

"Our Human Future"

16th National STS Meeting #17

the annual conference for
NASTS

1-3 March 2001 • Baltimore, MD

Of special interest for Interdisciplinary Thinkers Concerned About the Impact of Science and Technology on Society - Teachers and Educators, Scientists and Engineers, Ethicists, Environmentalists, Business Leaders

Featured Speakers



Linda Muir
Plenary Speaker
Penn State-Hershey Hospital



Rustum Roy
Ian Barbour Lecturer
Pennsylvania State University
and University of Arizona



Taft Broome
Banquet Speaker
Howard University

Conference Highlights

- Plenary sessions
- Contributed papers, panels, workshops, and roundtable discussions
- Opportunities to interact with learners of all ages and diverse backgrounds
- Thursday evening social hour and NASA Presentation
- Continental breakfast
- Saturday evening banquet



The sixteenth annual conference theme, "Our Human Future," seems highly appropriate as we step into the new millennium and an evolving future of NASTS as an organization. This is our annual opportunity to gather, connect, and refine our understanding of how to involve people in contextual learning experiences that result in greater understanding and improvement of our human condition.

This year we have a wonderfully balanced program of presentations, plenaries, and symposia; and a collection of excellent contributions from our graduate student members — and attendees repeatedly note that the plethora of perspectives and experiences is what draws them to our conferences. STS represents thinking and action to pursue understanding, but not necessarily the truth, which is the responsibility of each of us to pursue individually. The journey itself is both a personal and social experience. Our preparation for contributions to the conference may be individual or collaborative in nature. However, once we arrive, it is the interactions and exchange of ideas, viewpoints, and perspectives that raise us collectively beyond our individual abilities.

We are happy that you have joined us at STS 16. Our conference provides a unique opportunity to meet with like-minded individuals committed to thinking and actions that bind people together to address issues of ethical, scientific, and societal significance. The power of our shared experiences at STS-16 will further strengthen our agenda and refine our NASTS identity.

Gary F. Varrella, President

STS-16 Program Schedule at a glance

Thursday, 1 March 2001

4-8 p.m. Registration
6-7:30 p.m. Evening Reception
8-9 p.m. PLENARY I

Friday, 2 March 2001

8 a.m.-5 p.m. Registration
7:30-8:45 a.m. Continental Breakfast
8:45-9:00 a.m. Welcoming Remarks
9:00-10:00 a.m. PLENARY II: Rustum Roy
10:15-11:15 a.m. Concurrent Sessions I
11:30 a.m.-
12:30 p.m. Concurrent Sessions II
12:30-1:30 p.m. Lunch (on your own)
1:30-3:00 p.m. Ethical Thinking Panel
3:15-4:15 p.m. Concurrent Sessions III
4:30-5:30 p.m. Concurrent Sessions IV

Saturday, 3 March 2001

8 a.m.-noon Registration
7:30-8:45 a.m. Continental Breakfast
9:00-10:00 a.m. PLENARY III: Linda Muir
10:15-11:15 a.m. Concurrent Sessions V
11:30 a.m.-
12:30 p.m. NASTS Business Meeting
12:30-1:30 p.m. Lunch (box lunches available)
1:30-2:30 p.m. Concurrent Sessions VI
2:45-3:45 p.m. Concurrent Sessions VII
4:00-5:30 p.m. Visions Panel
6 p.m. Cocktail hour-cash bar
7 p.m. Banquet

Thursday, 1 March 2001

Registration

Harbor Foyer

Evening Reception

Harbor Foyer

PLENARY I

Thursday, 1 March 2001

8-9 p.m.

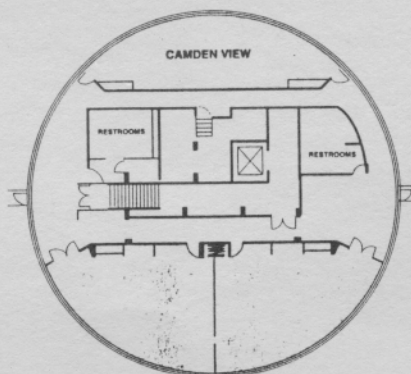
Harbor II

Introduction: Gary Varrella, NASTS President, George Mason University

Speaker: Peggy L. Steffen, NASA Headquarters, Washington, DC

Topic: 2001: The Real Space Odyssey

This presentation will focus on 1) current NASA missions, 2) exemplary examples of classroom materials that support education, and 3) using NASA resources in support of the design of STS and integrated science.

