

## **Elizabeth Mary Cavicchi**

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18 Clinton St.  
Woburn MA 01801

### **EDUCATION**

Harvard Graduate School of Education, Cambridge MA

Ed.D., Learning and Teaching, 1999. Dissertation: "Experimenting with Wires, Batteries, Bulbs and the Induction Coil: Narratives of Teaching and Learning Physics in the Electrical Investigations of Laura, David, Jamie, Myself and the Nineteenth Century Investigators – Our Developments and Instruments".

Ed.M., Learning and Teaching, 1997.

Boston University, Boston MA

M.A.T., Education and Physics, 1986.

Massachusetts Institute of Technology, Cambridge MA

S.M.Vis.S. (Master of Science in Visual Studies), Environmental Art, 1980.

S.B., Physics, 1978.

S.B., Humanities and Science, 1978.

### **Fellowship Awards**

Bakken Museum of Electricity and Life, Minneapolis MN

Research Fellowship, December 2003.

Dibner Institute for the History of Science and Technology, MIT, Cambridge MA

Dibner Institute Postdoctoral Fellow, 2001-3.

Harvard Graduate School of Education, Cambridge MA

Advanced Doctoral Fellowship, 1997-1998.

Spencer Research Training Grant, 1994-1997.

Larson Research Fellowship, 1993-1994.

National Science Foundation Graduate Research Fellowship.

Honorable Mention, April 1993.

### **Certification**

MA Teaching Certificate, Physics (grades 9-12) 1986, renewed 2009.

### **EXPERIENCE**

Postdoctoral Researcher (2004-6)

Dibner Institute for the History of Science and Technology, MIT, Cambridge MA

Visiting Research Fellow (2003)

Bakken Museum of Electricity and Life, Minneapolis MN

Dibner Institute Postdoctoral Fellow (2001-2003)  
Dibner Institute for the History of Science and Technology, MIT, Cambridge MA

Research Apprentice, Spencer Research Training Grant. (1994-1997)  
Harvard Graduate School of Education, Cambridge MA

Researcher, Evaluator for Introductory University Physics Project. (1992-1994)  
American Institute of Physics, College Park MD

Research Associate, Chemistry Department. (1988-1989)  
University of Lowell Research Foundation, Lowell MA

Researcher, *The Ring of Truth*, six-hour PBS science series and book. (1985-1987)  
Philip and Phylis Morrison, Public Broadcasting Associates, Cambridge MA

Research Technician, Physiology Department. (1982-1984)  
Boston University School of Medicine, Boston MA

Researcher, Political Science Department. (1979-1980)  
Massachusetts Institute of Technology, Cambridge MA

Undergraduate Researcher, Biology Department. (1975-1978)  
Massachusetts Institute of Technology, Cambridge MA

Undergraduate Researcher, Macromolecular Science Department. (summers 1976-1978)  
Case Western Reserve University, Cleveland OH

### **Teaching Experience**

Instructor (2005-present)  
Edgerton Center MIT, Cambridge MA  
“Recreate Experiments from History – Create Experimental Research” SP726, SP713  
“Recreate Experiments from History—Inform the Future from the Past” EC.050/090

Lecturer (2007); Instructor (2005)  
Honors Program, University of Massachusetts Boston, MA  
“Science Experimenting: Learning from Nature, History and Ourselves” Honors 290F

Lecturer. (2000)  
Harvard Graduate School of Education, Cambridge MA  
“Teaching Science” T215  
“Exploring Water through Ways of Doing Art and Physics” T210E

Coteacher with F. McDonnell. (summer 2000 and 2001)  
Clark University, Worcester MA  
“Teaching and Learning”

Instructor in Education. (1999, 1997)  
Harvard Graduate School of Education, Cambridge MA  
“Exploring Water through Ways of Doing Art and Physics” T210E

Teaching Fellow, Learning and Teaching. (1996)  
Harvard Graduate School of Education, Cambridge MA

Consultant. (1992-1993)  
University of Massachusetts, Boston MA

Visiting Adjunct Faculty and Lecturer, Physics and Continuing Education. (1988-1992)  
University of Massachusetts, Lowell MA

Adjunct Assistant Professor of Physics. (1985-1987)  
Wentworth Institute of Technology, Boston MA

### **PUBLICATIONS and PAPERS**

E. Cavicchi, "Explorando Péndulos en el Salón de Clases", in Z. Monroy-Nasr, G. Alvarez & R. León (eds.), *Enseñanza de la Ciencia*, México: Facultad de Psicología y DGAPA, UNAM, 2012.

