

W. PATRICK MCCRAY
DEPARTMENT OF HISTORY
UNIVERSITY OF CALIFORNIA, SANTA BARBARA
SANTA BARBARA, CA 93106-9410

CURRENT APPOINTMENTS

Professor, Department of History, University of California at Santa Barbara
Affiliate appointments at University of California at Santa Barbara:
Global Studies Program; Media Arts and Technology Program

EDUCATION

University of Arizona, Ph.D. (December 1996), Materials Science and Engineering with Anthropology (minor), Dissertation topic – Glassmaking in Renaissance Venice.
University of Pittsburgh, M.S. (1991), B.S. (1989), Materials Science and Engineering.

SELECTED OTHER APPOINTMENTS

2018-2019 Arthur Molella Distinguished Fellow, Lemelson Center, Smithsonian Institution
2015-2016 Lindbergh Chair, National Air & Space Museum, Smithsonian Institution
2011-2012 Eleanor Searle Visiting Professor, California Institute of Technology
2005-2007 Associate Professor, History Department, UCSB.
2005-2007 Co-Director of Center for Nanotechnology in Society at UCSB
2003-2005 Assistant Professor, Department of History, UCSB
2000-2003 Associate Historian; Center for History of Physics, American Institute of Physics
1999-2000 Research Fellow, Department of History, The George Washington University
1997-1999 Postdoctoral Researcher, University of Arizona

MAJOR AWARDS AND HONORS

Invited Faculty Expert, World Economic Forum; Davos, Switzerland, 2016 and 2017.
Watson Davis and Helen Miles Davis Prize, History of Science Society, 2014.
Fellow, American Physical Society, elected 2013.
Fellow, American Association for the Advancement of Science, elected 2011.

BOOKS & EDITED VOLUMES

Making Art Work: How Cold War Engineers and Artists Forged a New Creative Culture
(The MIT Press, 2020).

Groovy Science: Knowledge, Innovation, and the American Counterculture, co-edited with David Kaiser (The University of Chicago Press, 2016).

The Visioneers: How a Group of Elite Scientists Pursued Space Colonies, Nanotechnologies, and a Limitless Future (Princeton University Press, 2013).

* Winner of the Watson Davis and Helen Miles Davis Prize, History of Science Society, 2014

* Winner of the Eugene M. Emme Award, American Astronautical Society, 2013.

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).

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

MAJOR RESEARCH GRANTS & FELLOWSHIPS

Research Grant from Canadian Institute for Advanced Research (“What’s at Stake in a 4th Industrial Revolution?”), \$40,000 awarded in 2017.

Co-Principal Investigator for NSF-funded Center for Nanotechnology in Society, 2006-2016; (~\$16,000,000 + campus matching funds).

Collaborative Research Fellowship (“From Micro-Histories to Nano-Futures” project) from the American Council of Learned Societies, \$125,000 awarded for 2010-2011.

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

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

NSF Grant – “INSCITES: Insights on Science and Technology for Society” – (\$300,000), McCray (co-PI) with Evelyn Hu (PI) and Fiona Goodchild (co-PI); 2006-2008.

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

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

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

PEER-REVIEWED ARTICLES & BOOK CHAPTERS

“Fallout and Spinoff: Commercializing the Art-Technology Nexus,” in *Hybrid Practices: Art in Collaboration with Science and Technology in the Long 1960s*, David Cateforis, et al., eds. (Berkeley: University of California Press, 2018), 61-78.

“The Biggest Data of All: Making and Sharing a Digital Universe,” *Osiris*, 32, 2017: 243-263

“Of Gravity and Geese,” *Leonardo*, 50, no. 3 (2017): 347-351.

“Introduction” (co-written with David Kaiser), *Groovy Science: Knowledge, Innovation, and the American Counterculture* (University of Chicago Press, 2016), 1-10.

