Science and Justice Working Group

Science and Justice Working Group End of the Year Report 2008-09
And Proposal for 2009-10

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This document describes the activities of the Science and Justice Working Group (SJWG) in the academic year 2008-2009 and presents a proposal for the 2009-2010 academic year.

Contents

I. Summary of 2008-09 Activities

The Science and Justice Working Group formed in September of 2006 with the goal of expanding UCSC's historical focus on social justice to include questions about the formation of science and technology, and related public-policy debates. The initiative grew out of conversations between faculty in the Division of Social Sciences (Jenny Reardon, Sociology; Michael Hutchison, then Dean of the Division of Social Sciences), the School of Engineering (David Haussler, Biomolecular Sciences and Engineering (BMSE); David Deamer, BMSE; Steve Kang, then Dean of the School of Engineering), and the Humanities Division (Donna Haraway, History of Consciousness; Karen Barad, Feminist Studies). The Group recognized early on that to be successful, it would have to emerge from meaningful interdivisional dialogue, involving all five divisions of the University. In the academic year 2006-07, the group focused on building this dialogue. Although at the beginning of the year, the group consisted mostly of Social Science and Humanities faculty and graduate students, by the year's end, the thirty or so active members of the group are faculty, staff, and graduate students were almost evenly split between the Social Science, Engineering, Physical and Biological Sciences and Humanities divisions. The activities the Group pursued to build this interdivisional conversation consisted of a research seminar, a Critical Friends Series, a movie screening series, and end-of-year meeting.

In the 2007–2008 academic year, SJWG built on the success of its interdisciplinary events and dialogues, increasing regular attendance rate and hosting multiple well–attended public events. Our ability to encourage dialogue among people with varying intellectual background was facilitated by two decisions. First, we moved toward a problem driven model of inquiry. Rather than focusing on large, theoretical questions, we used specific problems as a concrete object around which we could discuss the major themes of our group. This model gave all members—social science, humanities, arts, engineering, and natural sciences—entree into the discussions. Second, as the Group developed more familiarity between core members, we found that a habit of "red–flagging" jargon or assumptions that members found disconcerting improved our dialogues.

In the 2008-2009 academic year, SJWG continued to sponsor interdisciplinary programming, hosted several well-attended symposia, and wrote a successful grant to the Ethics and Education in Science and Engineering division of the National Science Foundation (NSF). We continued to build on the problem-based model of inquiry adopted in the previous year and emphasized the small symposium format that worked well in the previous year's Race Work event. These events drew in larger than usual audiences, including from science and engineering departments. The NSF grant (entitled, "Ethics and Justice in Science and Engineering Training Grant") was awarded funding to develop a training program for graduate students that will sponsor research on ethics and justice in scientific practice. It will also fund research by Jacob Metcalf as a post-doctoral fellow. The intellectual foundation of the training program—that ethics

and justice are inextricable components of scientific practice and cannot be analyzed separately—grew out of the experiences of SJWG. Furthermore, the process of developing the program cemented relationships between SJWG, academic departments in the natural sciences, engineering, humanities, and social sciences. Although SJWG will continue as a distinct organization, the training program will formalize the methods of interdisciplinary inquiry developed by SJWG members, will share programming funding, and will provide new cohorts of regular participants within SJWG. Please see Section II for a more extensive description of the training grant.

Below is a summary of SJWG hosted and sponsored events in the academic year 2008-09.

SJWG Steering Committee

In the previous year, a group of regular participants formed Steering Committee in order to shape the agenda of SJWG. The Steering Committee meets three to five times per year, including a year-end meeting to discuss what was accomplished in the past year and discuss goals for the upcoming year. Members of the Steering Committee regularly contribute to the functions of SJWG by planning events, writing reports of events, designing flyers, and reflecting on the methods and culture of SJWG.

The following people served on the Steering Committee in 2008-2009:

- Hiram Clawson, UCSC Genome Browser Team
- Mark Diekhans, UCSC Genome Browser Team
- Martha Kenney, History of Consciousness
- Jacob Metcalf, Philosophy
- Natalie Purcell, Sociology
- Jenny Reardon, Sociology
- Shannon Williams, Sociology
- Travis Williams, Sociology

Bi-Weekly Research Seminar

The Group's bi–weekly meetings focused on themes that were of common interest to members across the disciplines. Some of these themes were central topics open for discussion in a given week, but they were often points of discussion following presentations or colloquia around a specific problem–based topic.

Curiosity as a Virtue

Doing "science and justice" work means creating an environment that supports efforts to engage with one another across differences. In the context of S&J research seminars, this meant creating an environment in which participants were willing to make mistakes and to revise their own positions, views, and practices. Central to this was the effort to cultivate curiosity as a virtue of the seminar space. "Being curious" implies stepping

beyond habitual modes of engagement in order to explore other possible ways of looking, questioning, and intra-acting [this term is too technical to be included in an end-of-year report without a footnote explaining what it means—perhaps replace with a different term, or explain what it means]. Many of our Science and Justice events have been oriented toward cultivating curiosity as a virtue, including our ongoing "critical friends" series.

Scientific Literacy

In recent decades, on both sides of the political spectrum, we have seen an increasing tendency for people to react against new developments in science and technology. Debates about stem cell research and genetically engineered foods are cases in point. We agree that it is absolutely necessary to recognize and address the potentially negative consequences of scientific innovations, but, as SJWG member Donna Haraway suggests, we need to learn to respond to these developments instead of reacting. Whereas "reaction" has the connotation of an unconscious reflex or a conditioned behavior, "response" suggests taking a step back to understand the situation so that one can intervene effectively. In the Working Group, we sought to develop to our ability to respond to both developments in biotechnology and each other's different perspectives on the position of science in society. This was achieved by incorporating some reflexive discussion in about the Group itself within most events.