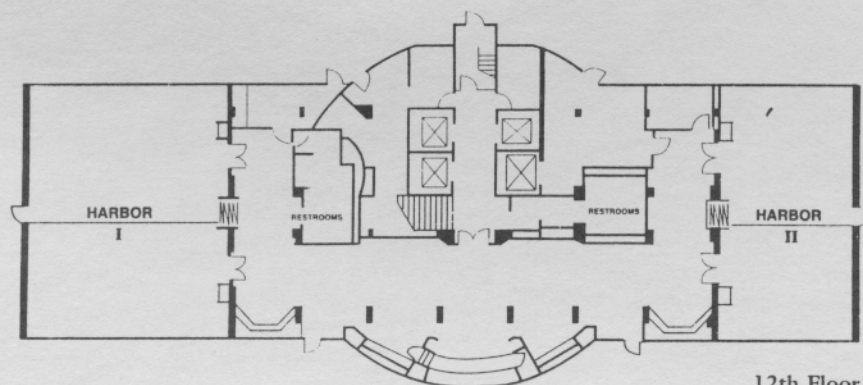


Roof Top

Guide to Papers, Panels, and Workshops

The Schedule-at-a-glance on page 2 lists the three plenary sessions, Ethical Thinking and Visions Panels, and the seven concurrent session periods of contributed presentations. You can choose the presentations you wish to attend during the concurrent session periods by using the table below, referring to the details about each presentation found in the center of this program. All the conference meeting rooms are on the 12th floor or the rooftop. For more details, consult the maps at the bottom of pages 2 and 3.

	Harbor IA	Harbor IB	Harbor IIA	Harbor IIB	McHenry/Camden
Sess. I 2 Mar 10:15- 11:15 a.m.	Population Studies Pamela Wasserman	Power, Politics, and Publ. Participation I Elissa Ann Bennett Yda Schreuer Judi Wakhungu	Culture & Language in Mass Commo Richard Stivers James Van der Laan Rick Moore	Post-Secondary STS Ed Experiences I John Craven Charles Guenther Ian Stewart	Student-Focused K-12 Education I Jeff Weld Myrna Covington Rebecca Monhardt
Sess. II 2 Mar 11:30- 12:30 p.m.	Wetlands in Desert? Ellen Ebert	Power, Politics, and Pub. Participation II C. Hadjilambrinos Bob Hudspeth Ann Howard	Using Web as Text and Lab E. Joseph Piel Thomas Liao	Post-Secondary STS Ed Experiences II Joshua Pearce John Wilkes R. MacDonald <i>et al.</i>	Student-Focused K-12 Education II Kumar, Libidinsky Stephen Adams Melanie LaForce
Sess. III 2 Mar 3:15- 4:15 p.m.	Understanding our Environment Bill Peck Joan Kyriopoulos Barbara Middleton	Energy Strategy & Econ. & Soc. Fund. I Seth Dunn Yu Mi Mun Gerard Alleng	Health, Biomedicine, and Genetics I Lucy Avraamidou Mark Russel Thelma Maleluke	WPI S-STS Series: Successes & Failures John Wilkes Alison Bailey Alka Basil	Ambiguity Between Science and Art Benjamin R. Cohen Franz Foltz Susan Cozzens
Sess. IV 2 Mar 4:30- 5:30 p.m.	Sci. & Tech. Ed for Democratizing Sci. William Kinsella Arjun Makhijani	Energy Strategy & Eco. & Soc. Fund. II Willem Vanderburg Byrne & Glover Stephen Hoffman	Health, Biomedicine, and Genetics II Francisca Flintner Lawrence Dritsas Rustum Roy	Collaboration – Forming Agenda I Franz Foltz Janice Koch Sylvia Washington	Another Dimension to Teacher Ed B. Spector, R. Burkett, R. July, and E. McClintock
Sess. V 3 Mar 10:15- 11:15 a.m.	Green Design in Ag Decision-Making Charylene Philp Jane Konrad	Nuclear Power Debate Patrick Kaplo John Wilkes	Ethics to Address Social Issues Paul Durbin Bob Wauzzinski	STS as Vital Ecumenism Willem Vanderburg Namir Khan	Standards, Pre-ser- vice, & Ed Policy I David Kumar Jon Pedersen Bernice Hauser
Sess. VI 3 Mar 1:30- 2:30 p.m.	You Can Be An Inventor Fred Amram	Energy, Language, and Myth Ray Scatnone Lawrence Agbemabiese	Ethical Dimensions of Sci and Tech Margaret Gilleo Bugrahan Yalvac Deva-Marie Beck	Public Participation in Setting Ethical Guidelines Douglas Taylor Jessica Henry	Power, Politics, and Pub. Particp. III Al Wurth
Ses. VII 3 Mar 2:45- 3:45 p.m.	Inquiry and Environment/ Ecology Reiko Goto Val Lucas	The Politics of Water William Smith, Jr. Young-Doo Wang Venkatesh Iyer	Data Analysis Using Tech Applications Richard Batt Deanna Rizzo Robin Harris	Collaboration – Forming Agenda II Steve Cutcliffe Deva Beck C. Hadjilambrinos	Standards, Pre-ser- vice, & Ed Policy II Robinson, Cantrell Barrow, Fadhi David Wetzel