E. Cavicchi, "Shadows of Light and History in Explorative Teaching and Learning", In SILVA, C. C. & PRESTES, M. E. B. *Learning science and about science through history and philosophy*. Sao Paulo: Editora da Livraria da Física/FAPESP, in press.

E. Cavicchi, "Time Traveling – An Intuitive Grasp of Time Takes Time". In: *Science & Culture: Promise, Challenge and Demand*, Proceedings of 11th International History, Philosophy and Science Teaching Group Conference, Thessaloniki, Greece, Editors: Fanny Seralou, Vassilis Koulountzos, Anastasios Siatras. Publisher Epikentro, June 2011.

Cavicchi, E. (2011). The spiral conductor of Charles Grafton Page: Reconstructing experience with the body, more options, and ambiguity. In K. Staubermann (Ed.), *Reconstructions: Recreating Science and Technology of the Past* (pp. 127-170). Edinburgh, UK: National Museums Scotland.

Cavicchi, E. (2011). Classroom Explorations: Pendulums, Mirrors and Galileo's Drama. *Interchange*, 42 (1), 21–50.

E. Cavicchi, "Reflections on the Teaching of Gerbert of Aurillac", in *Orbe Novus*, C. Sigismondi, ed., Universitalia, Rome, 2010, 7-21.  
[http://irsol.ch/costantino\\_sigismondi/OrbeNovus\\_volume2010.pdf](http://irsol.ch/costantino_sigismondi/OrbeNovus_volume2010.pdf)

E. Cavicchi, "Activity inspired by Medieval Observers with Tubes", in *Orbe Novus*, C. Sigismondi, ed., Universitalia, Rome, 2010, 22-39.  
[http://irsol.ch/costantino\\_sigismondi/OrbeNovus\\_volume2010.pdf](http://irsol.ch/costantino_sigismondi/OrbeNovus_volume2010.pdf)

E. Cavicchi, "Exploring Mirrors, Recreating Science and History, Becoming a Class Community", *New Educator*, 5(3), 2009, 249-273.  
[http://www1.cuny.cuny.edu/prospective/education/theneweducator/volume5\\_3.cfm](http://www1.cuny.cuny.edu/prospective/education/theneweducator/volume5_3.cfm)

E. Cavicchi, S-M Chiu, F. McDonnell, "Introductory Paper on Critical Explorations in Teaching Art, Science and Teacher Education", *New Educator*, 5(3), 2009, 189-204.

[http://www1.cuny.cuny.edu/prospective/education/theneweducator/volume5\\_3.cfm](http://www1.cuny.cuny.edu/prospective/education/theneweducator/volume5_3.cfm)

E. Cavicchi, "Earth Grounds and Heavenly Spires: Lightning Rod Men, Patent Inventors and Telegraphers", chapter for *Playing with Fire: Histories of the Lightning Rod*, Peter Heering, Oliver Hochadel, David Rhees (Eds.): Philadelphia: American Philosophical Society, 2009, 181-205.

E. Cavicchi, "Charles Grafton Page's Experiment with a Spiral Conductor", *Technology and Culture*, 49, 2008, 884-907.

E. Cavicchi, "Opening Possibilities in Experimental Science and its History: Critical Explorations with Pendulums and Singing Tubes", *Interchange*, 39, 2008, 415-442.

E. Cavicchi, "A Witness Account of Solar Microscope Projections: Collective Acts integrating across Personal and Historical Memory", *British Journal for the History of Science*, 41, 2008, 369-383.

E. Cavicchi, "Berlin Electropolis: Shock, Nerves, and German Modernity, Andreas Killen" (review), *Technology and Culture*, 49(1), 2008, 256-257.

E. Cavicchi, "Historical Experiments in Students' Hands: Unfragmenting Science through Action and History", *Science and Education*, 17(7), 2008, 717-749.

E. Cavicchi, "Mirrors, swinging weights, lightbulbs...: Simple experiments and history help a class become a community", 47-63, in *Constructing Scientific Understanding through Contextual Teaching*, Peter Heering and Daniel Osewold, eds., Frank & Timme, Berlin, 2007.

E. Cavicchi, "Faraday and Piaget: Experimenting in Relation with the World", *Perspectives on Science*, 2006, 14(1), 66-96.