These efforts were bolstered by also incorporating Working Group member Karen Barad's emphasis the importance of "scientific literacy". Scientific literacy is not simply a matter of educating non-scientists about how science works. For Barad, the important question is: What does it mean to do science responsibly, and what kind of literacy is required for that? There is no formula for "how to do science responsibly", and therefore what "scientific literacy" means, and whose literacy we are concerned with, depends on the context. The Working Group's problem–based approach proved to be fruitful for developing a broad notion of scientific literacy. The Working Group was able to successfully incorporate ethical, historical, social, and technological contexts and implications of the topics under discussion.

Partnerships in Science and Justice

The demands of thinking critically about science and social justice require that we challenge current notions of "expertise." The idea that we can turn to scientific "experts" to interpret recent scientific findings, or "ethical experts" to explain the ethical implications of emerging technologies has become deeply problematic because fields of expertise can't be separated out so neatly. The really important questions often arise at the limits, boundaries, and intersections of expert domains.

In order to confront the moral and political complexities of our times we need new forms of dialogue, new hybrid languages, and new kinds of research collaborations. This is the idea behind "partnerships in science and justice". Under this heading we explored what kind of partnerships are coming into being that can adequately respond to specific

situated concerns at the intersection of scientific practice and social justice activism. Partnerships such as these necessarily transform the meaning of “expertise” because they require a greater degree of communicative competence across fields of knowledge.

In some of our recent events, the Science and Justice Working Group has considered the promises and challenges of partnerships in environmental justice (popular epidemiology, toxicology and toxicogenomics) and alternative energy and transportation systems (biofuels, personal rapid transit).

Reframing Bioethics

Given the interdisciplinary character of SJWG, there are many opinions of what bioethics as a discipline can and ought to do with regard to biotechnological problems. One of the virtues of the SJWG is the ability to illuminate the many points at which ethical decisions get made, and sometimes the places that they fail to get made. Thus, a common theme in our discussions was opening up the methods available to ethical inquiries. We found that bioethics as a discipline and institution often “arrives too late” at the table to make important interventions. A general consensus in the group is that traditional applied ethics methodologies that understand ethics as abstract value mediations are partly to blame for this problem. Because biotechnology often involves practices that remakes boundaries that often taken for granted, such as between species or individual human subjects, ethical theories that rely on those boundaries being stable and determinate fit poorly within the challenges that biotechnology presents. Our discussions often sought to reframe ethical inquiries around a broader conception of flourishing for the human and non–human actors under consideration. Such an approach understands that an important aspect of ethical inquiry is accounting for the ways that our knowledge producing practices, our ethical concepts, and the materiality of our scientific endeavors are all entangled together. Thus, our conversations often contained critical engagements with ethical theory and methodology, allowing interdisciplinary reflections of the stakes in biotechnology.

Guest Lectures and Colloquia

In the 2008–09 academic year, SJWG hosted and co–sponsored a number of guest lectures and colloquia. These events often had sponsors in multiple university divisions.

Jacob Metcalf & Sarah Richardson: **“**Ethical and evidential standards in genomics claims about brain size, race, and IQ”
October 15, 2008

This joint seminar between the Science & Justice Working Group and Genecats offered a bioethics perspective on the recent controversy over the relationship between variants of so-called "microcephaly" genes and intelligence. In a pair of Science articles in 2005, University of Chicago Howard Hughes researcher Bruce T. Lahn claimed that allele

variants for genes mediating intelligence have undergone recent positive selection and that these variants show the highest incidence in European and Asian populations and lowest in sub-Saharan Africans. These claims received considerable coverage in the popular media, and Lahn subsequently collaborated with the notorious race researcher J. Philippe Rushton to test whether these genes might account for putative racial differences in intelligence. Lahn and the University of Chicago also filed a patent on the genes for a proposed genetic test for IQ. Metcalf and Richardson profiled the methodological and ethical questions raised by this research and assessed the research community's response to Lahn's claims. The authors urged a rich and reflexive conversation within the scientific community about the standards necessary to make connections between specific genes and human population variation in intelligence. The lively discussion throughout the presentation focused on the nature and acceptability of scientific speculation and the different attitudes regarding responsibilities for speculation in the “Discussion” section of scientific articles.

Linda Layne: **“**Feminist Technology: A Neglected Strategy for Social Change” November 20, 2008

Linda Layne, Hale Professor of Humanities and Social Sciences, and Professor of Anthropology in the Department of Science and Technology Studies at Rensselaer Polytechnic Institute, presented a talk entitled "Feminist Technologies: A Neglected Strategy for Change." This talk was co-sponsored by the Department of Feminist Studies and the Science & Justice Working Group. Layne used the lens of anthropology to explain why women are ill-prepared for miscarriage, stillbirth, or early infant death and why the feminist movement has not fully embraced this women's health issue. Her most recent book *Feminist Technology* with Sharra Vostral and Kate Boyer will be released soon by University of Illinois Press.

