NEWSLETTER OF THE AMERICAN SOCIOLOGICAL ASSOCIATION SECTION ON

SCIENCE, KNOWLEDGE and TECHNOLOGY

Summer, 1990

Highlights of the Washington, D.C. annual meeting of the ASA include a special session on "Policy Applications for the Sociology of Science and Technology" on Monday, August 13, at 6:30 PM and section day activities on Tuesday, August 14. Roundtables at 12:30 kick off section day, followed by the business meeting at 1:30, paper sessions at 2:30 and 4:30, and a reception at 6:30. Titles of the presentations are included in this newsletter.

In addition to the annual meeting section program, this issue of the newsletter contains a fascinating report by Henry Etzkowitz on some of his recent activities and Ron Westrum's thoughtful review of The Tragedy of Technology by Stephen Hill. Finally, Henry Etzkowitz asks that you use the following address to reach him:

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From the Chair:
On Sociology and Science Policy

Henry Etzkowitz

I would like to take the opportunity of this column to discuss the relationship of the sociology of science, knowledge and technology to public policy, the topic of this year's special session the evening before section day.

I attended the European Association for Studies of Science and Technology (EASST) conference at the Museum of Science and Industry in London this April, hosted by John Durant and his fellow curators. At the meeting, museum visitors viewing early locomotives, Babbage's difference engine, the double helix model, the lunar landing module and an exhibit of art made from Lego pieces served as "virtual reality" for conference sessions on science and the public. Susan Cozzen's brilliant synthetic review of recent British work in the sociology of science was the highlight of a special session. In responding to the presentations, the official, who is the British government's counterpart to the U.S. presidential science advisor, offered to hire her on the spot.

While in London, I also visited the Science Policy Support Group (SPSG) at their offices on Henrietta Street to learn about the new relationship of British sociologists of science to science policy makers. Over a lunch of stilton and lager at a nearby pub, Peter Healey, who with John Ziman runs SPSG, explained the intermediary role that the organization plays among the Research Councils that fund research, policy makers potentially interested in using research findings and the research community.

Funded primarily by the British research councils, SPSG identifies an area of needed research, commissions a background paper, circulates the document to potential researchers and funding groups and then holds a conference on the topic. Once financial support for a topic is set, SPSG conducts a peer reviewed grants competition. After research is underway, an SPSG program officer periodically convenes the investigators to share their preliminary findings. It also appears to be the case that the successful proposals constitute a complementary series of investigations of the topic, extending over a few years time.

No doubt there are more nuances to the operation of SPSG than could be gleaned over lunch and in subsequent conversation with U.K. colleagues Paul Hoch and Andrew Webster, participants in SPSG's initiative on university-industry relations. Even though the model may be adumbrated here, the purpose is to provide enough information to explore its applicability to the United States. Could our present laissez faire system be improved by one or more of the elements of coordination that SPSG has introduced into U.K. science and technology studies?

When the NSF Sociology Program announces a special initiative such as the current one on Women in Science, there appear to be few if any mechanisms available for either bringing researchers together or of insuring a comprehensive examination of the topic. On the other hand, likely investigators may already be acquainted or will meet at occasions like the upcoming SKAT session on Women in Science. Moreover, the NSF peer review process should sift out duplications of effort. Nevertheless, a more collegial research process such as SPSG has initiated might produce a critical mass of research and researchers on an important policy issue in a more timely fashion. Certainly, on university industry relations the several studies currently being coordinated through SPSG represent a critical mass of research on this topic in Britain, where there was virtually none before.

Even more necessary than a change in our system is a change of attitude. On a visit to Washington earlier this summer I was told by the head of the Sociology Program at NSF that "We're not interested in anything to do with policy." Although this observation was made in the context of a conversation about the types of sociological expertise desired on the review panel, it is representative of a broadly shared view among sociologists and, of course, expresses the traditional NSF mission of supporting basic research. Nevertheless, in other areas of science supported by NSF there has been a shift in recent years toward policy relevance. Most of the modest increases in the NSF budget have been directed to science education and to programs establishing centers in interdisciplinary areas of science and engineering, with promise for

industrial innovation. Although the center programs are officially open to participation by the social sciences, including the sociology of science and technology, I know of only one proposal that has attempted to make this bridge between fundamental research and practice.