“Timothy Leary’s Transhumanist SMI²LE,” in *Groovy Science: Knowledge, Innovation, and the American Counterculture*, edited by David Kaiser and W Patrick McCray (University of Chicago Press, 2016), 238-269.

“How the Astronomers Digitized the Sky,” *Technology and Culture*, 55, 4 (2014): 908-944.

“California Dreamin’: Visioneering the Technological Future,” in *Where Minds and Matters Meet*:

Technology in California and the West, edited by Volker Janssen (Berkeley: University of California Press, 2012), 347-78.

“When Space Travel and Nanotechnology Met at the Fountains of Paradise,” in *The Social Life of Nanotechnologies*, edited by Barbara Herr Harthorn and John Mohr (New York: Routledge, 2012), 37-51.

“From L5 to X Prize: California's Alternative Space Movement,” in *Blue Sky Metropolis: The Aerospace Century in Southern California*, edited by Peter J. Westwick (Berkeley: University of California Press, 2012), 171-93.

“Globalization with Hardware” ITER’s Fusion of Technology, Policy, and Politics,” *History and Technology*, 26, 4 (2010): 281-310.

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

“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,” in *400 Years of Astronomical Telescopes*, edited by Bernhard R. Brandl, et al. (London: Springer, 2009), 77-87; also published in *Experimental Astronomy*, 2009, 23, 1-11.

“Amateur Scientists, the International Geophysical Year, and the Ambitions of Fred Whipple.” *Isis* 97, 4 (2006): 634-658 [reprinted in *Science and the American Century: Perspectives on Science, Technology, and Medicine*, edited by Sally Gregory Kohlstedt and David Kaiser, University of Chicago Press, 2013, p. 210-234].

“Will Small Be Beautiful? Making Policies for Our Nanotech Future.” *History and Technology* 21, 2 (2005): 177-203. [reprinted in *Technology and Society: Building our Sociotechnical Future*, edited by Deborah Johnson and Jameson Wetmore (MIT Press, 2008), p. 323-354].

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.

“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,” 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.

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

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

BOOK AND EXHIBIT REVIEWS

Technocrats of the Imagination: Art, Technology, and the Military-Industrial Avant Garde (by John Beck and Ryan Bishop); reviewed for *Technology and Culture*, 2020, 61: 986-988.

Inside the Machine: Art and Invention in the Electronic Age (by Megan Prelinger); reviewed for *IEEE Annals of the History of Computing*, April-June 2016: 80.

Picturing the Cosmos: Hubble Space Telescope Images and the Astronomical Sublime (by Elizabeth A. Kessler); reviewed for *Journal for the History of Astronomy*, 2013, 44: 372-374.

Tesla: Inventor of the Electrical Age (by W. Bernard Carlson); reviewed for *Nature*, 2013, 497, 7451: 562-563.

The Digital Flood: The Diffusion of Information Technology Across the U.S., Europe, and Asia (by James Cortada); reviewed for *Technology and Culture*, 54, 1 (2013): 432-33.

Fixing the Sky: The Checkered History of Weather and Climate Control (by James R. Fleming); reviewed for *Science*, 2011, 331, 6014: 148-149.

The Grand and Bold Thing: An Extraordinary New Map of the Universe Ushering in a New Era of Discovery (by Ann Finkbeiner); reviewed for *American Scientist*, September-October 2010: 422-424.

Rocket Men: The Epic Story of the First Men on the Moon (by Craig Nelson); reviewed for *Journal of American History*; 96, 4 (2010): 1245-1246.

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

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

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

Nano-Hype: The Truth Behind the Nanotechnology Buzz. (by David M. Berube); reviewed for

Isis 97, 3 (2006): 586-587.

Stargazer: The Life and Times of the Telescope. (by Fred Watson); 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 of *American Prometheus: The Triumph and Tragedy of J. Robert Oppenheimer*.” (by Kai Bird and Martin J. Sherwin); reviewed for *Diplomatic History* 30, 2 (2006): 321-326.