Rene Almeling and Jenny Reardon: “Altruism and Its Limits: A Conversation” January 14, 2009

Contemporary life sciences and the biotechnology markets require unprecedented amounts of human biological materials. Whether these materials are collected for biobanks for research, sperm and egg banks for reproduction, or personal genetic testing, increasingly human beings are being solicited for their DNA, eggs, sperm, organs, spit, and other bodily tissues. How should this extraction of human biological materials be understood? Since the publication of Richard Titmuss’ The Gift Relationship in 1971, dominant policy and research communities have viewed “altruistic” acts of giving of bodily materials as morally preferable. However, can “altruism” continue to be used as a moral compass in the growing number of contexts in which bodily materials are collected? What might altruism mean in these different contexts? What other frames are available for understanding acts of collecting biological materials? How might ideas and practices of collecting samples from human beings change if collections of human tissues were thought through in relation to collection of tissues from other species? Rene Almeling (Robert Wood Johnson Health Policy Scholar, UC Berkeley/UC San Francisco) started the discussion of these questions with

a presentation of data from her interviews with egg and sperm donors about how framing donation as a gift or a job shaped their experiences of bodily commodification. Jenny Reardon (Sociology, UC Santa Cruz) followed with some observations from her research on the roles and meanings of altruism in the construction of national biobanks.

Dee Hibbert-Jones: **"**Art, the Death Penalty and Questions of Representation: A Conversation"
January 28, 2009

In this session, Dee Hibbert-Jones (Art Department) discussed questions about representation and ethics raised by her and fellow artist Nomi Talisman's effort to describe the experiences of the families and children of prisoners on death row (the results of their effort come together in the artwork, Impact-see http://deehibbert-jones.ucsc.edu/Impact_01.html). At issue in the discussion were questions about the relations between the arts and knowledge production about public problems.

Warren Sack: "Software Design and Social Justice: A Conversation"
February 11, 2009

Warren Sack (Associate Professor of Film and Digital Media) joined SJWG to talk about issues of software design and justice. In particular, he took up questions about how software gets evaluated, and considered ways in which "good" software might also be socially good.

Cori Hayden: "The Limitations of 'Benefit Sharing': A Conversation"
February 25, 2009

Cori Hayden (UC Berkeley, Anthropology) presented her research about the challenges of adopting social justice interpretations of intellectual property law. Hayden posed the question: What are the implications of configuring a justice language of access around the terms of intellectual property itself? In her research about pharmaceutical generics in Latin America, Hayden demonstrates that when social justice movements in health care and biotechnology adopt a model of wide public 'access' to intellectual property they run the risk of reinforcing the model of private property in ways that they did not intend. In particular, framing the debate about intellectual property as a fight between 'oppressive intellectual property' and 'liberatory generics' cements a dichotomy between proper and improper copies that may obstruct more useful ways of thinking about public access to the benefits of biomedicine. Instead of looking for the perfect language to describe intellectual property in biomedicine, Hayden encouraged us to think about the types of accountability that we might desire in a more just framework of social justice and access to technology. By focusing on accountability regimes we are able to raise questions about what unexpected effects of introducing generics might arise, as opposed to enthusiastically supporting generics because they are 'liberatory.' Hayden suggested that this way of thinking about generics could be extended to other forms of biotechnology.

Deborah Bird Rose and Thom van Dooren: **“**Ethics & Exposure in the Time of Extinctions”
April 1, 2009

Deborah Bird Rose and Thom van Dooren visited us from Sydney, Australia to talk about the possibility of what they call an "ecological humanities" in a time of extinctions. Deborah Bird Rose and Thom van Dooren are shapers of the Ecological Humanities group, which defines itself this way: "The ecological humanities bring together ways of knowing and interacting with the world from the sciences and the humanities, as well as from indigenous and other 'non-western' worldviews, nourishing the connectivities and possibilities that these dialogues produce for people and the more-than-human environment." Rose and van Dooren are working on a research project that brings the humanities and ecology into dialogue around the current mass anthropogenic extinction event. This project aims to invigorate new understandings of ourselves as the species that is both responsible for, and mutually implicated in, so much suffering and death. In this colloquium Rose and van Dooren discussed two aspects of their work, focusing on the ethics of witness in multispecies communities and exposure to our own entangled accountability.

Elizabeth Shove: “Indoor Environments and Social Justice: A Conversation”
May 13, 4:30pm – 6:30pm

Professor Shove (Lancaster University) joined the Science and Justice Working Group to discuss how standards and expectations for ‘indoor environments’ have been established, and how they might be managed in the future. As Professor Shove notes, the energy used in keeping buildings warm and cool around the world is huge. One reason for this is that people have come to expect standard conditions all year round. Historically, this is a very new development. Professor Shove will discuss the possibility of changing these expectations, and whether/what quite different social and technical conventions could or might have to take hold. For example,. the Japanese government have introduced the idea of wearing lighter clothing in the summer and are setting thermostats to 28 degrees C. More generally this topic raised wider issues about the body and environment; sweat, nature, culture, and infrastructures.

Symposia and Conferences

See Addendum for appended full reports on these events.

Energy Worlds: A Panel Discussion on Climate Change and our 21st Century Energy Needs
April 15, 4pm – 6pm
The Simularium (Engineering-2, Room 180)

Featuring:
ALI SHAKOURI: Electrical Engineer / UCSC; Thermiotic Energy Conversion Center
JOHN SHINN: Chemical Engineer & Policy Specialist / Engineers without Borders; Chevron
JOE JORDAN: Activist & Educator / Ecology Action of Santa Cruz; formerly NASA; the SETI Institute
DAVID BLUME: Best-selling Author & Activist / International Institute for Ecological Agriculture
ROBERT BAERTSCH: Engineer / NASA Ames; Biomolecular Science & Engineering, UCSC
ANDREW SZASZ (MODERATOR): Environmental Sociologist / UCSC JOIN US: *

In this conversation about energy and climate change matters of social, economic, and environmental justice took center stage. Speakers emphasized technological and policy interventions that respond to climate change and the energy crisis, noting the possibilities and limitations of specific technologies. They identified and experimented with ways of speaking across different areas of expertise and political orientations as we work to address key public issues in science and technology. Sponsored by: The Science and Justice Working Group, the Department of Sociology, the Department of Environmental Studies, the Department of Earth and Planetary Sciences, the Center for Information Technology Research in the Interest of Society (CITRIS), and College Eight.