12th Floor

Friday, 2 March 2001

8 a.m.-5 p.m., Registration

Harbor Foyer

7:30-8:45 a.m., Continental Breakfast

Harbor Foyer

8:45-9 a.m., Welcoming Remarks

Harbor IB

Gary Varrella, NASTS President

PLENARY II
Ian Barbour Lecture

Friday, 2 March 2001
9-10 a.m.
Harbor IB

Introduction: Robert E. Yager, NASTS Retiring President

Speaker: Rustum Roy, Founder and First President of NASTS

Topic: "Science and Spirituality: Cheap Grace for Both Sides"

The recent efflorescence of "science and spirituality" committees, conferences, *etc.*, highlight the disconnect of science and religion. The issue for STS education is how to change the education of science admiring students to include not only the study of, but also a commitment to, the common good, serving society as their "spiritual" duty.

10:15-11:15 a.m. Concurrent Sessions I

Workshop

Harbor IA

Beyond Six Billion: Population Studies for the 21st Century

Pamela Wasserman

Zero Population Growth, Washington, DC

pam@zpg.org

Last year world population reached an unprecedented six billion people. This was a doubling of the human population in 1960 and a tripling since 1930. Participants will learn innovative, hands-on strategies for teaching students the significance of this event and future demographic trends. They will examine world population history, ecological impacts, and the interrelationships between population trends and advances in science and technology. Free materials that meet the National Science Education standards for grades 6-12!

Papers

Harbor IB

Power, Politics, and Public Participation I

Presider: Sylvia Washington

Elgin Community College, Elgin, IL

Nlitenme@aol.com

Visit our vendors in Harbor Foyer!

Monsanto and Dioxin Discourse: The Division of Power in Dioxin Removal

Elissa Ann Bennett

Virginia Polytechnic Institute, Blacksburg, VA

redlissa@mindspring.com

I will examine the discourse of four stakeholder groups in dioxin cleanup in Nitro, West Virginia — 1) community members of Kanawha County, West Virginia 2) the EPA and other regulatory agencies, 3) the legal system and 4) the Monsanto Corporation. I will argue that the relationships between certain discourse communities create barriers for other stakeholders in the cleanup process, specifically that the discourse of the EPA complements the discourse of Monsanto and that the relationship between these two creates a situation in which the people of West Virginia lose power.

The "Polder Model" in Dutch Economic and Environmental Planning

Yda Schreuder

University of Delaware, Newark, DE

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In discussing the Netherlands' success in the global economy or its reputation as a leader in the environmental movement, reference is made to the "Polder Model" which forms the foundation in Dutch economic and environmental planning. What is the "Polder Model"? When and where do we see evidence of it in Dutch history? And, is it in any way related to the concept of "Moral Geography", as introduced by Simon Schama in his book, *Embarrassment of Riches* (1988).

Science, Technology & Public Policy in Africa: A Framework For Action

Judi Wangalwa Wakhungu
Penn State University, University Park, PA
jww105@psu.edu

Conventional development policies have failed throughout the continent of Africa, and lack of scientific and technological capabilities are considered among the primary causes for the prevailing crisis. Attempts to address underdevelopment have been conducted in terms of what is scientifically feasible in industrialized countries instead of what is socioeconomically and culturally desirable in Africa. Africa should not circumvent the use of science and technology in the quest for development. But it is crucial that African policy makers determine in whose interest science and technology will be developed.

Panel**Harbor IIA****The Medium is the Message Revisited: Culture and Language in Today's Environment of Mass Communications.**

Presider: Kim A. Goudreau
Highland Community College, Freeport, IL
Kgoudreau@hotmail.com

The purpose of this session is to propose certain critical insights regarding modern mass communications and, through a guided discussion, elicit audience responses.

"Plastic Words": Brief Probing Questions

Richard Stivers and James van der Laan
Illinois State University, Normal, IL

Environmental Issues and the Watchdog Role of the Media: How Ellulian Theory Complicates Liberal Democracy

Rick Clifton Moore
Boise State University, Boise, ID.
Rmoore@boisestate.edu

As human progress has caused significant changes in the ecosystem, citizens have increasingly depended on the media to inform us about possible ill effects thereof. Though critics from both right and left have reservations about the actual fulfillment of this role by the press, most uphold environmental reporting in principle. Even so, the work of Jacques Ellul puts forth an analysis of the watchdog function of the press that challenges key tenets of the liberal democratic presuppositions of our technological society. His analysis, which is neither of the right, nor the left, raises questions anyone who thinks seriously about the media and the environment should ponder.

