



Center for

# Science, Technology, Medicine & Society

CSTMS @ Berkeley

## Director's Annual Report 2010-2011

For the

Office of the Vice Chancellor – Research

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## CSTMS Mission

As a laboratory for the 21<sup>st</sup> century university, the Center for Science, Technology, Medicine and Society (CSTMS) conducts **cross-disciplinary** research, teaching, and outreach on the histories and implications of scientific research, biomedicine, and new technologies.

The Center's core mission is to:

- **catalyze** cross-disciplinary research on knowledge production and technological change in the past, present, and future;
- **train new generations** of undergraduates and graduate students in multiple literacies; and,
- **generate broader impact** with rapid response forums and major public events on the pressing issues of our time.

CSTMS convenes students and faculty in the social sciences and humanities, the professional and medical schools, engineering, and the natural sciences to advance **collaborative accounts** of our complex world. We provide a space for **debate and dialogue** on the implications of new technologies, from geo-engineering to synthetic biology. We provide support for faculty and graduate students seeking **extramural grants**, and we seek to **integrate** leading academic research in science and technology studies with the work of policy makers, communities, and non-governmental organizations. We also promote the study of the interface of medicine, the humanities, and the qualitative social sciences. Through all of these activities, the Center seeks to place Berkeley at the leading edge of **global science studies** by foregrounding research and training on the transnational dynamics of knowledge production, technological innovation, and inequalities.

## Director's Narrative

Cori Hayden, CSTMS Director

CSTMS was launched in AY 2010-2011 in the context of broader efforts on campus to identify and strengthen areas of research that could benefit from the consolidation of administrative capacities and enhanced collaborative opportunities.

No university in the world can match the distinction of Berkeley across the sciences, engineering, humanities, and social sciences. CSTMS is located at the crossroads of these disciplines – and as such is ideally placed to develop Berkeley's role as a leader in this new area of knowledge production and practice. We have unusual faculty strength in studies of the societal implications of technology, medicine, and science, and we are in an excellent position to play a leadership role on these important themes. Faculty have been

stimulated by connections on campus to collaborate across programs and colleges on topics ranging from understanding error in medicine to studying the relationship between technology and politics in nuclear waste disposal. However, the fragmentation of reporting arrangements, support services, and funding previously kept this sort of work on a small scale. The result has been that Berkeley, in a class by itself in the breadth and depth of the relevant academic disciplines, has, until now, lacked a center that mobilizes this interdisciplinary excellence.

With the inauguration of CSTMS, it is now possible to consolidate disparate initiatives and provide the infrastructure to increase their scholarly productivity, range, and impact. This is the right moment to build on what we have accomplished already – in research, in faculty hiring, in education, in outreach – and take them to the next level. We have a committed group of faculty at all ranks who are ready to make the most of this opportunity.

CSTMS' agenda has been framed thus far through collaborations among the leadership of three entities with complementary approaches to the social and humanistic studies of science, technology, and medicine: the Office for History of Science and Technology (OHST), the Science, Technology, and Society Center (STSC), and the Program for the Medical Humanities (PMH), brought together in 2009-10 by the Social Science Dean, Carla Hesse. (See Appendix 1 for a brief description of each unit).

In line with our mission to provide a galvanizing intellectual center for all interested members of campus, a broad range of faculty input was solicited in Fall 2010. On September 24<sup>th</sup>, 2010, over 40 members of the faculty attended the two-hour CSTMS Inaugural Retreat, with an introduction by Dean of Social Sciences Carla Hesse. Participants ranged from Assistant Professors to Emeriti, representing fields as diverse as Art History, Engineering, History, Spanish and Portuguese, Anthropology, and Environmental Sciences, Policy and Management. Among the significant and concrete outcomes of the retreat were two successful proposals for new undergraduate and graduate training programs in science and technology studies (detailed below) – an accomplishment that has eluded us on this campus for many years.

In its first year, 2010-2011, CSTMS established a strong footprint within Berkeley and the broader academic community. Highlights included securing funding for a new Undergraduate Course Thread in *The Sciences and Society*; running 18 invited lectures; 4 conferences of broad public and interdisciplinary interest including the major *Nuclear Futures* symposium and the highly successful symposium, *The Reinvention of Time*; Rapid Response events on the nuclear crisis in Japan (co-sponsored with Engineering and the Institute of East Asian Studies); and performances involving the Program for the Medical Humanities and members of the Berkeley community. The Center's outreach efforts included the publication of 4 new issues of the leading academic journal, *Historical Studies in the Natural Sciences*, and we are currently running *four extramural grants*.