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

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

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

OTHER PUBLICATIONS

“Big in Japan: How Art, Tech, and PepsiCo Collaborated, Then Clashed, At the 1970 World’s Fair,” *IEEE Spectrum*, March 2020: 40-47.

“Selling a Charismatic Technology,” (essay-length review of *The Charisma Machine* by Morgan Ames), *Los Angeles Review of Books*, January 2020; available at: <https://lareviewofbooks.org/article/selling-charisma-circa-2010-the-mit-media-lab-and-its-one-laptop-per-child-program/>

“Silicon Valley: A Region High on Historical Amnesia,” (essay-length review of *The Code* by Margaret O’Mara), *Los Angeles Review of Books*, September 2019; available at: <https://lareviewofbooks.org/article/silicon-valley-a-region-high-on-historical-amnesia/>

“When Science Was Groovy,” *Science* 365, no. 6453 (9 August 2019): 550-551.

“Snow’s Storm,” *Science* 364, no. 6439 (3 May 2019): 430-432.

“Science’s Freedom Fighters,” (essay-length review of *Freedom’s Laboratory* by Audra Wolfe), *Los Angeles Review of Books*, November 2018; available at: <https://lareviewofbooks.org/article/sciences-freedom-fighters/>

“Silicon Valley’s Bonfire of the Vainglorious,” (essay length review of *To Be a Machine* by Mark O’Connell and *Valley of the Gods* by Alexandra Wolfe) *Los Angeles Review of Books*, July 2017; available at <https://lareviewofbooks.org/article/silicon-valleys-bonfire-of-the-vainglorious/>

“Futures Perfect and Visioneering: A Reassessment,” invited essay for *NanoEthics*, August 2017.

“It’s Not All Lightbulbs,” invited essay for *Aeon*, October 2016; available at: <https://aeon.co/essays/most-of-the-time-innovators-don-t-move-fast-and-break-things>

“Gods of Small Things,” invited essay for *Slate*, September 2016; available at: http://www.slate.com/articles/technology/future_tense/2016/09/a_brief_guide_to_nanotechnology_s_history.html

“Life as a Verb: Applying Buckminster Fuller to the 21st Century,” (essay-length review of *You Belong to the Universe: Buckminster Fuller and the Future* by Jonathon Keats); *Los Angeles Review of Books*, June 2016; available at: <https://lareviewofbooks.org/article/life-verb-applying-buckminster-fuller-21st-century/#!>

“The Technologists’ Siren Song,” *The Chronicle Review*, 14 March 2014: B4-B5.

“We May Not Have Flying Cars Yet, But Visioneers are Inventing a New Future,” opinion piece for *Forbes.com*, appeared 26 November 2012; available at: <http://www.forbes.com/sites/singularity/2012/11/26/we-may-not-have-flying-cars-yet-but-visioneers-are-inventing-a-new-future/>

“A pioneer in space and on Earth,” editorial for *CNN.com*, appeared 10 June 2012; available at: <http://www.cnn.com/2012/06/10/opinion/mccray-elon-musk/index.html>.

“Re-Thinking Innovation: A New Agenda for Academic Investigation,” May 2010, *Science Progress*, available at: <http://www.scienceprogress.org/2010/05/re-thinking-innovation/>

“Unintended Consequences: What Ten Years of the National Nanotechnology Initiative Can Teach Us About Federal R&D,” March 2010, *Science Progress*, available at: <http://www.scienceprogress.org/2010/03/unintended-consequences/>

“From the Ground Up: Developing an Interdisciplinary Course Focusing on Materials Science and Society in Green Technologies,” (co-author with M. Murr, S. Patterson, E. Hu, and F. Goodchild), *Journal of Materials Education*, 31, 5/6 (2010), 251-264.

“Big Whig History and Nano Narratives,” (co-authored with Cyrus Mody) April 2009, *Science Progress*, available at: <http://www.scienceprogress.org/2009/04/big-whig-history-and-nano-narratives/>

“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.