Technoscience and Social Change: A Panel Discussion
May 27, 5pm – 7pm
Engineering 2, 599

Featuring:
Caroline Bassett (University of Sussex, Media and Film)
Warren Sacks (Film and Digital Media, UCSC)
Fred Turner (Stanford, Communications)
Kate O'Riordan, moderator (Center for Cultural Studies, UCSC, and Media and Film, Sussex)

Technoscience can interact with social change in unexpected ways. On the one hand, new forms of technoscience often reshape social and political landscapes. On the other hand, they can further entrench those same landscapes, making them more resistant to change and social justice agendas. Much attention has been paid to this dynamic in information and communication technologies, but less so with biotechnologies and genomics. For this panel discussion, panel participants joined members of the Science and Justice Working Group to explore the relationship between ICTs and social and political change, and thought comparatively about the case of genomics.

II. National Science Foundation Grant

Overview of the grant and its impact on SJWG

In March 2009, Reardon (with the help of Metcalf) submitted a grant proposal to the NSF titled “Ethics and Justice in Science and Engineering Training Grant.” The funding awarded by the NSF will support the formation of a pilot interdisciplinary training program for graduate students interested in the nexus of scientific practice and ethics and social justice. Students will be provided training in conducting in situ analysis of ethics in scientific practice and those accepted as Science and Justice Fellows will receive two quarters of funding. We anticipate that this will increase the number of participants in SJWG events and provide closer connections with other entities at UCSC.

The central principle of the training program is that ethics and justice are integral components of scientific practice and should not be studied in isolation from each other. This program draws on the insights from recent works in ethics pedagogy and science and technology studies (S&TS) that ethics education in engineering and sciences should draw students’ attention to ethical problems that arise from within their own practice, rather than focus on individual decision making. The literatures supporting this proposal diagnose a key problem in dominant methods of ethics pedagogy and inquiry: by treating ethics and justice concerns as external to good scientific and engineering practices it is common that possibilities for ethical interventions in science and engineering are missed and scientists and engineers experience ethics as irrelevant to their disciplines. This program remedies this problem by training graduate students in *in situ* analysis of moments within their own research in which good scientific and engineering practices require attentiveness to ethics and justice. These explorations would yield new approaches for creating practices of science and engineering that are both epistemologically robust and ethically responsible. It builds on institutional strengths at UCSC, where leading S&TS scholars have come together with leading scientists and engineers to create cross-disciplinary collaborations. This proposal also funds Metcalf as a postdoctoral fellow that will both support the pedagogical components and conduct individual research with bioinformatics and genomics labs at UCSC that models interdisciplinary inquiry for the program participants.

In order to develop this proposal, Reardon and Metcalf met and collaborated with faculty, departments chairs, and deans from throughout the university. The collaborations with the staff and faculty of BME were particularly fruitful. There were also unexpected opportunities for collaboration with groups outside of SJWG’s usual partners, such as the BINRIDI program at UCSC’s Silicon Valley campus and the Applied Mathematics department. These collaborations demonstrated substantial support for the mission and activities of SJWG. A portion of the training program’s funding will come from matching funds offered by department chairs and deans to supplement the cost of their graduate students’ participation. While the funding in itself is important, there will be meaningful intangible benefits to SJWG in terms of increased membership, visibility, and long-term institutional support. As a pilot program, this

training grant may be leveraged for continued funding in the future from the NSF or other external funding sources.

See the appended documents for the complete grant application.

Proposal Summary as submitted to the NSF

Abstract: This proposal requests funding for an interdisciplinary pedagogy and research training program in issues of ethics and justice in science and engineering practice. The core goal of this program is to train graduate students from the humanities, social sciences, engineering, and natural sciences in a common literature and research practices that would enable them to produce innovative and collaborative research projects that explore relations between science/engineering and ethics/social justice and experiment with new practices of knowledge and justice. Concomitant with recent attempts to reconsider some parameters of ethics pedagogy, and building on institutional strengths at UCSC, this program draws on science and technology studies (S&TS) for its philosophical orientation and research agenda. The requested funding will support these efforts by providing students with one term of funding per year while participating in the program. Participation will entail two seminars, regular attendance at events, and public dissemination of results. The PI and postdoctoral fellow will produce pedagogical research regarding the methodology and outcomes of this project, in addition to research conducted individually by the postdoctoral fellow.

Intellectual Merit: The intellectual merit of this project is the synthesis of ethics pedagogy with science and technology studies scholarship in order to innovate novel practices of science and engineering as well as ethics and justice. The project pragmatically grounds S&TS theories of co-production in the on-going practices of science and engineering, showing *in situ* the places where science and justice meet. By training students to create ethical inquiries from within their own research, this program innovates new scientific practices and ethical practices. It builds on and extends institutional strengths at UC Santa Cruz, where leading S&TS scholars have come together with leading scientists and engineers to create cross-disciplinary collaborations, most notably the Science and Justice Working Group. It takes particular advantage of the PI's expertise in theories of co-production, as well as her skills in creating interdisciplinary collaborative research.