The Sociology Program's strategy for expansion has been one of "proposal pressure." It is believed that an increase in the number of proposals will lead to an allocation of additional funds. To my knowledge the strategy has been successful in its first phase of generating more proposals but has otherwise merely pushed the rejection rate up to 85%, giving the program officers increased responsibility for reassuring the unfunded about their proposal writing capabilities and encouraging them to reapply. It is worth noting that Phyllis Moen, the past program head, made a successful effort to show that sociology could contribute findings to elucidate policy issues. Her working papers, synthesizing current research about the paucity of women in science, reached the highest levels at NSF and led to the Women in Science research initiative.

The last leg of my travels, to Nashville's Grand Old Opry Hotel in June, for a Pre-Conference Research Workshop sponsored by IBM "In Search of Gender-Free Paradigms for Computer Science Education" carried a more hopeful portent for our field. The session revealed the possibilities of service to a user community. The meeting's convener, Professor C. Dianne Martin of George Washington University's Electrical Engineering and Computer Science Department, drew upon the work of two sociologists, Peter Berger and Thomas Luckmann, to begin the morning session. She quoted from The Social Construction of Reality to emphasize the need for studies of women in science that treat both objective and subjective factors and illuminate dynamics as well as provide quantitative indicators. Professor Martin and other participants in the session called for a broader analysis of the topic than provided by many studies, often from other disciplines than ours, that merely correlate a few variables.

While participants were aware of the path breaking work of Harriet Zuckerman, Jonathan Cole and Sherry Turkle on gender in science, a representative of the committee on the status of women in computer science was interested to learn about Scott Long's intriguing finding that women tend to publish fewer but more significant articles than men. The overall impression I left with was that many women computer scientists, and men concerned about the discipline's future supply of personnel, wanted to know more about the work of sociologists studying women in science.

My conclusion from these travels is that there is a demand for policy relevant knowledge that we, as sociologists of science, knowledge and technology, are not fully meeting. I take this not as a criticism of us but as an opportunity to participate more fully in a broader scientific community, by studying it with their support. I shall discuss this possibility further in the next issue with a report on Everett Mendelsohn's conference at Harvard on the Historical and Social Study of the Human Genome Initiative, where I was pleased to see colleagues Troy Duster, Dorothy Nelkin, Pnina Abir-Am and Steve Hilgartner.

I look forward to discussing the ideas presented here and any topics you have in mind, with you, at the ASA meetings in Washington. I encourage you to attend and participate in the full range of section activities including paper sessions, roundtables, business meeting and reception. One final matter: Jim Petersen, the current and founding editor of our Newsletter, has announced his intention to pass on the position. Our appreciation goes to Jim for starting up the SKAT Newsletter along with best wishes for success in his new position as co-editor of the 4S Handbook. If you are interested in assuming the SKAT editorship or becoming a contributing editor, please contact me before the ASA meetings at my summer address: 462 Arkansas Avenue, Nantucket, MA 02554 or (508) 228-5324, evenings.

ASA Section Day Presentations - Tuesday, August 14

Title: Refereed Roundtables on Science, Knowledge, and Technology - 12:30-1:30

Organizer: Susan E. Cozzens, Rensselaer Polytechnic Institute

Tables:

1. Social Construction: Science and Technology
   a. Do Social Variables Influence the Cognitive Content of Science: A Critique of the Constructivist Programme in the Sociology of Science
      Stephen Cole, SUNY Stony Brook
   b. The Black Box: On the Representation of DNA-Forensic Typing
      Dion Dennis, Arizona State University

2. Science as a Profession
   a. Shifting Audiences and Changing Texts: The Development of Scientific Publishing in the United States
      Elisabeth Clemens, University of Arizona
   b. Professional by Form and Quality: Professions and the Direction of Social Change
      David Sciulli and Patricia Jenkins, University of Delaware

3. Global Issues
   a. The Coming Revolution of Biotechnology: Rebuttal of Buttel
      Gerardo Otero, University of Wisconsin
   b. Shifting Centers of Science: United States and Competitors
      Thomas Schott, University of Pittsburgh
   c. Japanese Scientific and Technical Knowledge Flow: The University-Society Link
      Takako Tsuruki, Syracuse University, and Todd Holden, Tohoku University