E. Cavicchi, "Blind Experimenting in a Sighted World: The Electrical Innovations of Jonathan Nash Hearder", *Proceedings of the Plymouth Athenaeum*, X, 2004/2007, 39-48.

E. Cavicchi, "Nineteenth century developments in coiled instruments and experiences with electromagnetic induction", *Annals of Science*, 2006, 63, 319-361.

E. Cavicchi, "Sparks, Shocks and Voltage Traces as Windows into Experience: The Spiraled Conductor and Star Wheel Interrupter of Charles Grafton Page", *Archives des Sciences*, 2005, 58, 123-136.

E. Cavicchi, "Exploring Water: Art and Physics in Teaching and Learning with Water", p. 173-194, in *Facilitating Watershed Management: Fostering Awareness and Stewardship*, R. France, ed., (Rowman & Littlefield Pub.: Lanham MD), 2005.

E. Cavicchi, "Thing Knowledge: A Philosophy of Scientific Instruments, Davis Baird" (review), *Technology and Culture*, 46 (1), 2005, 243-245.

E. Cavicchi, "Experiences with the magnetism of conducting loops: Historical instruments, experimental replications, and productive confusions", *American Journal of Physics*, 71(2), 2003, 156-167.

E. Cavicchi, "Changing Minds: Computers, learning and literacy, Andrea A. DiSessa" (review), in *Education, Communication & Information*, 2 (2), 2002, 249-253.

E. Cavicchi, F. Hughes-McDonnell, P. Lucht, "Playing with Light", *Educational Action Research*, 9, 2001, 25-49.

E. Cavicchi, "Experimenting with Wires, Batteries, Bulbs and the Induction Coil: Narratives of Teaching and Learning Physics in the Electrical Investigations of Laura, David, Jamie, Myself and the Nineteenth Century Experimenters -- Our Developments and Instruments", Dissertation, Harvard University, 1999.

E. Cavicchi, "Experimenting with magnetism: Ways of learning of Joann and Faraday", *American Journal of Physics*, 65, 1997, 867-882.

E. Cavicchi, "Watching Galileo's Learning", in *Explorations in College Algebra*, Linda Kime and Judy Clark, (John Wiley: NY) 1997.

E. Cavicchi, "Ways of Learning Physics: Magnets, Needles, Fields", Qualifying Paper, Harvard University, December 1995.

E. Cavicchi, "Francis Wick", in *Women in Physics and Chemistry: A Biobibliographic Sourcebook*, L. Grinstein, ed., (Greenwood Press: NY), 1993.

E. Cavicchi, "Painting the moon", *Sky and Telescope*, Sept. 1991, 313-315.

E. Cavicchi, J. Kumar, and S. Tripathy, "Nonlinear Optical Spectroscopy of Polymers", in *Optical Techniques to Characterize Polymer Systems*, (Elsevier Press: Amsterdam) 1989.

S. Tripathy, E. Cavicchi, J. Kumar, and R. S. Kumar, "Nonlinear Optics and Organic Materials (Part 2)", *Chemtech.*, Dec. 1989; "(Part 1)", *Chemtech.*, Oct. 1989.

E. Cavicchi, "Arethusa: A Fountain through Sculpture", S.M.Vis.S. Thesis, Massachusetts Institute of Technology, April 1980.

E. Cavicchi, "Metaphors of Nature: The Vision of Cezanne, Monet, Poincare", S.B. Thesis, Massachusetts Institute of Technology, April 1978.

E. Cavicchi, "Conformational Analysis of Inhibitors for Sickle Cell Hemoglobin", S.B. Thesis, Massachusetts Institute of Technology, April 1978.

### **PRESENTATIONS and WORKSHOPS**

E. Cavicchi, "Explorando Péndulos en el Salón de Clases", Jornada de Enseñanza de la Ciencia: Indagaciones e Instrumentos, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico, November 15, 2012.

E. Cavicchi, "Galileo in the Classroom", colloquium organized under research projects DGAPA-PAPIIT IN403012 and DGAPA-PAPIIT IN404311, at the Institute of Philosophical Research, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico, November 13, 2012.

E. Cavicchi, "Explorers in the Classroom", New England Section of American Association of Physics Teachers, Williams College, Williamstown MA, November 10, 2012, preceding presentations by M. Danek, D. Goldie, J. Mishrikey.