Broader Impacts: Through clarifying how science/engineering and ethics/justice meet, the training program will open up new ways of doing science and engineering that are both more robust epistemologically, and more responsive to a broader range of human concerns. Students trained in producing robust and responsible scientific practice will continue to propagate the methods as researchers and professors, contributing to wider efforts in producing interdisciplinary approaches to ethics in science and engineering. At UC Santa Cruz, the project contributes to the University's current effort to integrate the value of diversity into research programs, both by formally linking with diversity program funding and by providing insights into how to translate diversity (a sometimes

overly broad or vague concept) into changed pedagogical and institutional practices. Additionally, the project will offer a formal venue for the productive collaborative work already being done at UCSC and function as a pilot program for more extensive and formal S&TS graduate education. Research produced by participants will be disseminated via public symposia and offered online in a format accessible to interdisciplinary audiences. Pedagogical outcomes will be disseminated by the PI and postdoctoral venue via conference presentations and targeted journals.

III. Future Directions and Proposed Activities

The Working Group will continue to build on our successes in terms of developing a problem–driven approach to interdisciplinary discussions and build on our substantive themes from the previous year. In addition to our regular work, we will also be implementing the first stages of the NSF grant, including extensive collaborations across the university.

The SJWG Steering Committee proposed the following as priorities for the next year:

- Revisiting two or three central thematic questions, particularly focusing on developing a better articulated understanding of 'justice.'
- Conduct more collaborative conversations, emphasizing discussion across disciplinary divisions. In the future, we hope to conduct such discussion in a more structured manner, including meeting with discussants before hand to establish common interests. We also plan to encourage faculty to bring their graduate students and laboratory staff.
- Return to the basics of the group, focusing on developing our methods and practices for thinking and speaking together successfully, particularly across disciplines. Reflexive consideration of the barriers to cross-disciplinary discussion has been a substantial strength SJWG but was not consistently addressed in this past year.
- Although the group has addressed many topics, there are several clear themes that have developed over the past three years which we will continue to pursue in our schedule:
  - Genomics and Justice: How does the field of genomics interact with questions of social justice? One promising possibility for an event is a discussion about the impact of the rapidly growing field of personal genomics and how that will effect publicly funded genomics projects, such at the UCSC Genome Browser.
  - Energy Worlds: How ought we to respond to energy production and consumption through the lens of science and justice? SJWG Steering Committee member Natalie Purcell and Travis Williams have taken the lead on these meetings and will develop a plan for another meeting in 2010.
  - Art and Science: How does art interact with scientific knowledge?
- Revise and expand SJWG's web presence. The current site, http://www2.ucsc.edu/scienceandjustice/index.php, is underutilized. We intend to redesign the site and offer more extensive reporting of our activities and conversations. A stated goal of SJWG is to archive the outcomes of our discussions so that the knowledge produced is not lost over time and we will make better use of the website to conduct this archiving.
- Likewise, we will look for new networking opportunities with similar groups in order to conduct conversations across space. We are especially interested in developing an online relationship with the UK Genomics Network

IV. Addendum

The following are selected documents representing accomplishments and activities of SJWG during the 2008-09 school year.

Full Reports from Conferences and Symposia

The Energy Worlds Conference Panel
4/15/09 at UCSC Simularium
Report by Travis L Williams

This year a capstone event of the Science and Justice Working Group was the Energy Worlds conference panel, which built on the Energy Worlds theme that has developed over several years, led by Travis Wiliams and Natalie Purcell, along with the help of other members of SJWG. The Energy Worlds series has allowed the extension of some previous SJWG themes into a new arena, in conjunction with the framing of questions around science and justice in the context of energy production and consumption. This was the third successful public Energy Worlds event that we have organized.

The Energy Worlds conference panel event was designed to stimulate and facilitate public discussion with and among experts about energy and climate change with a central focus on matters of social, economic, and environmental justice in the context of formal policy and technical interventions into the current energy crisis. Our goal was to help identify and experiment with ways of speaking across different areas of expertise and political orientations as we work to address key public issues in science and technology.

The event featured Professor Ali Shakouri, an electrical engineer from the UCSC Thermiotic Energy Conversion Center; John Shinn, a chemical engineer and policy specialist who works for Chevron and sits on the board of directors for Engineers Without Borders; Joe Jordan, public activist and educator and board member of Ecology Action of Santa Cruz; David Blume, best-selling author and activist and member of the International Institute for Ecological Agriculture; and Robert Baertsch, engineer for NASA AMES PhD Candidate in UCSC's Biomolecular Science & Engineering. The forum was moderated by Professor Andrew Szasz, an environmental sociologist in UCSC's sociology department.

Shakouri's presentation included an introduction to energy conservation and sustainability practices and renewable energy and related social policies and technological interventions. He talked specifically about the problems and potential of solar energy and compact thermal energy storage from local to global scales. Shakouri provided an overview of the major sources of world energy consumption and production as well as projected future scenarios concerning the viability and innovative potential frameworks for understanding those processes as well emerging technologies around contemporary energy systems.

Shinn discussed historical and present approaches to environmental, social, and economic problems associated with energy production and consumption. His talk focused on presenting opportunities for policy-development and collaboration among nonprofits, governments, and industry. Shinn described himself as an 'economic environmentalist' and argued that 'capitalism can, should and must be harnessed to succeed in advancing human and environmental well-being.' This is in line with what many have referred to as green capitalism, a highly contested concept referring to the greening of consumer capitalist institutions. Shinn emphasized that capitalism should be harnessed for the enhancement and improvement of social development.

Jordan gave a broad overview of potential policies and technological interventions to address climate change and the energy crisis, and evaluated the feasibility and potential impacts of various approaches. Transportation and large-scale solar technology development were key theme of Jordan's presentation. Jordan's presentation focused on the potential for solar energy solutions to the global energy crisis. He also discussed strategies for the integration of economic and social justice concerns into policy development and technological development concerning energy production and consumption. In addition to discussing policy and technological interventions around energy, Joe Jordan discussed the importance of poverty and deprivation in the production of viable global solutions to the energy crisis.