Discussant: John Paul Russo
University of Miami, Miami, FL
jprusso@miami.edu

Papers**Harbor IIB****Innovative Post-Secondary STS-related Educational Experiences I**

Presider: John Wilkes
Worcester Polytechnic Institute, Worcester, MA
jmwilkes@wpi.edu

Project MASTER Teacher: a FIPSE-funded program to improve elementary teacher education using an STS framework

John Craven
Queens College/CUNY, Queens, NY
jcraven@forbin.qc.edu

Project MASTER Teacher is a three-year project funded by the U.S. Department of Education Funds for Improving Postsecondary Education (FIPSE). This presentation will share the model and outcomes of a program designed to improve the ability of new elementary teachers in the area of Math, Science, and Technology. The program uses an STS approach requiring students to conduct investigations into science-based issues in region around New York City, create an age-appropriate curriculum module on the topic they investigated, and team-teach the module in a partnership school.

Globalization and the Community College

Charles J. Guenther, Jr.
St. Louis Community College-Meramec, St. Louis, MO
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Leadership for the community college role in globalization has been cultivated by the American Association of Community Colleges and the League for Innovation in the Community College. As the administrators of publicly-funded community colleges view themselves as managers and CEO's in a competitive market for education, the colleges look to private industry for funding. These new roles for colleges and their administrators is seldom a subject for public debate, and the voice of these colleges is nearly silent concerning environmental problems and human rights abuses exacerbated by globalization.

Two Cultures + One Class = ??

Ian G. Stewart
University of King's College, Halifax, NS
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HPS (History and Philosophy of Science) and STS depend on maintaining a genuine interdisciplinary dialogue with the scientific and political community. I will report on my experiences teaching HPS and STS to first-year science majors as part of a team-taught, integrated sciences program at Dalhousie University, NS. By detailing historical, epistemological, and social issues that arise from science education itself in such a framework, I will show how I use these to integrate the humanities into that framework. Audience discussion of this approach will be sought to clarify how interdisciplinary education can foster the interdisciplinary dialogue vital to HPS and STS concerns beyond the university classroom.

On Friday afternoon Jack Demma of PARCO Scientific will make a special presentation in Harbor Foyer:
Using Microscopes in Science Investigations

Student Focused K-12 Education I

Presider: Robin L. Harris
Buffalo State College, Buffalo, NY
harrisrl@bscmail.buffalostate.edu

Orchestrating a Learner-Centered Seminar Course on Environment/Technology/Society

Jeff Weld
University of Northern Iowa, Cedar Falls, IA
jeff.weld@uni.edu

One section of the required Environment/Technology/Society course was taught using a learner-centered approach that included student-identified issues, student-led discussions, student-constructed evaluative instruments, and student-professor exit interviews. The presenter will share facilitation and assessment techniques as well as student feedback.

Beyond High School: Job Satisfaction and the Non-College Bound

Myrna A. Covington
Penn State University, University Park, PA
mac11@psu.edu

Educators involved in the school-to-career transition need to evaluate the success of school-to-career programs through a variety of measurements. Evaluating student job satisfaction requires further research to improve the effectiveness of these programs. This presentation will report on a study conducted to identify factors that influence the job satisfaction (JS) of recent high school graduates in employment experiences. Since math, science, and technology teachers can influence the career decisions of students, this discussion will also address career opportunities for the noncollege bound student who excels in math and science.

STS: A Bridge Between Cultures

Rebecca Monhardt
Utah State University, Logan UT
beckym@coe.usu.edu

A partnership between Utah State University and an elementary school on the Navajo Reservation in southern Utah was begun in 1998 to enhance science education opportunities for Navajo students. It involves approximately 120 students in grades 4-6 and their parents, as well as elementary science methods students at Utah State University. This presentation will describe how an STS approach to instruction has helped make this project successful for all involved.

Visit our vendors in Harbor Foyer!

On Friday afternoon David Doty of Video Labs will make a special presentation in Harbor Foyer:
Use a VideoLabs FlexCam to Produce Student Lab Reports

The session will include how students use various image capture devices to get their images on a computer in a usable format.

Workshop**Harbor IA****Wetlands in the Desert?**

Ellen Ebert
Green Valley High School, Henderson, NV
EllenKE@aol.com

Clark County, NV, has embarked on an ambitious 100-acre wetlands park in the middle of Las Vegas. Fed by runoff water from homes and businesses and treated wastewater effluent, the wetlands will become a park, erosion control area, and a nature center for environmental studies. Using the STS model, this presentation will engage participants in activities used by local high school students for site characterization, water sampling, and habitat impact studies.