E. Cavicchi, "Stepping into the Past to Understand Time: explorations with astrolabes, clocks, and observation", XXXI Scientific Instrument Symposium, Rio de Janeiro, Brazil, October 11, 2012.

E. Cavicchi, "Learning Science as Explorers: Historical Resonances, Inventive Instruments, Evolving Community", 9<sup>th</sup> International Conference for the History of Science in Science Education, Flensburg, Germany, August 2, 2012.

E. Cavicchi, "Critical Exploration with Space as a Seminar Experience", in symposium "Exploring Space – Experiencing Development: Seminar participants respond to Space, Piaget, Euclid and Each Other", 42<sup>st</sup> Annual Meeting, Jean Piaget Society, Toronto, ON, Canada, June 1, 2012.

E. Cavicchi, "Exploring Space Together – with Galileo", New England Section of American Association of Physics Teachers, Thayer Academy, Quincy MA, April 28, 2012; preceding presentations by S. Ray, L. Scher, A. Pillsbury, M. Anantharajan and Y. Yang.

E. Cavicchi, "Class Explorations in Space: From the Blackboard and History to the Outdoors and Future", New England Section of American Association of Physics Teachers, University of Massachusetts Amherst, November 19, 2011; preceding presentations by A. Pillsbury and Y. Yang.

E. Cavicchi, "Time Traveling – An Intuitive Grasp of Time Takes Time". At Science & Culture: Promis, Challenge and Demand, 11<sup>th</sup> International History, Philosophy and Science Teaching Group Conference, Thessaloniki, Greece, July 3, 2011.

E. Cavicchi, "Exploring light and history: Developments in understanding teaching and learning", in symposium "A Journey with Piaget": Explorations into learning develop teachers' understanding of teaching science and other areas. 41<sup>st</sup> Annual Meeting, Jean Piaget Society, Berkeley, CA, June 2, 2011.

E. Cavicchi, "Becoming Galileo in the Classroom", New England Section of American Association of Physics Teachers, University of Massachusetts Lowell, Lowell MA, April 9, 2011.

E. Cavicchi, "Telescopes and Telescopic Acts bring Galileo into my Classroom", XXIX Scientific Instrument Symposium, Florence, Italy, October 7, 2010.

E. Cavicchi, "Uncertainty opens possibilities for exploring: Gooding's insights, with examples from exploratory education", History, Cognition, and Visualisation: The David Gooding Memorial Meeting, University of Bath, Bath, UK, September 22, 2010.

E. Cavicchi, "Shadows of Light and History in Explorative Teaching and Learning", 1st Latin American Conference of the International History, Philosophy, and Science Teaching Group, Maresias, Sao Paulo, Brazil, August 20, 2010.

E. Cavicchi, "Becoming Galileo in the Classroom", 8th International Conference for the History of Science in Science Education, Maresias, Sao Paulo, Brazil, August 18, 2010.

E. Cavicchi, "Explorations with science, history, teaching and learning: Opening possibilities, doubt and relationships", Colloquium, Instituto de Fisica, Universidade Federal da Bahia, Salvador, Brazil, August 11, 2010.

E. Cavicchi, "Exploring Pendulums, Recreating Galileo's Drama", New England Section of American Association of Physics Teachers, University of New Hampshire, Durham, NH, October 17, 2009.

E. Cavicchi, "Play, Invention and Doubt: Re-emerging Ways of Faraday's Creative Exploring", in symposium "Faraday: The First Nanoscientist?", Electrochemical Society Meeting, Vienna, Austria, October 7, 2009.

E. Cavicchi, "The spiral conductor of Charles Grafton Page: Reconstructing experiences with the body, more options, and ambiguity," Reconstructions Workshop, National Museums Scotland, Edinburgh, UK, October 3, 2009.

E. Cavicchi, "Unsettling brings about development in the classroom: Critical explorations with historical observations of light," International History, Philosophy and Science Teaching Group Conference, Notre Dame University, South Bend IN, June 26, 2009.

E. Cavicchi, "Reflections on Typical Paths and Possibilities in Teaching Science Through Critical Explorations", in Symposium "Embracing and Eschewing the Typical and Atypical: *Critical exploration* in teaching and teacher education", Jean Piaget Society Annual Meeting, Park City Utah, June 7, 2009.

E. Cavicchi, Activity for Students, and "Reflections on Gerbert's Teaching", at *Gerverto e l'astronomia*, Basilica di S. Maria degli Angeli e dei Martiri, Rome, Italy, May 12, 2009.

