November 2003 as part of the annual meeting of the History of Science Society, Cambridge, MA.

“The Benevolent Dictatorship of the Elite? Debates over the Role of the National Optical Observatory,” Invited talk given at the Naval Research Laboratory, Washington, DC, 2003

“Pursuing Oral Histories of Science;” Roundtable Discussion (McCray co-organizer) at the annual meeting of the History of Science Society, Milwaukee, 2002

“Big Telescope and Tall Tales: Documenting Contemporary Astronomy;” Invited Paper at annual meeting of American Association for the Advancement of Science, Boston, 2002

“Astro-politics of a New National Telescope,” National Air and Space Museum seminar series, 2002

“Seeing the Future: Origins of the Next Generation Space Telescope,” with Robert W. Smith, annual meeting of the History of Science Society, Denver, 2001

“Building the Next Big Machine”; paper session organized (with Robert W. Smith) for the annual meeting of the History of Science Society, Denver, 2001

“Large Telescopes and Contemporary American Astronomy,” National Air and Space Museum seminar series, 2000

“Designing the National New Technology Telescope: Technological Choices and Scientific Priorities, 1974-1984,” annual meeting of the Society of the History of Technology, Detroit, 1999

“Studying Up, Studying Us, Studying Them: Complexity and Ethics in the Study of Recent Science and Technology,” with Jennifer L. Croissant; annual meeting of the Society for the Social Studies of Science; San Diego, 1999

“We Build ‘em Bigger!”: Promotion and Publicity in Contemporary Science and Technology,” annual meeting of the Society for the Social Studies of Science; San Diego, 1999

“Renaissance Glassmaking in Amsterdam,” 31st International Symposium on Archaeometry; Budapest, 1998

“Discipline Formation and Professionalization,” Panel Chair; annual meeting of the Society for the Social Studies of Science; Tucson, 1997

“The Social and Economic Context of Glass Making In Renaissance Venice,” annual meeting of The Society for the History of Technology, Pasadena, 1997

“Venetian Opaque Glasses,” Materials Issues in Art and Archaeology V conference; Boston, 1996; paper selected as a *MRS Symposium Highlight*

“Archaeometric Analysis of the Glass from Sepphoris, Israel,” 30th International Archaeometry Conference, Champaign-Urbana, 1996

“A Review of Glass Furnace Technology in the Renaissance,” Symposium on Kilns and Kiln Technology - 98th annual meeting of the American Ceramic Society; Indianapolis, 1996

“A Study of Venetian Girasole Glass,” Materials Issues in Art and Archaeology IV conference; Cancun, 1994

MAJOR RESEARCH GRANTS AND AWARDS

Collaborative Research Fellowship (“From Micro-Histories to Nano-Futures” project) from the American Council of Learned Societies (shared with Profs. Cyrus Mody and Mara Mills), ~\$120,000 awarded for 2011.

NSF-funded Center for Nanotechnology in Society; (~ \$6,000,000); McCray (co-PI) with five other UCSB faculty/staff; 2006-2010; renewed for 2011-2015 (~\$7,000,000).

Senior Research Fellow, *Institut Méditerranéen de Recherches Avancées* (IMÉRA), 2010-2012.

NSF Grant, (\$95,000) “Bringing Nanotechnology and Society Courses to California Community Colleges” (McCray co-PI with Meredith Murr, et al.), 2009-2010.

NNIN Research Grants (\$20,000), “Nanoscale Research Communities and Interdisciplinarity,” McCray with Cyrus Mody and Summer Gray, 2009-10.

Residency Grant (\$30,000) from the Albert and Elaine Borchard Foundation, for Spring 2010.

Residency Fellowship from the Camargo Foundation; Cassis, France, 2008.

NSF Grant for multi-year educational program – “INSCITES: Insights on Science and Technology for Society” – (\$300,000), McCray (co-PI) with Evelyn Hu (PI) and Fiona

Goodchild (co-PI); 2006-2008.

Research Grant from California NanoSystems Institute (\$35,000) for pilot research project, “Exploring Nanotechnology: A Historical Reconnaissance,” McCray (PI), 2004-2006.

NSF Research Grant from Science and Technology Studies Program (\$93,000), “Astronomy during the Cold War: The Case of the Smithsonian Astrophysical Observatory,” McCray (PI) with David H. DeVorkin (co-PI) and Spencer Weart (administrative PI); 2004-2006.

NSF Small Grant for Exploratory Research (\$7,000), “For the Record: A Workshop on Conducting Oral Histories of Science,” McCray (PI) with Amy Crumpton, Elizabeth Paris, and Spencer Weart as co-PIs; 2003.

NASA Research Grant (\$55,000), “The James Webb Space Telescope: Documenting NASA’s History as it Happens,” McCray (co-PI) with Robert W. Smith (co-PI) and Spencer Weart (administrative PI); 2003-2007.