Cori Hayden  
Associate Professor, Anthropology  
Director, CSTMS



## Achievements and Impact

### Innovations in Pedagogy

Building on the strength of the existing PhD graduate field in History of Science, in 2010-2011, CSTMS spearheaded the development of two new curricular programs: the Undergraduate Course Thread in The Sciences and Society, with funding from the Townsend Center for the Humanities, and the PhD Designated Emphasis in Science and Technology Studies, developed in 2010- 2011, and submitted to Graduate Division in the summer of 2011.<sup>1</sup>



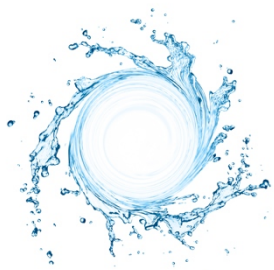
#### Undergraduate Course Thread in The Sciences and Society

In December 2010, CSTMS steering committee member Thomas Laqueur and CSTMS Director Cori Hayden received a \$30,000 Townsend Center grant to develop an undergraduate Course Thread in The Sciences and Society. The thread is essentially a path of relevant courses in all Divisions and Colleges on campus that can help Berkeley undergraduates explore or develop new interests in the humanistic and social dimensions of science, technology, and medicine. Courses cover topics as varied as the changing horizons of political action and social justice (as with social media and revolution); the intersections of literature and life sciences; and biomedical ethics.

Funded from January 2011 – December 2011, the Course Thread development process itself provided an important opportunity for research training. We drew vigorous student interest and enthusiasm in Spring and Summer 2011, attracting 18 URAP students (Undergraduate Research Apprentices) from majors as diverse as Molecular and Cell Biology, Engineering, French, Geography, and Biochemistry. The students interviewed faculty members across campus to identify and hence to help define the kinds of inquiry that would advance the goals of the Thread. With the Townsend funds, CSTMS also supported three researchers to coordinate the project: a postdoctoral fellow, a GSR, and an undergraduate student assistant. The entire project was overseen by a broad faculty steering committee with 8 members.

<sup>1</sup> The proposal was approved in Fall 2011.

The Course Thread on The Sciences and Society was mentioned as an **exemplar of the new model of undergraduate education** in the L&S Faculty Forum report on Re-Imagining Undergraduate Education at Berkeley. For more information on the program, see <http://coursethreads.berkeley.edu/course-threads/sciences-and-society>.



### Designated Emphasis in Science and Technology Studies

UC Berkeley boasts one of the strongest concentrations of faculty in the United States working in Science and Technology Studies. In 2010-2011, CSTMS faculty spearheaded the development process for a new Designated Emphasis (DE) in Science and Technology Studies. The DE will provide advanced graduate training in this field for UC Berkeley PhD students. It will also be a valuable recruiting tool for top PhD students whom Berkeley has too often lost to universities with formal Science Studies programs. Organized by Associate Professor David Winickoff (ESPM), the DE proposal preparation process generated a robust list of core faculty invested in participating in the DE. They represent 11 departments and 5 different Schools and Colleges across campus. We also secured pledges of support from the Chairs of the Departments of Anthropology, Geography, History, Gender and Women's Studies, and Environmental Sciences Policy and Management (ESPM). The DE proposal was submitted in Summer 2011.



### Graduate Training: History of Science

The existing PhD graduate field in History of Science continues to be a leading training ground for PhD students in this field. Run by OHST, the program provides critical research experience for graduate affiliates, of whom there were 7 in 2010-2011. Four graduate students were supported by OHST's research and publishing projects. The Center advances graduate training by providing infrastructure for a graduate colloquium in history of science (HIST 290), and the Brownbag seminars organized by visitors and graduate students. These events are open to the public and are a key part of the intellectual life of CSTMS.

### Special Events

#### **Ian Hacking, Professor of Philosophy Emeritus, Collège de France, "The Mathematical Animal" (October 29, 2010)**

In conjunction with his visit to Berkeley for the Howison Lecture Series (Graduate Council), Professor Hacking delivered a special lecture on the question of what makes it possible for human beings to be mathematical animals. His talk, attended by over 50

people, engaged cognitive science, neurobiology, cognitive history of science, and ethnography. The talk was co-sponsored by the Medical Anthropology PhD Program and the Science, Technology, and Society Center (STSC).