Blume discussed technological interventions to address climate change and the energy crisis, with an emphasis on the viability of ethanol-based biofuels derived from corn in the context of several national and international ethanol development projects of which he was a part. Blume talked about efforts to evaluate the interlocking webs of environmental, social and economic consequences of ethanol technologies as compared with other potential technological interventions for the energy crisis.

Baerstch discussed climate change and the energy crisis. Baertsch devoted special attention to projects of the NASA GREEN team, especially their algal biofuels program for aircraft. His presentation also addressed emerging ideas and arguments around the proper evaluation of the environmental, social, and economic consequences of these interventions into energy production and consumption.

This year's Energy Worlds event was attended by a very diverse and interdisciplinary group comprised of undergraduate and graduate students, professors and instructors, and interested members of the public.

Technoscience and Social Change Report
May 27, 2009

Event Summary

This event brought together a panel of people working on ICTs and social change, together with the Science and Justice Working Group at UCSC. The aim of the meeting was to generate discussion about the relationship between ICTs and social and political change, and to think comparatively about the case of genomics. The objective was to use this discussion to help identify an agenda for further inquiry for the Science and Justice Working Group.

Panelists were asked to speak for about 10 minutes each on this broader topic and the following core questions were circulated before the event:

How if at all does digital utopianism relate to biotechnological utopianism? How are they the same/different?

Do you see any ways in which either forms of utopianism relate to social justice?

By now we know something about how information and communication technologies become domesticated and lose their aura as technologies. Can we learn from them about how this might happen with biotechnology? Or doe biotechnology present us with a wholly different case?

Core themes: technology and social change, social justice, utopian impulses, connections between ICTs and biotechnology, domestication, personalization, participation

Challenges: ecological disaster, massive global inequality, economic recession

Summary of Speaker's Comments

Fred Turner (Stanford University, Communications Department)

Fred Turner started his reflections with a question: How did computers go from being an elite component of the Cold War apparatus with a bad public image (evidenced by students at Berkeley wearing computer cards as a protest against "the machine"; also think Ken Kesey's One Flew Over the Cuckoo's Nest) to a vehicle of digital utopianism carrying the hopes of the counterculture?

His answer: it takes a network entrepreneur such as Steward Brand. By network entrepreneur Turner means someone who gathers together disparate types of people (like activists, artists, people in business, graphic designers, journalists, engineers and technicians) to creates contact zones where people can talk to each other across

difference. These are zones where the cultural capital and legitimacy are exchanged that facilitate the linking of a technology that has some capital associated with it (like the internet) with a social vision that has some capital (like the counterculture). It is this articulation of a technology with a social vision facilitated by a contact zone (for example, Wired magazine) that enables the change in meaning of a technology (Turner's non-computer example: Barnum had no circus skills, but was able to bring together the right people to get people excited about his circus.) In other words, Turner argued that if you are able to claim this is my vision of society and it is manifest in the technology of the internet, network entrepreneurs, with help from contact zones, had a powerful affect on how the internet was framed.

Turner's question: Does this model apply to biotechnology? Certainly a question similar to the one that Turner asks about computers could be asked of genetics/genomics: How did the study of human genes move from a eugenic totalitarian activity in the mid-20th century to the liberatory utopic project of the 21st century? Futher, can we find network entrepreneurs and possibly new contact zones in this domain? 23andMe would be appear to be a good candidate.

Questions

Genomics has emerged from a science with a bad name [20th century eugenics] to become the champion of 21st century biomedicine. Are there parallels with computing in this shift?

In the 1990s we had digital utopianism with all is associated claims. This clearly helped domesticate the technology [creating markets], and the take up of computing at the personal level. Did any of the utopianism actually lead to any good results in terms of social justice? Did the dream of the common language and the global village contribute to greater inequality, ecological disaster and economic recession? Is there a link between techno-utopianism and inequality?

In terms of social justice is the move to personal genomics and the biotechnogical utopianism of the 21st century more than the domestication of a biotechnology or the creation of markets for genomics?

Caroline Basset (University of Sussex, Film and Digital Media Department

Caroline Bassett opened her comments by suggesting that we need to think about what kind of social justice we are interested in. The conception of social justice encoded in the fist on the S&J poster for this event evokes particular visions of social justice. The UK inaugural issue of Wired, which featured Thomas Paine on its cover, presents another: here computers are presented as a liberatory force which, like the United States in its infancy, can "make the world anew." Such claims to, and about, social justice made by early computer entrepreneurs (who wrote articles for Wired), Bassett contended, are too abstract and disembodied to bring us to concrete questions about lives enabled and not enabled by computers, questions that should be at the center of

any discussion about technoscience and social justice. To think about connections between information communication technologies, biotechnologies and social justice, ideological hype must be replaced by understanding of specific material forms.

Bassett found this specificity lacking in the versions of digital utopianism espoused by early internet entrepreneurs (and, one might add, by contemporary biotechnology entrepreneurs). Such entrepreneurs promoted visions of computer-enabled transcendence of the body and global consciousness. This, however, Bassett contended, never was possible or desirable. People did not become part of a common humanity through entering the ether; rather, people engaged with computers as another form of a technology of the self that enabled them to forge new ways of narrating (and thus, forming) themselves. As Bassett explained, the take-up of "the web produced a huge explosion in narration: of the self, of life stories, events … where action and narration were embroiled together in exciting new ways." Far from databases ending narrative, narrative became transformed and, in the process, re-invigorated. People tapped into this new source of possibility, finding new forms of expression and social organization through web-based communication.