Papers**Harbor IB****Power, Politics, and Public Participation II**

Presider: Sylvia Washington
Elgin Community College, Elgin, IL
Nlitenme@aol.com

The 2000 Presidential Election in Florida: political conflict and contradictory images of technology

Constantine Hadjilambrinos
Florida International University, Miami, FL
hadjilam@fiu.edu

The five week long fight to determine the allegiance of Florida's 25 electors brought issues of technology and society to the forefront of American political discourse in an unprecedented manner. Technological issues became the subject of "spin" by both parties, were the primary focus of all news media, and were at the core of arguments in front of state and federal courts, including the U.S. Supreme Court. This paper examines these issues from the STS perspective in order to reveal the conflict of values obscured behind the political rhetoric and examine some of the proposals for electoral reform which have been proposed in the wake of the 2000 presidential election.

A University Sponsored Consensus Conference

Bob Hudspith
McMaster University, Hamilton, ON
hudspith@mcmaster.ca

A consensus conference is an approach to citizen participation in public policy making concerning controversial technology. Students in an interdisciplinary minor on Science, Technology, and Public Policy played a key role in providing background information to citizens at a university-sponsored consensus conference on waste management for a city in Ontario. After listening to a report on this conference, attendees will discuss the transferability of this type of activity to other institutions of higher education.

Risk and Citizen Right-to-Know

Ann Howard

Rochester Institute of Technology, Rochester, NY
magsh@rit.edu

Love Canal marked a turning point in understanding public perceptions of risk and the need for informing the public concerning the risks they may be facing. Through a number of important pieces of legislation, responsibility shifted from the government to industry to provide this information. Current moves toward voluntary compliance create the potential to hinder the public's access to critical information.

Workshop

Harbor IIA

Using the Web as Text and Lab

E. Joseph Piel and Thomas Liao

SUNY, Stony Brook, NY

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Through hands-on activities and demonstrations, participants will experience using the web as a source of information and as an interactive laboratory for the study of a variety of topics in the communications and information area of STS.

Papers

Harbor IIB

Innovative Post-Secondary STS-related Educational Experiences II

The Do Something Assignment: Lighting a fire under apathetic students

Joshua M. Pearce

The Pennsylvania State University, University Park, PA
jmp228@psu.edu

The "Do Something Assignment" is a novel teaching tool that utilizes a student's individual interests to encourage in-depth learning across disciplines and capitalizes on their personal skills and talents to solve real world problems. It allows students to make small but concrete improvements for a sustainable future by applying STS principles. This presentation will describe the structure and successes of the "Do Something Assignment" used in two STS courses at the Pennsylvania State University (STS 100: The Ascent of Humanity and STS 200: Critical Issues in STS) and engage the audience in discussion of incorporating it into other academic levels and courses.

Student Pugwash and the STS Movement: Why we should advise SP Chapters

John M. Wilkes

Worcester Polytechnic Institute, Worcester, MA

jmwilkes@wpi.edu

Eric Tapley

National Board Representative, Student Pugwash USA

Student Pugwash USA has had a presence on many university campuses for over 20 years. Yet they find it extremely difficult to make a large-scale impact. There are a few STS majors and minors at WPI (about 15), but not enough to make a serious club of them or have an impact on the larger campus as a consciousness-

Page 7

raising unit. On 1 April 2001 the WPI and MIT chapters will hold a regional conference at WPI, with a parallel conference for faculty who are willing to consider advising a chapter on their campus. I will argue that NASTS should help Student Pugwash succeed by encouraging members to mentor a chapter on their home campuses.

Engaging in the Borderlands: Bridging Multi-Disciplinary Inquiry with Multi-Cultural Experiences

Ross MacDonald, Monica Bernardo, Sonia De La Torre, Daniela Tavares,

University of California, Davis, Davis, CA

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dmtavares@ucdavis.edu

This presentation will share research findings from thematic analysis of students' borderlands experiences and applying that understanding in interdisciplinary courses and programs. We have found that the borderlands concept in Science and Society has the power to: (a) transform people's thinking across multiple worlds and realities, (b) create meaning from disparate elements, and (c) attract people to the inquiry.

Papers

McHenry I

Student Focused K-12 Education II

Presider: Robin L. Harris

Buffalo State College, Buffalo, NY

harrisrl@bscmail.buffalostate.edu

Teaching Issue-Oriented Science and Technology: Curriculum and Policy Perspectives

David Devraj Kumar

Florida Atlantic University, Davie, FL

david@fau.edu

Lisa J. Libidinsky

Pembroke Pines Charter School, Pembroke Pines, FL
33029

Issue-oriented science education is necessary to help students gain a broader understanding of science and technology. This paper will discuss specific lesson examples based on real life delineating how science and technology curriculum materials could incorporate information technology and contemporary learning theories. It will also address the need for increased funding for instructional materials, alternative testing, and preservice and inservice teacher education for teaching issue-oriented science.