### Nuclear Futures (December 10-11, 2010)

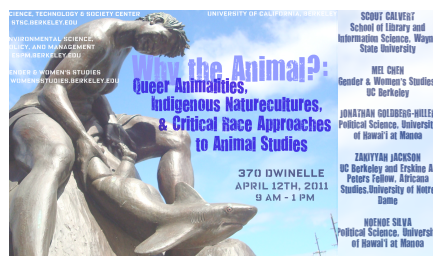
CSTMS's inaugural symposium, funded by Professor Thomas Laqueur's Mellon grant and organized by Professor Cathryn Carson, brought together an international group of researchers and policy makers to examine contemporary imaginations of nuclear futures and renewals. Prompted by then-prominent talk in US policy circles of a "nuclear renaissance," the workshop aimed not to identify the "right" nuclear future, but to better articulate the framework of debate. Speakers examined how experiences, strategies, toolkits, and existing practices structure conceptions of the possibility of a nuclear renaissance, from

major policy frameworks to the cultural politics of the nuclear age. See

<http://cstms.berkeley.edu/special-projects/nuclear-futures/> for further information.

### Rapid Response Events: Nuclear Futures in the Wake of Fukushima (March 16, 2011 and April 22, 2011)

In line with CSTMS' mission to engage the public and leading scholars on the critical events of our time, CSTMS organized on short notice two discussions addressing the implications of the Fukushima-Daiichi nuclear disaster in Japan as it continued to unfold. The presumption was that both the global horizons for nuclear power, and Japan's politics around risk and public health, were changing dramatically. Working closely with UC Berkeley's School of Engineering and the Institute of East Asian Studies, these symposia allowed leading researchers and members of the public to exchange data, forecasts, and their assessments, from distinct disciplinary locations, of the implications of the Fukushima-Daiichi events.



### Why the Animal? 'Queer Animalities,' Indigenous Naturecultures, and Critical Race Approaches to Animal Studies (April 12, 2011)

Co-sponsored by STSC, Department of Environmental Science, Policy and Management (ESPM) and Gender & Women's Studies.

The last decade has seen an upsurge of important scholarship in "animal studies" in fields as diverse as philosophy, anthropology, literature, film, biology, feminist and queer theory, and history. While this burgeoning area of inquiry amplifies the scope of social science and



humanities inquiry, it also tends to re-inscribe familiar starting points. This symposium, which drew participants from the natural sciences, the humanities, and the social sciences, asked, How can an engagement with indigenous theorists change the way we think about the nonhuman? This symposium featured the work of indigenous scholar Noe' Noe Silva (University of Hawaii), in conversation with researchers doing cutting-edge work in queer and critical race studies, to take animal studies in new directions.



### **The Reinvention of Time: Articulations of the Past and Future in the Scientific Present (May 6-7, 2011)**

This symposium was the first event in a series that will now, following its extraordinary success, continue on a yearly basis. Organized entirely by an interdisciplinary committee of graduate students, the event tackled a theme of pressing interest in their own research: the matter of temporality in science. Conference participants critically engaged with a conception of the future as an organizing site for scientific scholarship, and in so doing explored the extent to which a focus on the future calls into question scientific modes of engagement with other temporal frames. Co-sponsored by STSC, The Townsend Center for the Humanities, AGORA (Anthropology Student Group) and KAS (Kroeber Anthropological Society), the two-day symposium included one day of faculty presentations (including keynote speaker Michelle Murphy from the University of Toronto), and a second day of graduate student papers, curated by the organizing committee. Attendance (over 100 participants) exceeded expectations, and faculty and student response was overwhelmingly positive. CSTMS sees this kind of event as central to building intellectual community and we are committed to supporting a graduate-driven symposium each spring.

## Extramural Grants

In 2010-2011 CSTMS ran four major extramurally funded projects.

### Atomic Junction: Nuclear Power in an African Suburb (NSF – OHST)

With a three-year NSF grant, Assistant Professor Abena Osseo-Asare (History) is researching efforts to establish a major hub for nuclear power in Ghana. Complementing her oral histories and archival research, Professor Osseo-Asare is also conducting extensive video and film work. The resulting film will be a major outcome of this project, offering new perspectives on African science and technology. In AY 2010-2011, the grant supported field research in Ghana; video, editing, and transcription equipment; and wages for 4 students to transcribe footage and transfer the collected material to new media, for which CSTMS provided administrative support and lab space.