Yet at the same as this type of bottom-up ability to engage in narration took off, government agencies and corporations of all kinds began to use internet technologies to create new forms of narrative about people (i.e., through collecting data of all forms, and using this data to create accounts of people). This ability to narrate oneself via a technological form that also subjected oneself to narration by others (what Foucault described as the central phenomenon of "technologies of the self") raises concrete questions of justice: when there is a discrepancy between one's narration of self and one's 'data self,' how is this difference reconciled? Who decides? These are the questions of power, justice and ethics that matter.

As our 'data selves' becomes more embodied through biotechnological databases like DNA databases (today constructed by a wide range of entities—from the National Institutes of Health to the Wellcome Trust to 23andMe), such questions become more urgent. More is at stake in how and for what ends data selves get reconciled with our how we narrate ourselves. As this happens, the relevant questions of justice become less about who can connect (questions that have been operative in 'the digital divide' discussions, and that have found new form in contemporary efforts to'democratize' access to genomic information) and more about the terms of connection. These questions are not merely technical; they are also political questions. Thus, Bassett argued (invoking the ideas of Hannah Arendt) they must be public questions—discussed, debated and decided within public spheres.

Bassett concluded by reflecting on some of the challenges entailed in constructing these public spheres. Today we are witnessing more and more delegation to networks, more automation of our lives. In such an automated world, critical questions arise about where to find spaces of discernment, decision and judgment —that is, the space of the public sphere (our science and justice working group?!?!?). Bassett ended by

suggesting that this space might be partially constituted in the web itself through the creation of a web that makes its decisions processes more visible. In her words:

The point is a new negotiation. And one that is constructed partly in code, using new tools to make new tools visible. For instance, would it be possible to design something that signals, even as it is used absent mindedly, what it is that is being given and gained, what it is that is being taken and used (which bits of earth, whose labour – yours and other peoples?)

In these terms, an ethical internet would articulate, as a dimension of its intelligent operation, the relations of production and consumption each operation it computed contained … To build this kind of awareness of these kinds of multi-accented footprints - the carbon cost, the labour relations, the long shadow of our own intersections, actions and reactions - would be to develop an ethical internet. This would operate beyond privacy but with a responsible sense of the visual. It would perhaps constitute a Smart form of Fair Trade…

Questions

As genomics joins the machines that narrate us, in what ways do we gain or lose control of our ability to narrate ourselves? Are the issues the same or different as informatics becomes bioinformatics?

Warren Sacks (Film and Digital Media, UCSC)

Warren Sacks argued that the kind of change involved with computers and ICTs are important in thinking about social change because the development of computers does not just entail a technological change, but a medium change. By medium Sacks means something that plays a "mediating role between many people," something that "connect [s] and separate[s] friends, families, neighbors and nations." He used the example of newspapers. Newspapers, Sacks argued (drawing upon the work of Benedict Anderson), made it possible for an unprecedented number of people to "literally 'stay on the same page' with respect to current events and the priorities of their national governments," making it possible for them to connect as part of a nation.

Specifically, the medium change we are in the midst of is a shift from connecting via print forms (such as letters and books and newspapers) to connecting via computational forms (such as email and social networking technologies and databases). This shift matters for questions of social justice because any shift in a medium entails a shift in power. That is to say that a medium shift also changes who has access to using or designing the medium of social connection. For example, poets were powerful in an oral culture. As Sacks explains:

[I]n his book A Preface to Plato, Eric Havelock points out that – about at the time of Plato – ancient Greece was undergoing a transformation from an oral-based society to a literate one. Prior to this moment the social memory for everything – from laws, politics, history, and technical know-how – was preserved in poems. It was preserved in poems because no one could remember large numbers of facts and phrases if they were not rendered into a form with rhyme and meter. Until that point the powerful people were poets because if you wanted others to remember what you said, you had to be able to say it in poetry. This is, according to Havelock, the source of Plato animosities against poets: in The Republic and elsewhere he was not writing against a small, artistic minority, he was stating his case against the people in power, the poets.

Framing the issue in this way raises the question of whether programmers have power. Sacks argues that in a culture where computers structure knowledge, those who program the computers do have power. Like the priests who could read Latin, and thus could interpret the bible for people and thus shape their worlds, programmers who read and create computing languages may be shaping the worlds of contemporary culture. If you accept this, then the social justice issue is to give more people access to the education need to become programmers (and thus creators of contemporary life).

Questions
Is this the case? Do medium shifts entail a shift in who is in power, or do the same elites rule? Would giving everyone access solve social inequities, or just enact existing social inequalities in new forms? For example, might there be different types of programming, some of which may be exploitative? For example, outsourcing of programming as piece work to cheaper labor sources does bring new people into programming, but does it also play out existing labor relations?

What forms does greater access come in? Does greater access always need to entail the ability to program? For example in genomics, greater access has not come in the form of the ability to program, but in the ability to use software that allow people to "browse" their genomes. This development has been accompanied by claims that these developments are democratizing (23andMe perhaps has been most explicit about this point). In Sack's vision, is this the kind of greater access that is in the interest of social justice? Why or why not?

Does the elicitation of content in the form of DNA sequences and phenotypic questionnaires have similarities to/or radical differences from the use of software to elicit news content from media consumers? In other words, does blurring the boundary between consumer and producer have the same promise in the context of genomic knowledge production as does in social networking and news production?

Maureen McNeil (Women's Studies and Cultural Studies, Lancaster University)

McNeil brought the discussion together by raising six points that related to an overarching question about why technology and social change are always linked: does

a frame that links technology and social change buy into a capitalist discourse of innovation?