High School Students' Views of How to Best Respond to Climate Change

Stephen Adams

California State University, Long Beach, CA

sadams2@csulb.edu

This presentation, the fourth in a series that has examined students' thinking about issues associated with climate change, reports students' reflections about criteria that would (1) characterize responses to climate change that they would consider to be the most desirable and (2) characterize more thoughtful thinking about the issue.

Friday, 2 March 2001

Citizens Participate to Save Wolf Road Prairie: A

Role-Play

Melanie La Force

George Mason University, Fairfax, VA

Melanielaforce@cs.com

Wolf Road Prairie is an example of a remnant Illinois prairie, with some areas that have not been plowed or developed. The story of Wolf Road prairie preservation invites the creation of a

lively role-play game that can be introduced in upper primary grades. Other aspects of its story can be readily adapted for children in the K-5 range. Some of these examples, such as Prairie Day, Fire! Stories storytelling activities, prairie collage projects, and a class role-play can be used to describe this true story of land preservation and the ethical and scientific issues it brought to light in the quiet suburbs of Chicago.

12:30-1:30 p.m., Lunch (on your own)

ETHICAL THINKING PANEL

Friday, 2 March 2001

1:30-3 p.m.

Harbor IB

Ethical Thinking: Implications for Education

Timothy Collins, Three Rivers - Second Nature Project, Pittsburgh, PA, tcollins@andrew.cmu.edu

Kathryn Atman, University of Pittsburgh, Pittsburgh, PA, kayatman@pitt.edu

Tom Fidler, PADEP, Harrisburg, PA, Fidler, Thomas@dep.state.pa.us

Carolee Bull, USDA, Agricultural Research Service, Salinas, CA, CTBull@aol.com

Taft Broome, Howard University, Washington, DC, tbroome@Howard.edu

Moderator: Jane Konrad, Pittsburgh Regional Center for Science Teachers, Pittsburgh, PA, konrad+@pitt.edu

This panel will examine the area of ethical thinking in today's world that has an impact in the educational community. Viewing the ethics of decision-making through different lenses, panelists will present their approaches and the influence in our current teaching and teacher training. Represented are panelists from the areas of teacher training — social studies; governmental regulations-brownfield remediation; research in biodiversity and land use; philosophy in higher education; and participatory agricultural research models that include farmers & students.

3:15-4:15 p.m. Concurrent Sessions III

Workshop

Harbor IA

A Sense of Place: Understanding our Environment

Bill Peck, Joan Kyriopoulos, and Barbara Middleton

Utah State University

bpeck@cc.usu.edu, jojo@coe.usu.edu

Using the Edith Bown Laboratory School Native Garden as our focus, we will demonstrate the effectiveness of peer teaching using a cross-age peer tutoring approach. We will also demonstrate how our Native Garden cultivates community pride and service, a sense of place with our environment, as well as a respect for classmates. Participants will join in designing a unit of study of a Native Garden, creating a Native Garden Book, and developing a teaching guide.

Papers

Harbor IB

Energy Strategy and Economic and Social Fundamentalism I

Presiders: John Byrne and Bill Vanderburg.

A Sustainable Energy Future

Seth Dunn

Worldwatch Institute

Sixteenth National STS Meeting, 1-3 March 2001

Critique of the Economic and Environmental Paradigm of Electricity Restructuring

Yu Mi Mun

Center for Energy and Environmental Policy, University of Delaware, Newark, DE

Energy for Sustainable Communities

Gerard Alleng

Center for Energy and Environmental Policy, University of Delaware, Newark, DE

Papers

Harbor IIA

Controversial Topics in Health, Biomedicine, and Genetics I: An STS Perspective

Presider: Deva-Marie Beck

Union Institute Graduate School

wfdn@cais.com

Making the Perfect World

Lucy Avraamidou, Bugrahan Yalvac, and Paul Spivak

Pennsylvania State University, University Park, PA

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Genetic engineering has been called the shuffling, mixing, and matching of unrelated genes. Its study is a study of life's most

basic set of blueprints and it has arrived, like it or not. "Making the Perfect World" refers to the new promises of biotechnology and the impact that the fulfilling of these promises would have in our lives, while giving an emphasis to the ethical perspective of this issue.