### Physics and History (Mellon – OHST)

Under a three-year Mellon grant (extended at no cost to December 31, 2011) Prof. Emeritus John Heilbron and postdoctoral scholar Marita Hübner finalized their project studying relations between experimental science and historiography in Europe during early-modern times. AY 2010-2011 saw the development of a new research outcome: a major edited volume on the heterodox 18<sup>th</sup> century scientist Jean-André Deluc: cosmologist, innovative instrument-maker, forerunner of Cuvier, pioneer of barometric hypsometry, and inventor of the word geology. This volume promises to make an important contribution to our understandings of 18<sup>th</sup> century European thought.

### Shaping Evolutionary Biology in Berkeley's Museum of Vertebrate Zoology (MVZ) (NSF – OHST)

This NSF-funded project brings together a historian, a biologist, a philosopher, and a sociologist (Cathryn Carson / OHST, lead PI; Craig Moritz / MVZ Director; Jim Griesemer / UC Davis Philosophy; Elihu Gerson / OHST Visiting Scholar and Tremont Research Institute, and postdoctoral scholar Mary Sunderland). The outcome will be a cutting-edge history of the MVZ, informed by the latest thinking in the sociology of institutions, the history of science, and the philosophical ramifications and future prospects of biodiversity science. Since its establishment as a research institution in 1908, the MVZ has built a remarkably successful and stable research program that continues to address the ideas of its founding director, Joseph Grinnell. While maintaining the Grinnellian traditions, the MVZ incorporated new technologies and concepts to develop special strengths in biodiversity, genomics, and informatics. The MVZ therefore provides a revealing window to the transformation of natural history and evolutionary science during the 20<sup>th</sup> century.



In 2010-2011, Sunderland's study of how education is woven into the MVZ's research program, "Teaching Natural History at the Museum of Vertebrate Zoology" was accepted by the *British Journal for the History of Science*. Carson, Gerson, Griesemer, and Sunderland presented their work in a three-paper session, "Thinking with Specimens: Collections-Based Research in the Museum of Vertebrate Zoology" at the annual History of Science Society meeting in November 2010. Sunderland's paper from the session, "Collections-Based Research at the Museum of Vertebrate Zoology" is forthcoming in the journal, *Historical Studies in the Natural Sciences*. A web exhibit, "Doing Natural History," was developed by the research team with the help of the MVZ's archivist and project member, Karen Klitz, and undergraduate research students, Genevieve Wong and Kristine Yoshihara. See <http://mvz.berkeley.edu/DoingNaturalHistory/>. The exhibit explores the changing landscape of natural history research during the 20<sup>th</sup> century.

### **Mellon New Directions Post-Fellowship Award, Training in Nuclear Engineering (NSF- OHST)**

The New Directions Program of the Andrew W. Mellon Foundation granted Professor Cathryn Carson \$50,000 in follow-on support to her previous fellowship award on the evolution of the science behind nuclear waste management. In AY 2010-2011, this grant enabled CSTMS to lay the foundation for two major initiatives on the history, ethics, and futures of nuclear power. Carson's \$50,000 supplement was drawn on in planning and hosting the major Nuclear Futures Symposium that she put on in December 2010, which brought together energy policy experts and nuclear engineers with academics in the social sciences and humanities. Funds supported a student assistant, Claudette Mandac, who coordinated important parts of the program. Mellon funds also supported Professor Carson's involvement in the Berkeley-University of Tokyo collaboration that presented the 2010 and 2011 Advanced Summer Schools of Nuclear Engineering and Management with Social Scientific Literacy. Funds were used to support Prof. Carson's preparation for the 2010 summer school and to conduct substantial planning for the 2011 summer school, which was co-organized by Prof. Carson, located in Berkeley, and centered on the topic "Reflections on the Fukushima Nuclear Accident and Beyond."

## **Synergistic Activities**

### **On Campus**

In addition to our public and academic events, CSTMS serves the campus community through a number of open forums. Our dynamic **Colloquium** series of invited lecturers and the more informal **Brownbag lunch** talk series attract faculty, students, and visitors from across campus.

**Working Groups** meet in the common space of Stephens 470 for research and writing collaboration. All members of the campus community are invited to propose and form working groups. CSTMS provides meeting space and infrastructure. 2010-2011 Science Studies (STSC) Working Groups included the following:

#### **Critical Innovation Faculty Working Group**

An interdisciplinary faculty group devoted to rethinking the history and nature of appeals to innovation. Themes of interest include but are not limited to intellectual property, access, and justice; historical and contemporary work on misuse, appropriation, and 'piracy'; and redefinitions of the relationship between private interest and the public good.