NSF Research Grant (\$32,000), “History of the Gemini Telescopes,” 2000-2002.

Co-Investigator with Robert W. Smith (PI); “Next Generation/James Webb Space Telescope History Project” (approx. \$20,000/year), research contract sponsored by the Canadian Space Agency, 1999-2004.

NSF Professional Development Fellowship, Science and Technology Studies Program (\$50,000), 1998-99.

OTHER AWARDS AND GRANTS

UCSB Individual Faculty General Research Grant, 2005

UCSB Regents’ Humanities Faculty Fellowship, 2005.

AIP Center for History of Physics Grants-in-Aid , 1998, 1999, 2005

UCSB Junior Faculty Research Incentive Award, 2004.

Maurice A. Biot Grants-in-Aid, Caltech Archives, 2000 and 2002

Outstanding Teaching Assistant Award, 1996, University of Arizona

Rakow Grant, Corning Museum of Glass, 1994

Teaching Assistant of the Year; 1991, University of Pittsburgh

Undergraduate Scholarship; 1985, University of Pittsburgh

UCSB TEACHING ACTIVITIES

Fall 2003

Not teaching

Winter 2004

History 105 – The Atomic Age (upper-level undergraduate course, 150 students)

History 201HS – Science and Technology in America (graduate reading seminar)

Spring 2004

History105P – Proseminar on the Atomic Age

History 106C – History of the Modern Physical Sciences (30 students)
 Fall 2004
 Not teaching
 Winter 2005
 History 105 – The Atomic Age (150 students)
 History 108 – Science and Contemporary Culture (30 students)
 Spring 2005
 History 105P – Proseminar on the Atomic Age
 History 201HS – Technology and American Culture (graduate reading seminar)
 Summer 2005
 History 105 – The Atomic Age (35 students)
 2005-2006 Academic Year
 Course buyouts to co-direct UCSB Center for Nanotechnology in Society
 Summer 2006
 History 105 – The Atomic Age (35 students)
 Fall 2006 and Winter 2007
 Co-supervised INSCITES program in advance of freshman seminar
 Spring 2007
 History 105A – The Atomic Age (95 students)
 History 201HS – Scientists and the Cold War (6 students)
 ECE 94R – Co-supervised INSCITES seminar on science and society
 Fall 2007
 History 201HS – Studying emerging (Nano)Technologies
 Co-supervised INSCITES program in advance of freshman seminar
 Winter 2008
 105Q – The Atomic Age Through Fiction, Film, and Music (new course)
 Co-supervised INSCITES program in advance of freshman seminar
 Spring 2008
 105B – The Space Age (new course)
 ECE 94R – Co-supervised INSCITES seminar on science and society
 Fall 2008
 Sabbatical
 Winter 2009
 105A – The Atomic Age (new format; large enrollment with TA)
 Co-supervised INSCITES program in advance of freshman seminar
 Spring 2009
 201HS – Scientists and the Cold War (8 students)
 Co-supervised INSCITES seminar on science and society
 Summer 2009
 105B – The Space Age
 Fall 2009
 200HS – Technology and History

OTHER TEACHING EXPERIENCE

History of Physics from Newton to Einstein (instructor), 2001

Studying Things: Introduction to Material Culture Studies (course designer), 1997
 History of Art and Archaeological Materials (instructor), 1991-1996
 Introduction to Science and Technology Studies (co-instructor), 1996
 Technology in World Civilization (teaching assistant), 1994

PROFESSIONAL SERVICE AND COMMUNITY ACTIVITIES

I regularly referee manuscripts and review books for several journals including *Technology and Culture*, *Isis*, *History and Technology*, and *Social Studies of Science* as well as grant proposals for the National Science Foundation.

Advisory Board member, Science Progress project for Center for American Progress (2008-present)
 Member, Editorial Board for University of California Press journal *Historical Studies in the Natural Sciences* (2006-present)
 Member, External Advisory Board; University of South Carolina NanoCenter (2006-present).
 Member, UCSB Faculty Association Board (2006-present).
 Member, Derek Price/Rod Webster Prize Committee for the History of Science Society (2005-2006).
 Member, Steering Committee of the Forum for the History of Science in America (2005-2007).
 Faculty advisor (2004), UCSB Nuclear Free (student organization).
 Member (2003-present), History Associates, Santa Barbara, CA.
 Member (2003-2005), Executive Committee of American Physical Society's Forum on the History of Physics.
 Chair (2003) and Member (2002, 2004), Levinson Prize Committee (Society for the History of Technology).
 Member (2003), Da Vinci Prize Committee (Society for the History of Technology).
 President (2002), Treasurer (2003) and Board Member; Washington, D.C. chapter of the National Audubon Society, a non-profit organization with over 1100 members.

CURRENT AND RECENT PROFESSIONAL AFFILIATIONS

Society for the History of Technology, History of Science Society, Organization of American Historians, American Physical Society.