5. Women in Science
   a. Science Policy or Social Policy for Women in Science? Lessons from Historical Case Studies
      Pnina Abir-Am, Brandeis University

b. The Final Disadvantage: Barriers to the Recruitment of Women in Academic Science and Engineering
Henry Etzkowitz, State University of New York at Purchase, Carol Kemelgor, New York University, Michael Neuschatz, American Institute of Physics, and Brian Uzzi, SUNY Stony Brook
c. Research Opportunities for Women: Evaluation of the NSF Program
Linda Parker, National Science Foundation

6. Research Evaluation
a. Departmental Effects on Scientific Productivity
Paul D. Allison, University of Pennsylvania, and J. Scott Long, Indiana University
b. A Comparison of Bibliographic and Survey Data: Evidence from a study of Dental Materials Research
Howard Garrison, Applied Management Systems, James A. Lipton, National Institute of Dental Research, and Samuel S. Herman
c. Evaluation of Programs of the National Science Foundation
James McCullough, National Science Foundation

7. Sociology: Issues in the Profession
a. The Division of Sociological Labor in Post-War America
Fred D. Hall, Jr. and Richard L. Simpson, University of North Carolina at Chapel Hill
b. Sociology and Value-Neutrality: Four Values Guiding Sociology
Virginia R. Seubert, St. Meinrad College

8. The Social Context of Medicine: Dissertation Research
a. PMS by Any Other Name: The Social, Political, and Economic Structuring of a Psychiatric Disorder
Anne E. Figert, Indiana University
b. Parallel Technologies: Nineteenth Century Prescientific Needling and Chinese Acupuncture
Carol Engelbrecht, University of California, San Diego

9. Politics in Science: Dissertation Research
a. Perception of Paradigm Problems and Satisfaction with the NSF Review Process by Field of Science and Engineering
Susan G. Queen, University of Maryland
b. Scientists' Response to the New Age and Animal Rights Movements
George M. Bevins, Indiana University

Title: Careers in Science and Engineering: The Gender Gap

Cosponsored by the Section on Sex and Gender - 2:30-4:30

Organizers: Christine Bose, SUNY Albany, and Susan E. Cozzens, Rensselaer Polytechnic Institute

Presider: Mary Frank Fox, The Pennsylvania State University

Papers:

1. Women's Persistence in Undergraduate Majors: The Effects of Gender Disproportionate Representation
   Stacy J. Rogers and Elizabeth G. Menaghan, The Ohio State University

2. Career and Career Obstacles of Women Postdoctoral Fellows in the Sciences
   Gerhard Sonnert, Harvard University

3. The Family and the Engineering Career: A Comparison of Women and Men
   Judith S. McIlwee, University of San Diego, and
   J. Gregg Robinson, Grossmont College

4. Gendered Promotion Tracks Leaving Computer Work: Initial Results from a Labeling Perspective
   Rosemary Wright, University of Pennsylvania

Discussion: Pnina Abir-Am, Brandeis University
Henry Etzkowitz, SUNY Purchase

Title: Science, Technology, and Social Theory: Session in Honor of Nicholas C. Mullins - 4:30-6:30

Organizer: Susan E. Cozzens, Rensselaer Polytechnic Institute

Presider: William E. Snizek

Papers:

Science, Professionalism, and the New Middle Class
Peter Whalley, Loyola University of Chicago

Technical Controversies as Social Movements
James Petersen and Gerald Markle, Western Michigan University

Science, Technology, and Feminist Theory
Anne E. Figert, Indiana University

Social Constructionism and Sociological Theory
Stephen P. Turner, University of South Florida

Discussion: Thomas F. Gieryn, Indiana University

Book Review by Ron Westrum:

Stephen Hill, The Tragedy of Technology: Human Domination Versus Liberation in the Late Twentieth Century (London: Pluto Press, 1988), cloth, 294 pp.

Stephen Hill has written a long and interesting survey of the interactions of technology and culture, with themes that are familiar from other writers such as Ivan Illich and Langdon Winner. The key concept in this book is "technological frame," the cognitive structure that comes along with, and sustains, technologies. Hill argues that one of technology's largest impacts is to frame the limits within which discourse can take place. In a wide-ranging survey of case studies, with special attention to Australia, Hill puts together a persuasive case for mental impacts of physical things.