Why Do We Drink? A History and Philosophy of Hereditary Accounts of Alcoholism

Mark Russel

Virginia Technological Institute, Blacksburg, VA
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As the science of heredity developed in the last century, some researchers attempted to apply their findings to issues in the arena of mental health and human behavior. Central to this focus has been scrutiny of the desire to drink, or "alcoholism." In this paper I examine accounts of the hereditary nature of alcoholism in (i) the early 20th century and (ii) in the early 1990s.

The Benefits of Interdisciplinary Participatory Rural Appraisal in Community Health: The Case of the Northern Province of South Africa

Thelmah Maleluke

University of Venda for Science and Technology,
Thohoyandou, South Africa

This paper reports on the findings of interdisciplinary participatory rural appraisal research in five villages in the northern part of the Northern Province of South Africa. The team found that most of the community projects in these villages established to improve the quality of life of the community were based on analysis of snap shot observations, without community participation and collaboration. The paper also describes some interventions undertaken to deal with important problems concerning health, clean water supply, and contraception.

Papers

Harbor IIB

The WPI S-STS Series: Revealing Successes and Failures

Presider: John Wilkes

Worcester Polytechnic Institute, Worcester, MA
jmwilkes@wpi.edu

Health Problems as an STS Curriculum Theme-Why the Many Failures?

John Wilkes

Worcester Polytechnic Institute, Worcester, MA
jmwilkes@wpi.edu

This paper presents the results of teaching two WPI-developed health-related them units in the Worcester, MA, public schools. Dang, Loang, and Nguyen's unit, "The Long Goodbye," on Alzheimer's, designed for an 11th grade class but cut from four weeks to two due to local constraints, was a failure. Implementing Atkins and Roberts' "Tans Aren't So Healthy Anymore" was an elegantly designed study of two sixth grade classes, one taught in the traditional way of holding the issue until the end as an application of prior knowledge and the other leading with an STS thematic. The traditional unit was more successful, and the dread of cancer is believed to have gotten in the way of the students getting the same material S-STS style.

Avoiding the "Dread" Factor when Using STS to Teach Health Issues

Alison Bailey and Alka Basil

Worcester Polytechnic Institute, Worcester, MA
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After two disappointments encountered by WPI students devising STS units with disease thematics, the "backpack debate" led another team to attempt a unit on scoliosis, a disease that was neither life-threatening nor well-known. The theme was also directly relevant to the sixth and seventh grade students targeted and not beyond their control. Posture and back pain were things that students could relate to and that could be addressed by studies of physiology, physics, and statistics. It was a success despite its less gripping or spectacular thematic.

Papers

McHenry I

The Inherent Ambiguity Between Science and Art

On the Historical Relationships between Art and Science: A look at popular debates that have exemplified cross-disciplinary tension

Benjamin R. Cohen

Virginia Polytechnic Institute, Blacksburg, VA
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Thomas Huxley and Matthew Arnold concerned themselves over the value of science in 1880's England, with C.P. Snow and F.R. Leavis repeating much the same line of reasoning in the 1960's. Both of those debates (one side, at least) sought to establish the supremacy of science for society's welfare and both (on both sides) necessarily excised interdisciplinary approaches from their proposed solutions. The science wars have drawn comparison to the Snow-Leavis debate, although this recent skirmish can not be distinguished from a concern over the effects of interdisciplinary scholarship. I will trace the relationship of the debates and comment on their role for the future of STS.

Quantitative vs. Visual Information: Ambiguity in LDA Research

Franz Foltz

Rochester Institute of Technology, Rochester, NY

fafgsh@rit.edu

Susan Cozzens

Georgia Institute of Technology, Atlanta, GA

This paper will discuss the internal conflict apparent in a number of turbulent combustion researchers, who used Laser Doppler Anemometry instruments in the 1980s and early 1990s. We found that though most researchers realized the significance and power of the visual representation allowed by laser technology, they fundamentally believed that only quantified data provided any legitimacy within their field.

Membership Dues Due 1 April

Why not renew your membership while you're
here at the Conference?

Sixteenth National STS Meeting, 1-3 March 2001

4:30-5:30 p.m. Concurrent Sessions IV

Workshop

Scientific and Technical Education for Democratizing Science

Arjun Makhijani
Institute for Energy and Environmental Research,
Takoma Park, MD
arjun@ieer.org
William J. Kinsella
Lewis and Clark College, Portland, OR
kinsella@lclark.edu

Lack of basic scientific knowledge presents formidable barriers to participatory democracy, and the Institute for Energy and Environmental Research seeks to overcome those barriers by providing community leaders, educators, students, and the public the scientific tools to participate in decision-making. This presentation will describe our programs, which include technical training workshops in areas such as water pollution, nuclear waste, and radiation and health; newsletters and books; and a technical training web page.