“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,” AURA Yearbook, 2003.

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

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

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

“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.

“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.

EXHIBITS AND MISCELLANEOUS WORKS

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.

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 four dozen biographical-length oral history interviews with scientists 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).

PRESENTATIONS, PANELS, AND WORKSHOPS

“When the Telescope Met the Computer,” invited talk, Mount Wilson Observatory, June 2020; (cancelled)

“Dreamer of Space, Engineer of Art: The Curious, Converging Careers of Frank Malina,” invited talk, Caltech, June 2020; (cancelled)

“An Engineer as Work of Art: Billy Klüver’s Experiments in Technology and Art,” invited talk at University of Gothenburg, Sweden, April 2020; (cancelled).

“Vioneering,” invited panel discussion at University of Darmstadt, April 2020; (cancelled).

“Making Art Work: Engineers, Artists, and Waves of Creative Collaboration,” invited talk at University of Darmstadt, April 2020; (cancelled).

“Making and Sharing a Digital Sky,” invited talk at Malmö University, Sweden, April 2020; (cancelled).

“Art Out of Order: The 1970 *Software* Exhibition,” presented at annual meeting of the Society for the History of Technology, Milan, October 2019.

“Big in Japan: The Pepsi Pavilion as Instrument and Studio,” invited workshop paper at the Max Planck Institute for the History of Science, June 2019.

“Memories of the Future: Past Visions of Tomorrow (and Their Relevance for Today),” invited keynote talk at Northwestern University, May 2019.

“Wiring the Work of Art: Engineers, Artists, and Waves of Creative Collaboration,” invited talks given in various permutations at:

- University of Maryland, March 2019
- Archives of American Art, Smithsonian Institution, March 2019
- Cornell University, April 2019
- Gregory Allicar Museum of Art, September 2019

“Groovy Physics,” invited talk, annual meeting of the American Physics Society, March 2019.

“Dreamer of Space, Engineer of Art: The Curious, Converging Careers of Frank Malina,” invited talk, University of Colorado, Boulder, February 2019.

“When the Telescope Met the Computer: Making and Sharing a Digital Universe,” Lynne Starling Trimble Public Lecture, American Institute of Physics, College Park, MD, January 2019.

“All Watched Over and All Watching Machines of Loving (and Sometimes Terrifying) Grace,” invited talk, National Academy of Sciences, Washington, DC, March 2018.

“Art Re-Wired,” invited talk for History Department, Colorado State University, February 2018.

“Astronomical Ambitions Meet California Skies,” invited talk, Huntington Library, November 2017.

“Innovation’s Shadow,” invited talk for UCSB’s Chancellor’s Breakfast, October 2017.

“Seeking Closure: Ann Johnson on Emerging Technologies,” talk at annual meeting for the Society for the History of Technology, Philadelphia, October 2017.

“Art Re-Wired,” invited colloquium talk for the Science and Technology Studies Department, MIT, April 2017.

“Innovation’s Shadow,” invited talk at CSU-Chico, April 2017.

“Big in Japan: Technology & Art at Osaka’s Expo ’70,” presented at annual meeting of the Society for History of Technology, Singapore, June 2016.

“Re-Wiring Art & Technology in the 1960s,” invited panel talk for the DC Art Science Evening Rendezvous (DASER) at the National Academy of Sciences, April 2016.

“Frank Malina – Dreamer of Space, Engineer of Art,” invited talk presented twice at the Smithsonian Institution in April 2016 (National Air and Space Museum; Archives of American Art).

“...to Avoid the Waste of a Cultural Revolution: Engineers and Artists in the Long 1960s,” invited talk, University of California, Berkeley, April 2016.

“Maintaining a Mountain of Magical Thinking,” invited talk at Maintainers Conference, Stevens Institute of Technology, April 2016.

“Re-Wiring Art: Engineers, Artists, and the Forging of a New Creative Culture,” Nancy and Norman Benson Keynote Lecture, Columbia History of Science Meeting (Friday Harbor), March 2016.