I was prepared not to like this book, assuming that it was yet another marxist expose of the evils of capitalist technology. I was pleasantly surprised, upon reading it, to find that it was a very well-researched and for the most part ably argued treatise on the "macro" forces involved in technological change. Hill has read widely, and uses a large number of original observations to make his case for technological dominance and shaping of our thought processes. Using historical material on Britain, anthropological materials on the Pacific Basin, and contemporary as well as historical material on Australia, Hill shows how technology and its accompanying culture has re-shaped societies. Some of his material is shocking, and especially so when seen in comparative perspective. Much of it will be familiar to specialists in the respective areas, but the book's strength is precisely to bring so much together in one place. This is really an admirable synthesis.

Nonetheless, there are some problems which need to be addressed. One of these problems is the precise mechanism by which a technological community develops and affects the broader society of which it is a part. As Sherry Turkle has shown in The Second Self (1984), thinking shaped by a technology can often have pervasive effects. Yet are we to believe that all the technologies we have interact concordantly? That computers (for instance) have a common impact? What about the different effects of the early mainframes versus the personal computer? While there are a large number of ably presented case studies, these are used to expound and exemplify, rather than to analyze. This is a routinely "macro" book for the most part; a bit more attention to the social psychological mechanisms that shape cognition might be helpful.

And what about the positive effects? Not all the mental tendencies technology brings are bad. Quantification has its place. Scientific and technological reasoning has helped in putting to one side the superstitious terrors of which Lucretius was so aware. The horrors of epidemic disease have been so abated by medical technologies that we are not perhaps too complacent about future problems. While satellites bring us CNN and olympic games, they also provide warnings of environmental hazards. High technology provides tools for gauging our effects on the planets as well as polluting it. That technology has brought the natural world, so feared by our ancestors, under human control, is not all bad--although much of what we are doing with this control of nature is indeed regrettable.

The book's major theme is that technology is "too much with us" and its social support systems tend to block tendencies opposed to

rationalization, quantification, and instant gratification. It is difficult to disagree with this thesis. Hill might well dwell a bit longer on the seductions of mass media and the increasing sophistication of merchandisers in exploiting the human impulse to desire, to buy, and to consume. It is tempting to see diffusion of television as the moral equivalent of giving liquor to the Indians. I assume that much of this book was written before the current catalogue blizzard, made possible by the zip code, the credit card, and census data; but certainly it fits in well with the Hill thesis.

Hill does not seem sensitive enough to potential falsifications of his case. While discussing Australia, he decries the lack of technological sophistication there, which has made Australia less able to play a major part in international commerce. Australian science, it would seem, is less shaped by the technological frame than science in the United States. Yet somehow this example does not lead to elaboration of his ideas which could explain--inter alia--how the inevitability of technological dominance so marked elsewhere is somehow abated in Australia! While he sees science elsewhere to be the servant of technological enterprise (a tendency he dislikes), he somehow manages to complain of its unworldliness in Australia. One cannot have it both ways.

On the whole this is a very worthwhile review, not least because of the huge body of literature it surveys. Occasionally the author gets carried away by the drama and rhetoric, although it does make the book more interesting to read. Also, one could wish that the author had restrained his tendency to underline key points; his readers should be given more credit to be able to discover them.

Ron Westrum

Ron Westrum is Professor of Sociology and Interdisciplinary Technology at Eastern Michigan University where he heads the program on Liberal Studies in Technology. He is also the editor of Social Psychology of Science and author of the forthcoming Technologies and Society: The Shaping of People and Things (Wadsworth, in press).

Announcements

Adele Clarke has accepted a position as Assistant Professor of Sociology in the Department of Social and Behavior Sciences, U.C., San Francisco, 94143-0612 (415-476-0694 aclarke@ucsfvm.bitnet). She also holds an appointment in the Department of History of Health Sciences. She will teach in the Graduate Program in the sociologies of medicine, science, organizations and women's health.

Judith Lorber (Coordinator of Women's Studies Certificate Program at the City University of New York, 33 West 42nd Street, New York, NY 10036) published "Choice, Gift, or Patriarchal Bargain? Women's Consent to In Vitro Fertilization in Male Infertility" in Hypatia, Fall, 1989.