#### **STS Undergraduate Working Group**

A group organized by and for undergraduates to put together readings, courses, and projects related to Science and Technology Studies.

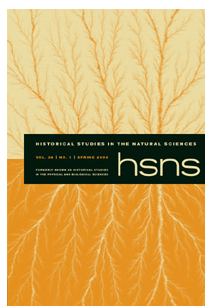
#### **Science Studies Graduate Working Group**

A biweekly writing group constituted by and for graduate students from departments including Gender and Women's Studies, Anthropology, and Geography, to workshop conference papers and dissertation chapters, and to explore reading and conceptual themes of common interest.

### **Visiting Scholars and Postdoctoral Fellows**

CSTMS's intellectual community is enhanced through one of the most dynamic homes for visiting scholars and visiting PHD students on campus. We hosted 29 visiting scholars in 2010-2011, from China, Japan, Portugal, Norway, Spain, and Italy, as well as from leading U.S. universities including Princeton and the University of Chicago.

### **Publications**



Within CSTMS, OHST produces *Historical Studies in the Natural Sciences*, a leading scholarly journal. For monographic work it disseminates the Berkeley Papers in History of Science. It is the original repository of the Archive for History of Quantum Physics, which it makes available to qualified researchers.

## Organization and Capacities

CSTMS is a new entity under the VCRO; it will be affiliated with the Institute for Integrative Social Sciences (IISS). (A graphic outlining the Center's organizational structure may be found in Appendix 2.) The Center is led by a faculty Director who reports to the VCR and in the future to the IISS Director. The CSTMS Director's term of service is normally five years. Reporting to the Director is a faculty Associate Director responsible for instructional programs, including serving as faculty lead for the Designated Emphasis.

For regular advice, the Director meets with an academic steering committee. The academic steering committee is composed of faculty who are directly involved in CSTMS's activities, including the heads of the Center's subsidiary units. The Center is in the process of constituting a consultative advisory board that includes a broad range of campus faculty and members from the larger community.

CSTMS carries out its mission through center-wide programs, faculty initiatives, and topical research units. Its current subsidiary units are the following: (see Appendix 1 for descriptions of each):

- The Office for History of Science and Technology
- The Science, Technology, and Society Center, and
- The Program for the Medical Humanities

The Center seeks to support other relevant programs, and it encourages faculty proposals for new programming. Units, initiatives, and programs report to the director of CSTMS, who, in consultation with the academic steering committee, decides on their establishment, scope, resources, and term.

CSTMS is set up to house research grants. It can administer research allowances for faculty members. These funds remain under the fiscal discretion and responsibility of the PI or faculty member. Programmatically, any program or unit within CSTMS that draws on faculty research allowances reports to the program or unit head (which may be the individual faculty member) and, through the program or unit head, to the director of CSTMS.

CSTMS partners with the campus's Research Enterprise Services for administrative services.

## Appendix 1: CSTMS Affiliated units 2010-2011

### The Office for History of Science and Technology (OHST)

OHST advances understanding of scientific theories, practices, and technologies from their origins to the present day. Drawing from the humanities, social sciences, natural sciences, and the technical disciplines, the Office fosters broader discussion of scientific and technological developments and aims to bring a **historical dimension** to the understanding of contemporary events. OHST runs the **scholarly journal**, *Historical Studies of the Natural Sciences* (HSNS).

### The Science, Technology, and Society Center (STSC)

STSC convenes a diverse community of scholars studying the conceptual underpinnings and consequences of scientific and technological knowledge and practice. With approximately 100 affiliated faculty and graduate students in the social sciences, the humanistic disciplines, and professional and public policy fields, STSC researchers have particular expertise in the **transnational dynamics of knowledge production**, and STSC-affiliated graduate students and faculty have convened lively working groups to push common themes, from critical innovation studies to 'emerging technologies'. With colleagues in OHST, STSC has contributed to placing Berkeley in the center of international research and training networks in science and technology studies.

### The Program for the Medical Humanities (PMH)

PMH engages in **interdisciplinary** scholarly reflection, research, and teaching on the **goals of medicine** and the roles of physicians and other health professionals in the communities and societies of the 21<sup>st</sup> century. Through the lens of the humanities, anthropology, and the social and behavioral sciences, PMH engages critically with, and develops alternatives to, prevailing perspectives on these issues provided by medical ethics, health policy, and health law.

## Appendix 2: CSTMS Organizational Structure