“Visioneering: From Space Colonies to Nanotechnologies in Pursuit of a Limitless Future,” invited talks presented in 2016:

- Virginia Commonwealth University, February 2016
- University of Puget Sound, March 2016

“Innovation’s Shadow,” invited talk plus series of three invited panel discussions, World Economic Forum; Davos, Switzerland, January 2016.

“Making Synthetic Art, Doing Artful Engineering,” presented at the Society for Literature,

Science, and the Arts, Houston, November 2015.

“Fallout and Spinoff: Commercialization of the Art-Technology Movement,” presented at Re-Create: Histories of Media Art, Science, and Technology, Montreal, November 2015.

“Fallout and Spinoff: Commercializing the Art-Technology Nexus,” presented at annual meeting of the Society for the History of Technology, Albuquerque, October 2015.

“E is for Experiment...T is for Technology,” Invited talk at Los Angeles County Museum of Art, July 2015.

“The Biggest Data of All,” invited talk at Columbia University, April 2015.

“Spinoffs, Fallout, and Feedback: Commercializing the Art-Technology Nexus,” presented at Hybrid Practices conference, University of Kansas, March 2015.

“Many are Cold, Few Are Frozen,” invited talk at “Histories of the Future” workshop, Princeton University, February 2015.

“Communities of Science: Professionals, Amateurs, and Visioneers,” invited talk at Purdue University, February 2015.

“Visioneering: From Space Colonies to Nanotechnologies in Pursuit of a Limitless Future,” invited talk presented in 2014:

- Stevens Institute of Technology, October 2014
- Drexel University, November 2014

“Artifice or Application? Unfolding a History of DNA Nanotechnology,” presented at the annual meeting for the Society for the Social Studies of Science, Buenos Aires, August 2014.

“Sharing the Sky: Astronomers and Data,” paper presented at annual meeting of the History of Science Society, Boston, November 2013.

“Regulation via Analogy,” invited presentation for “Into the Real World: Historians and Public Policy Roundtable,” meeting of Society for History of Technology, Portland, Maine, 2013.

“Regulating Innovation via Analogy: The Case of Nanotechnology,” invited talk presented at “Pressing Issues: The History of Technology meets Public Policy” workshop, Colby College, September 2013.

“Amateur Astronomy and Cold War Cultures,” invited paper presented at “History of Amateur Astronomy: Current research, Future Prospects” workshop, Stockholm, Sweden, September 2013.

“What Might Historians Learn from the Historical Sciences?”; invited paper presented at the Digital Humanities Symposium, Oregon State University, March 2013.

“Visioneering: From Space Colonies to Nanotechnologies in Pursuit of a Limitless Future,”

invited talk presented multiple times in 2013 including:

- Skeptics Society Distinguished Lecture Series, Caltech, January 2013
- Microsoft, Seattle, February 2013
- Seattle Town Hall Series, February 2013
- San Jose Technology Museum, February 2013
- Politics and Prose, Washington DC, February 2013
- DC Science Café, Washington DC, February 2013
- Noblis, Washington DC, February 2013
- Smithsonian Institution, May 2013
- Arizona State University, November 2013

“Gerard O’Neill’s Visioneering for the Humanization of Space; invited talk presented at “Space Exploration and the Human Imagination” conference; Rice University, April 2013.

“California Dreaming: The Golden State’s Influence on Imaginings, Policies, and Narratives of Nanotechnology,” invited talk at the Reilly Center, University of Notre Dame, December 2012.

“Citizen-Scientists at the Dawn of the Space Age,” invited talk presented at Seoul National University, South Korea, September 2012.

“Visioneers and their Pursuit of Space Colonies, Nanotechnologies, and a Limitless Future,” invited talk presented at Korea Advanced Institute of Science and Technology, South Korea, September 2012.