E. Cavicchi, "Exploring Sound! Hear Sounds from Science and History!", : Skolelaboratoriet, University of Oslo, Norway, April 29, 2009.

E. Cavicchi, "Historical Science Instruments and Exploratory Education", Hansteensymposiet 2008, University of Oslo, Norway, October 29, 2008.

E. Cavicchi, "Reconstructing the Camera Obscura Effect: Becoming Optical Experimenters", XXVII Symposium of the Scientific Instrument Commission, Lisbon, Portugal, September 16, 2008.

E. Cavicchi, "Classroom Explorations with Mirrors, Pendulums, and Galileo's Drama", at 7<sup>th</sup> International Conference for the History of Science in Science Education, Athens, Greece, July 8, 2008.

E. Cavicchi, "Exploring Magnets: Developing Relationships among Teacher, Student and Evolving Curriculum", in session "Between I and Thou: Developing Curriculum through a Pedagogy of Relation" with F. McDonnell, J. Stillwaggon, W. Shorr, Jean Piaget Society Annual Meeting, Quebec City, Canada, June 7, 2008.

E. Cavicchi, F. McDonnell, “Inklings of Science Arise in Watching Pendulums”, National Science Teacher’s Association Convention, Boston MA, March 30, 2008.

E. Cavicchi, “Microscopy as a Collective Act involving Later Observers with Historical Work” at History of Science Society, Annual Meeting, Arlington Virginia, November 2, 2007.

E. Cavicchi, participant in panel with Jane Werner, Jennifer Martin, Thomas Humphrey and Paul Tatter, “Toward Transactive Exhibits, Experience, and Learning”, Association of Science-Technology Centers, Los Angeles CA, October 13, 2007.

E. Cavicchi, “Recreating the Bead Lens of a Seventeenth Century Simple Microscope”, XXVI Scientific Instrument Symposium, Cambridge, MA, September 8, 2007.

E. Cavicchi, “Critical Explorations by Teacher and Student in Experimental Science and its History”, Ninth International History, Philosophy & Science Teaching Conference, Calgary, Alberta Canada, June 26, 2007.

E. Cavicchi, “Explorative Activities Involving Students with Historical Instruments in a Museum”, International Workshop on Historic Scientific Instrument Collections in the University, Oxford, Mississippi, June 23, 2007.

E. Cavicchi, Son-Mey Chiu, F. McDonnell, E. Duckworth, ““Wonderful Ideas” in Critical Explorations: Science and Art with Perspectives of History and Teacher Education’, American Educational Research Association, Annual Meeting, Chicago IL, April 11, 2007.

E. Cavicchi, “Exploring Electromagnetic Coils with Learners of the Past and Today”, Physics Colloquium, Tufts University, Medford MA, March 9, 2007.

E. Cavicchi, “Faraday and Piaget: Experimenting in Relation with the World”, New England Section –American Association of Physics Teachers Meeting, Holy Cross College, Worcester MA, October 14, 2006.

E. Cavicchi, “Mirrors, Swinging Weights, Light Bulbs...: Simple experiments and history help a class become a scientific community”, 6th International Conference for the History of Science in Science Education, Oldenburg Germany, July 13, 2006.

E. Cavicchi, Son-Mey Chiu, F. McDonnell, E. Duckworth, “Development through Creativity and “Wonderful Ideas”: Student Explorations of Art and Science”, Jean Piaget Society, Baltimore MD, June 2, 2006.

E. Cavicchi, “Faraday and Piaget: Experimenting in Relation with the World,” Jean Piaget Society, Baltimore MD, June 1, 2006.

F. McDonnell and E. Cavicchi, “Thinking about Learning and Teaching as Forming Communities of Dialogue among Learners, Teachers, and the World of Nature and Ideas”, New England Educational Research Organization Annual Conference, Portsmouth NH, April 28, 2006.

E. Cavicchi, “Looking Inside Telephones from the Past”, New England Section –American Association of Physics Teachers Meeting, MIT, Boston MA, April 1, 2005



E. Cavicchi, "Blind Experimenting in a Sighted World: The Electrical Innovations of Jonathan Nash Hearder", History of Science Society Annual Meeting, Minneapolis MN, November 5, 2005.

E. Cavicchi, "Historical Experiments in Students' Hands: Integrating Electricity, Magnetism, Sound and Light", International History, Philosophy and Science Teaching Conference, Leeds UK, July 17, 2005.

