



– OPEN SESSION –

**Reverse salients
in the histories of science and technology:
A conversation between dinosaurs**

Thomas P. HUGHES - University of Pennsylvania/MIT
John L. HEILBRON - University of California
Berkeley/University of Oxford

Chair: Jim BENNETT - Museum of the History of Science
University of Oxford

This Session is part of the XXVII Annual Symposium of the Scientific Instrument Commission

**Saturday, 20 September, 5 pm
Anfiteatro de Química
Museu de Ciência**

**Museus da Politécnica, Universidade de Lisboa
Rua da Escola Politécnica 56**

Thomas P. HUGHES

- Professor Emeritus, University of Pennsylvania
- Distinguished Visiting Professor, Massachusetts Institute of Technology

Thomas P. Hughes did his graduate work in European History at the University of Virginia. He has published books on American and European history with especial attention to the history of modern technology, science, and culture.

- *Networks of Power: Electrification of Western Society, 1880-1930* (Baltimore: Johns Hopkins University Press, 1983) and
- *Elmer Sperry: Inventor and Engineer* (Baltimore: Johns Hopkins University Press, 1971) won the Dexter Prize for outstanding books in the history of technology.
- *American Genesis: A Century of Invention and Technological Enthusiasm, 1870-1970* (New York: Viking, 1989) was a finalist for the Pulitzer Prize in history, 1990.
- With Agatha Hughes, he edited *Lewis Mumford: Public Intellectual* (New York: Oxford University Press, 1990) and *Systems, Experts and Computers* (Cambridge, Mass.: MIT Press, 2000).
- *Rescuing Prometheus* (New York: Pantheon Books, 1997) is about creating large technological systems.
- His most recent book is *Human-Built World: How to Think about Technology and Culture* (Chicago: University of Chicago Press, 2004.)

Among his essays are

- "Walther Rathenau: System Builder," in *Ein Mann vieler Eigenschaften* (Berlin: Klaus Wagenbach, 1990);
- "L'Histoire comme systèmes en évolution," *Annales. Histoire, Sciences Sociales*, Vol. 53, Nr. 4 (July-October 1998), p. 839-857

Hughes is a member of the American Philosophical Society; U.S. National Academy of Engineering; the Royal Swedish Academy of Engineering Sciences; and a Fellow of the American Academy of Arts and Sciences. The Society for the History of Technology awarded him the Leonardo da Vinci Medal; the Society for the Social Studies of Science gave him the John Desmond Bernal Award. The Johns Hopkins University named him a member of the Society of Fellows. The Royal Institute of Technology in Stockholm awarded him an Honorary Doctorate in Engineering in 2000 and Northwestern University conferred a Doctorate of Humane Letters in 2001.

He has been a Fellow of the Institute of Advanced Study, Berlin and a visiting professor at the Massachusetts Institute of Technology; the Royal Institute of Technology, Stockholm; Collegium Helveticum, ETH Zurich; Stanford University; Technische Hochschule, Darmstadt; New School for Social Research; and the Wissenschaftszentrum, Berlin. Among his fellowships are the Guggenheim and Fulbright. He has been chairman of the Dept. of the History and Sociology of Science, University of Pennsylvania; of the NASA History Advisory Committee; of the U.S. National Committee for the History and Philosophy of Science; and president of the Society for the History of Technology.

The late Agatha Hughes (1924-1997) has been his long-time editor and adviser. He is now married to Mary Hill Caperton.

John L. HEILBRON

- Professor Emeritus of History and History of Science, University of California at Berkeley

John L. Heilbron was educated at the University of California at Berkeley where he received the A.B. and M.A. degrees in physics in 1955 and 1958 and a Ph.D. degree in history in 1964 under Thomas S. Kuhn. He made most of his academic career at Berkeley, rising through the academic ranks to become Professor and Director of the Office for the History of Science and Technology in 1973, Class of 1936 Professor of History and History of Science in 1985, and Professor Emeritus in 1994.

He also served as Vice Chancellor of the University from 1990 to 1994. He has held visiting appointments as Andrew Dickson White Professor at Large at Cornell University (1985-1991), the California Institute of Technology (1995), Yale University (2002-2004), and the University of Göttingen (2005).

Since 1996 he has been a Member of the Modern History Faculty of the University of Oxford and Senior Research Associate at the Oxford Museum of History of Science. He is also an honorary fellow of Worcester College, Oxford.

The subjects of Heilbron's books on the history of science include electricity in the seventeenth and eighteenth centuries, Max Planck and his moral dilemmas, the use of churches in early modern Europe as solar observatories, the development and application of geometry, Ernest Lawrence and his laboratory, and biographies of Henry Moseley and Ernest Rutherford. These works, and the large number of papers he has published, deal with the technical aspects of science as well as the social, political, and institutional contexts in which science has been pursued in the past.

- For over twenty-five years he edited *Historical Studies in the Physical Sciences* (which he expanded in 1986 to include the biological sciences), one of the leading journals in the history of science.

Heilbron's scholarly work has brought him widespread international recognition. He has received the Sarton Medal of the History of Science Society, its highest award, the Koyré Medal of the Académie internationale d'histoire des sciences, the Pictet Medal of the Association for the History of Science and the Société de Physique et d'Histoire Naturelle of Geneva, the Pais Prize of the American Physical Society, the Premio Internazionale Galileo Galilei of the University of Pisa and the Rotary Club Internazionale d'Italia, and the Wilkins' Prize Lectureship of the Royal Society of London.

He has honorary doctorates from the University of Bologna, the University of Pavia, and the University of Uppsala, and the Berkeley Citation from the University of California. He is a member (foreign) of the Royal Swedish Academy of Sciences, the American Academy of Arts and Sciences, and the American Philosophical Society (1990).