“Gerard O’Neill’s Visioneering of the ‘High Frontier’,” invited paper presented at the “Envisioning Limits: Outer Space and the End of Utopia” conference, Berlin, April 2012.

“Take a Little Risk: Historical Analogies for the Regulation of Nanotechnology,” (with Roger Eardley-Pryor), paper presented at 2012 Business History Conference, Philadelphia, March 2012.

“When the Telescope Met the Computer,” Dibner Distinguished Lecture in the History of Science, Huntington Library, Pasadena, March 2012.

“How California Invented Nanotechnology,” invited talk, UCLA, March 2012.

“Bob Guccione’s Scientific Americans,” paper presented at the annual meeting of the History of Science Society, October 2011.

“Did California Invent Nanotechnology?” invited talk and workshop discussion, *Institut Méditerranéen de Recherches Avancées*, Marseille, France, September 2011.

“How California Invented Nanotechnology,” series of invited talks given at Georgia Institute of Technology; University of California, San Diego; Johns Hopkins University; University of Pennsylvania, all 2011.

“Visioneering,” invited talk for “The Landscape of Science in Postwar California” seminar, Huntington Library, May 2011.

“Timothy Leary’s Transhumanist SMI2LE,” presented at the Groovy Science workshop, Princeton University, February 2011.

“Two-Part Harmony: Nanotechnology’s Early Communities of Support,” presented at annual meeting of Society for Social Studies of Science, Tokyo, September 2010.

“Exploratorium-Invisible Dynamics Workshop,” invited panelist, Marseille, France, July 2010.

“Spinning Innovation,” invited talk given at States of Innovation, international workshop at University of Lyon, France, April 2010.

“Visioneering: Histories of Radical Technological Optimism,” invited talk at Northwestern University - Qatar campus, Doha, April 2010.

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

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

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

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

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

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

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

“Trading Zones, Interactional Expertise and Interdisciplinary Collaboration,” invited panelist at NSF-funded international conference hosted by Arizona State University; 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,” 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, Kavli Institute of Theoretical Physics, Santa Barbara, 2004.

“Killing the Messenger: Robert Oppenheimer and Caltech’s Project Vista,” 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, 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;” presented 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.

OTHER AWARDS AND GRANTS

NNIN Research Grant (\$20,000), “From Blueprints to Bricks: Building a Community for DNA

Nanotechnology,” 2012-2014.

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

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 Grant (\$20,000), “Nanoscale Research Communities and Interdisciplinarity,” McCray with Cyrus Mody and Summer Gray, 2009-2010.

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

NSF Small Grant for Exploratory Research, “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); 2003-2007.

UCSB Individual Faculty General Research Grant, 2005

UC Regents’ Humanities Faculty Fellowship, 2005.

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

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

PROFESSIONAL SERVICE AND COMMUNITY ACTIVITIES

Member, Davis Prize committee, History of Science Society (2018-present)

Member, executive Committee, Society for the History of Technology (2018-present)

Editor, *Osiris* (2016-present)

Associate Editor, *Technology and Culture* (2016-present)

Associate Editor, *Historical Studies in the Natural Sciences* (2016-present)

Member, Editorial Board for *Isis* (2014-present)

Member, Editorial Board for *Osiris* (2013-2016)

Member, Editorial Board for *Historical Studies in the Natural Sciences* (2006-2016)
Member, External Advisory Board; University of South Carolina NanoCenter (2006-2007).
Member, Price/Webster Prize Committee, History of Science Society (2005-2006).
Member, Steering Committee, Forum for the History of Science in America (2005-2007).
Member, Executive Committee, APS Forum on History of Physics (2003-2005)
Member, Levinson Prize Committee, Society for the History of Technology (2002-2004).
President (2002), Treasurer (2003); Washington, D.C. chapter of the National Audubon Society,
a non-profit organization with over 1100 members.

PROFESSIONAL AFFILIATIONS

Society for the History of Technology
History of Science Society
American Association for the Advancement of Science
American Physical Society