E. Cavicchi and D. Pantalony, "Acoustical Demonstrations with Nineteenth Century Instruments", New England Section –American Association of Physics Teachers Meeting, MIT, Cambridge MA, April 2, 2005

E. Cavicchi, Electricity workshop for children at Parents' Science Night, Thomson Elementary School, Arlington MA, March 18, 2005.

E. Cavicchi and F. McDonnell, Opening Address, Partnerships for Research Opportunities to Benefit Education, University of New Hampshire, Durham NH, February 16, 2005.

E. Cavicchi, "Bringing the History of Science to Science and Mathematics Teachers", Education Program, History of Science Society Annual Meeting, Austin TX, November 19, 2004.

E. Cavicchi, "Evidences of Learning in the Wiring: Historical and Educational Experimenting with Electrical Circuits", Colloquium, Deutches Museum, Munich Germany, September 14, 2004

E. Cavicchi, "Looking at Medical Induction Coils: Diversity in Instrumental Experience and Understandings", XXII Scientific Instrument Symposium, Dresden Germany, September 8, 2004.

E. Cavicchi, "Looking at Development in Learners' Experimenting: Examples from History and Today", Physics Education Research Colloquium, The Ohio State University, May 4, 2004.

E. Cavicchi, F. McDonnell, L. Szablak, "Engaging with Nature: Activity and Reflection among Teachers Learning Science", New England Educational Research Organization Annual Conference, Portsmouth NH, April 23 2004.

A. Armstrong, A. Blanco, E. Cavicchi, E. Duckworth, F. McDonnell, W. Shorr, "Learning About Children's Development and Construction of Morality – Asking About Ways Our Teaching can Support it", HGSE Student Research Conference, Harvard Graduate School of Education, Cambridge MA, February 27, 2004.

E. Cavicchi, "Finding the Body – and Ambiguity – in the Circuit: Historical and Reconstructive Experiments with a Spiraled Conductor", Colloquium, Bakken Museum of Electricity and Life, Minneapolis MN, December 10, 2003.

E. Cavicchi, "Finding the Body in the Circuit: Historical and Reconstructive Experiments with a Spiraled Conductor", at History of Science Society, Annual Meeting, Cambridge MA, November 22, 2003.

E. Cavicchi, "The Hollow Induction Coil: Separable Parts and Widening Experimental Options", XXII Scientific Instrument Symposium, Newport News VA, October 1, 2003.

E. Cavicchi, "Faraday and Piaget: Experimenting in Relation with the World", Cognitive Science

Society, Annual Meeting, Boston MA, August 1, 2003.

E. Cavicchi, "Ambiguities from the Shocking Spiral and Sparking Spur Wheel: Charles Grafton Page's Experimenting and My Explorations", Colloquium presentation, Smithsonian National Museum of American History, Washington DC, May 13, 2003.

E. Cavicchi, "Earth Grounds and Heavenly Spires: "Lightning Rod Men", Telegraphy, Ballooning, and the Lightning Rod's Ends", at "Taming the Electrical Fire: A Conference on the History and Cultural Meaning of the Lightning Rod", Bakken Library and Museum, Minneapolis MN, November 6, 2002.

Travel Grant from Dibner Institute for the History of Science and Technology, Cambridge MA, to attend "Scientific and Technological Textbooks in the European Periphery", Third meeting of Science and Technology in the European Periphery and Fifth meeting of International Laboratory for the History of Science, Aegina, Greece, June 2-9, 2002.

E. Cavicchi, Nature study activities and electrical experimenting with high school students from Boston University Academy at Burndy Library, Cambridge MA, May 9 and 11, 2002.

E. Cavicchi, C. Cushing, J. Hendry, F. Hughes-McDonnell, "Supporting Teacher's Inquiries of Nature and Learning", New England Educational Research Organization Annual Conference, Northampton MA, April 25, 2002.

E. Cavicchi, "Jonathan Hearder's Instruments: Nineteenth Century Experimenting and Nonvisual Learning", New England Section –American Association of Physics Teachers Meeting, Brandeis University, Waltham MA, April 12, 2002.

E. Cavicchi, "Winding the Coil: An Interpretive and Exploratory Study of Nineteenth Century Electrical Experimenting", Dibner Institute Colloquium, Dibner Institute for the History of Science and Technology, MIT, Cambridge MA, December 18, 2001.