First, we are mistaken if we think change is always positive. It is not.

Second, utopian longing for a world that does not exist reveals attachments to particular kinds of social worlds. What do forms of digital and biodigitial utopianism show us about what worlds "we" are attached to? Who is the "we"?

Third, story-telling [Maureen: Can you explain this point]

Fourth, what Turner argued about the kind of power that can be leveraged by network entrepreneurs working with scientists and engineers has now become an explicit strategy that in the U.K., at least, has had some notable success (e.g., the pairing up of the Dana Center and the Science Media Centre).

Fifth, the corporeality of ICTS and genomics may both act to control life and harness it to the production of new forms of capital.

Sixth, both ICTs and genomics offer "technological fixes." The question is, what does it mean to offer a "technological fix," and do these fixes bypass political realities?

Further Discussion with Audience

In discussion, panelists and audiences members raised the following questions and points:

Do technologies displace one another, or do they compete? That they compete is essential. Capitalism is not interested in hegemonic forms but competing forms. Competing forms of information are about making money.

One link between ICTs and biotechnology might not be 'programming languages' but 'protocols'- that is to say that it is the conventions and agreements and standards that move across the two areas more clearly than programming languages. This would imply that it is in infrastructural governance and policy that social justice questions inhere.

Biotechnology forces us to attend to information and materiality together – ICTs might have obscured the body but looking at something like the semiconductor industry shows us that the bodies were always there – people were just looking in the wrong places - indeed 'Wired' and the technological sublime was always the wrong place to look.

Utopianism means different things – 'Wired' utopianism is different to – for example – cyberfeminism which had its own utopian impulses for radical social change linked to computing – this is different from either extropianism or forms of transhumanism – and this is different again from 'one lap top per child' or personal genomes for everyone.

Technologies and bodies come together in different ways – as ICTs become more local and bring you back to the body do bodies become more 'machine readable'

Surveillance – forms of surveillance are both empowering and constraining and in the convergence of ICTs and biotechnology; it is both to-down control and social form. It is also caught up in the double imperative to know thyself to tell thyself – as blogging and genomic social networking might come together [do come together already].

Context and abstraction: how can this kind of conversation proceed without some concrete attachments, examples, people and causes? Bringing together ICTs and biotechnology [although they meet as a form of biosurveillance apparatus] without a key focus, question, context, example etc can only go so far. Who is living and dying here, and where is here?

Surveillance is about the moments of reconciliation – it is very much a question of who, when and where – when do you match your data self [reconcile] and what happens when you don't? For example at borders – when can you pass by and when might you be imprisoned or killed?

To what extent are these old questions about how bodies and systems interact?

Technoscience & Social Change

Panel Discussion
Wednesday, 27 May 2009, 5:00–7:00 PM
UCSC, Engineering 2 599

Technoscience can interact with social change in unexpected ways. On the one hand, new forms of technoscience often reshape social and political landscapes. On the other hand, they can further entrench those same landscapes, making them more resistant to change and social justice agendas. Much attention has been paid to this dynamic in information and communication technologies [ICTs], but less so in biotechnologies and genomics. Caroline Bassett, Warren Sack, and Fred Turner will join members of the Science and Justice Working Group to explore the relationship between ICTs and social and political change, and to think comparatively about the case of genomics. Kate O'Riordan will moderate and Maureen McNeil will be the respondent.

Caroline Bassett is Reader in Media and Director of the Center for Material Digital Culture at the University of Sussex.

Fred Turner is Assistant Professor and the Director of Undergraduate Studies in the Department of Communication at Stanford University.

Warren Sack is Associate Professor in the Film and Digital Media Department; graduate faculty in the Digital Arts and New Media M.F.A. Program; and affiliated faculty with the departments of Community Studies, Computer Science, History of Art and Visual Culture and Sociology at UCSC.

Kate O'Riordan is a Senior Lecturer in Media and Film at the Center for Material Digital Culture, University of Sussex, and an affiliate of the Center for Economic and Social Aspects of Genomics, Lancaster University.

Maureen McNeil is Professor of Women's Studies and Cultural Studies at Lancaster University (UK).

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Sponsored by the Science & Justice Working Group (http://www2.ucsc.edu/scienceandjustice/), the Center for Cultural Studies, the History of Consciousness Department, and the UCSC Art, Technology & Culture Colloquium.

For more information, contact Jenny Reardon, reardon1@ucsc.edu

SJWG Response to 2008 attacks on animal researchers at UCSC

Science and Justice Working Group Statement on Attacks

The UCSC Science and Justice Working Group (SJWG) consists of faculty, staff, graduate students and concerned citizens from the Santa Cruz community committed to building cross-disciplinary dialogue among the natural and physical sciences, arts, engineering, humanities and social sciences. We experienced the attacks on UCSC employees and their families during the summer as an attack on the fundamental principles and practices of science in an open society. Therefore, the SJWG condemns the attacks and all violent threats on individuals and communities of all kinds.

- Threats and attacks cause long-lasting damage to individuals, families, children, and communities.
- They alter the functioning of the University in a way that reduces opportunities for discussion, debate and fundamental dissent.
- They divert precious resources away from education and research.
- They work against the well-being of humans and animals by destroying the trust necessary for transparent experimental practices and accountable institutions.

We believe that universities should provide opportunities and environments for addressing controversial questions. These spaces will not always be comfortable, but they should ensure the well-being of all the participants. The SJWG has put substantial effort into building practices and approaches that can create these kinds of spaces. We call on others to join us in these efforts, and in so doing to oppose acts of violence against our community and our principles.