E. Cavicchi and F. Hughes-McDonnell, "Introducing Investigation into the Teaching and Learning Experiences of New Teachers of Science", Sixth Conference of the International History, Philosophy and Science Teaching Group and History of Science Society, Denver CO, November 10, 2001.

E. Cavicchi and F. McDonnell, "Involving New Science Teachers in Investigative Teaching and Learning", New England Section –American Association of Physics Teachers Meeting, Keene State University, Keene NH, November 3, 2001.

E. Cavicchi, "Learning about Confusions with Coils through Historical and Experimental Experiences", New England Section –American Association of Physics Teachers Meeting, Keene State University, Keene NH, October 12, 2001.

E. Cavicchi, "Learners' Explorations in Following Where Electricity Goes in Wires", presentation and poster, National Meeting of American Association of Physics Teachers, Rochester NY, July 24, 2001.

E Cavicchi and F. Hughes-McDonnell, Science Teachers Summer Institute, science teaching workshop, Bedford School District, Bedford NH, July 16-19, 2001.

- E. Cavicchi, F. Hughes-McDonnell, R. Kanevsky, B. Tai, "Teaching Teachers Teaching Science", symposium, New England Educational Research Organization, Annual Meeting, Portsmouth NH, April 25, 2001.
- E. Cavicchi, "Exploring Water: Ways of Art and Physics in Learning and Teaching with Water", presentation and poster, The Bonds between Women and Water, interdisciplinary conference, Duluth MN, September 29, 2000.
- E. Cavicchi, "Confusions with Coils: Johann Schweigger and Learning from Loops", XIX Scientific Instrument Symposium, Wadham College, Oxford UK, September 8, 2000.
- E. Cavicchi, "Teaching and Learning in Explorations through Making Electrical Circuits Connect", New England Educational Research Organization, Annual Meeting, Portsmouth NH, April 13, 2000.
- E. Cavicchi, "Exploring Water: Ways of Art and Physics in Learning and Teaching with Water", poster at "Water Sensitive Ecological Planning and Design, International Symposium, Harvard Graduate School of Design, Cambridge MA, February 25-26, 2000.
- E. Cavicchi, "Explorations with Making Electrical Circuits Connect", New England Section – American Association of Physics Teachers Meeting, Milton Academy, Milton MA, November 4, 1999.
- E. Cavicchi, "Teaching and Learning through Exploratory Work with Electricity", and "Series and Parallel Experimenting with Electromagnets" (joint 5th International History, Philosophy and Science Teaching Conference and 4th European Physical Society Conference on History of Modern Physics), Villa Olmo, Como Italy, September 13 and 17, 1999.
- E. Cavicchi and F. Hughes-McDonnell, "Playing with Light", National Science Teachers Association annual meeting, Boston MA, March 28, 1999.
- E. Cavicchi and F. Hughes-McDonnell, Light and shadow activity, Institute on Teaching and Learning (with Eleanor Duckworth), Miquon School, Conshohocken PA, January 22-23, 1999.
- E. Cavicchi and F. Hughes-McDonnell, Graphite and battery activity, Teacher Workshop (Eleanor Duckworth), Waitsfield VT, June 29, 1998.
- E. Cavicchi, "Experimenting with Batteries", American Physical Society - American Association of Physics Teachers Joint Meeting, Columbus OH, April 20, 1998.
- E. Cavicchi, F. Hughes-McDonnell and P. Lucht, "Playing with Light" workshop, Association for Constructivist Teaching annual meeting, New York City, November 14, 1997, and at Human Development course taught by B. Brizuela and Y. Hsueh at Tufts University, Medford MA, November 12, 1997.
- E. Cavicchi, "Experimenting with Bulbs", part of session "Teaching, Learning and Research; Part 2 Experiences with Extended Clinical Interviewing", with B. Brizuela, E. Duckworth, P. Lucht, Y. Hsueh, C. Lowry, HGSE Student Research Conference, Cambridge MA, March 1, 1997.

E. Cavicchi, F. Hughes-McDonnell, P. Lucht, "Playing with Light: Discussion on teaching and researching through activities with materials and nature", HGSE Student Research Conference, Cambridge MA, February 27, 1997.

E. Cavicchi, "Joann and Faraday's Learning", L. Schneier respondent, Spencer Research students meeting, HGSE, Cambridge MA, October 29, 1996.

E. Cavicchi, L. Allen, J. Bell, W. Shorr, D. Tavilla, D. Williams, "Learning Electricity by Experiment", HGSE Student Research Conference, Cambridge MA, March 8, 1996.

E. Cavicchi, R. Dahlem, S. Rauchwerk, L. Schneier, C. Woysner, "Students and Materials for Learning", HGSE Student Research Conference, Cambridge MA, March 8, 1996.

E. Cavicchi, F. Hughes-McDonnell, P. Lucht, "Physics Students' Perspectives on their Learning, Experiences, and Research", HGSE Student Research Conference, Cambridge MA, March 7, 1996.

E. Cavicchi, "Painting the moon", a presentation to the Amateur Telescope Makers, Cambridge MA, June 9, 1993.

E. Cavicchi, "Painting the moon", a presentation to the Cincinnati Astronomical Society, Cincinnati OH, Dec. 22, 1991.

## **EXHIBITIONS and ARTISTIC WORK**

Illuminated manuscript copy of *Sagittarius*, in "Windows into Early Science and Craft: Selections from the Persian Manuscripts of the Minassian Collection", March 12-April 5 2010, John Hay Library, Brown University, Providence, Rhode Island.

[http://blogs.brown.edu/project/libnews/archives/2010/03/windows\\_into\\_ea.html](http://blogs.brown.edu/project/libnews/archives/2010/03/windows_into_ea.html)

Illuminated manuscript decoration, in "Windows into Early Science: Historical Dialogues, Scientific Manuscripts, Printed Books", April 22-July 23 2008, Houghton Library, Harvard University, Cambridge, Massachusetts.

Paintings in Faculty-Staff exhibition, Harvard Graduate School of Education, Gutman Library, April 2000 and 2001.

Painting, sculpture in 'Artists of Woburn', Woburn City Hall, February-March 1999.

Paintings in HGSE Council for the Arts Exhibit, Club Passim, Cambridge MA, November 1995.

Paintings, Sculpture in HGSE Council for the Arts Exhibit, Gutman Library, Cambridge MA, March 1994.

Woodcarvings in Open Studios, South Boston Distillery, Studio of J. Wheelwright, October 1994.

Woodcarving student of sculptor J. Wheelwright, 1981-1993.

Woodcarvings in “Three Woodcarvers”, Belmont Hill School, Belmont MA, April 1990, with A. Charney, V. Geller.

Etchings in Winchester Public Library, Winchester MA, 1984.

Art and Poster Exhibits with *Artists for Survival*:

University of Massachusetts Medical School, Worcester MA, 1988.  
Chicago Peace Museum, 1988  
Artists West, Waltham MA, 1983-92.  
‘Peaceworks’, Boston Visual Artists Union, Boston, 1985.  
Mass. Arts and Humanities, Boston, 1985.  
Children's Museum, Boston, 1985.  
Mass. State House, Boston, 1985.  
Pentagon Peace Ribbon, Washington DC, 1985.  
U. S. Congress, Washington DC, 1984.  
United Nations Secretariat, New York, 1983.  
MIT Historical Museum, 1982.

Poster exchanges or use in peace demonstrations:

New York City (1982), Washington DC (1983, 1985), Boston Common (1983--8),  
Woburn MA (1983-98), Lexington MA (1983--7), San Francisco (1984), Montana  
(1983), White House (1987), Nevada Test Site (1986--7), Leningrad, Moscow, Kiev, and  
Tadzhikistan, USSR (1984-8).

Art and Poster Exhibits with *Artists for Middle East Peace*:

New York NY, 1988. Conference on Alternatives in Jewish Education, Baltimore MD,  
1987. Mass. State House, Boston, 1986. Prudential Center, Boston, 1985.  
Poster exchanges: Jerusalem, Israel, West Bank, Bangladesh (1984-8).

Art Exhibits at Massachusetts Institute of Technology:

“Across the Waters”, text for dramatic reading with dance and music, MIT Chapel, 1987.  
Master's Thesis, “Arethusa”, MIT Student Center Library, spring, 1980. Fountain  
running through and out of ceramic figures.  
Ceramic Figures, Center for Advanced Visual Studies, MIT, fall 1978, spring 1979.  
Drawings, Building 7 Corridor, MIT, spring 1978.  
Revolving Door, Center for Advanced Visual Studies, MIT, 1977-8.  
Ceramic Bells, Center for Advanced Visual Studies, MIT, 1977-8.