Papers

Energy Strategy and Economic and Social Fundamentalism II

Presiders: John Byrne and Bill Vanderburg

Energy and the Labyrinth of Technology

Willem Vanderburg
Centre for Technology and Social Development, University of Toronto, Toronto, ON

Environmental Justice in the Greenhouse

John Byrne and Leigh Glover
Center for Energy and Environmental Policy, University of Delaware, Newark, DE

Powering Injustice: Hydroelectric Development in Northern Manitoba

Stephen M. Hoffman
Environmental Studies Program, Univ. of St. Thomas

Papers

Controversial Topics in Health, Biomedicine, and Genetics II: An STS Perspective

Presider: Deva-Marie Beck
Union Institute Graduate School
wfdn@cais.com

The future of NASTS depends on you.

How will you be involved?

Harbor IA

Transdisciplinarity: The New Challenge for Biomedical Research

Francisca Flinterman
University of Amsterdam
flinter@bio.vu.nl

Patient participation is a new and topical issue in the medical field. Patients do have a specific form of experiential knowledge. Using this knowledge in biomedical research requires a new approach to knowledge integration. Because this integration includes not only scientific but also nonscientific knowledge, we use the term transdisciplinarity. In this paper, we will elaborate the concept of knowledge integration in transdisciplinarity and suggest practical ways of implementing transdisciplinary biomedical research.

Below the Belt: The Ongoing American Discussion of Routine Neonatal Male Circumcision

Lawrence Dritsas
Virginia Polytechnic Institute, Blacksburg, VA
ldritsas@vt.edu

This paper will discuss routine male circumcision in the hospitals of the United States, where 60-70% of newborn males are circumcised. This practice is controversial because the medical benefits of this procedure are uncertain. Among many cultures in America, male circumcision is not a recognized mark of group membership or rite-of-passage, as it is for Judaism, some Arabian cultures, and various other communities on every continent. The American practice, when not indicated by cultural traditions, is enigmatically labeled an acceptable medical procedure that may be requested by parents.

Denying the Evidence of One's Senses: Whole Person Healing Challenges Fundamentalism Among Scientists

Rustum Roy
Pennsylvania State University, University Park, PA
rroy@psu.edu

The history of science is replete with the usual human resistance to change. Currently, mainstream science is deeply threatened by the tsunami of evidence, which can be grouped under the banner of Alternative Healing. The response by scientists to this tidal wave, which is analogous to that of creationists dealing with evolution, is doing damage to science. The evidence for the interaction of living and nonliving systems will be marshalled in an organized fashion from a dozen different fields, which challenge the present paradigm.

Panel

Member and Inter-Assembly Collaboration — Forming an Agenda I

Gary Varrella, George Mason University, Fairfax, VA
Franz Foltz, Rochester Institute of Technology, Rochester, NY
Janice Koch, Hofstra University, Hempstead, NY
Sylvia Washington, Elgin Community College, Elgin, IL

In an effort to stimulate more formal inter-assembly collaboration in NASTS, join us to brainstorm and discuss ideas from which inquiries and other STS-focused collaborations can be launched.

Friday, 2 March 2001

The emphasis will be on exploring modest proposals that are doable, serving the goals of NASTS within the interest areas of the collaborating individuals. Certainly, commitments to larger endeavors may also result from this session and related follow-up actions by the interested individuals.

Panel

McHenry I

MSTS: Adding Another Dimension to STS Teacher Education

Barbara S. Spector and Ruth Burkett
University of South Florida, Tampa, FL
spector@tempest.coedu.usf.edu,
rburkett@tempest.coedu.usf.edu

Saturday, 3 March 2001

8 a.m.-noon, Registration

Harbor Foyer

7:30-8:45 a.m., Continental Breakfast

Harbor Foyer

PLENARY III

Saturday, 3 March 2001

9-10 a.m.

Harbor IB

Introduction: Rebecca Monhardt, NASTS Board Member, Utah State University

Speaker: Linda Muir, Penn State-Hershey Hospital

Topic: "Our Human Future — A Medical Perspective"

Panel

Harbor IB

10:15-11:15 a.m. Concurrent Sessions V

Workshop

Harbor IA

STS By Green Design in Agricultural Decision-Making

Charylene Philp, North Central Math/Science Collaborative, and Jane Konrad, Pittsburgh Regional Center for Science Teachers, Pittsburgh, PA
konrad@pitt.edu

Participants in this session will identify controversial issues — including genetically modified organisms (GMOs) — conduct research, and analyze the compiled information to form an opinion. Issues will be ranked in priority and discussion will center on steps to take to make your voice heard in the societal and political decision making arena. Participants will also be given sample materials and hand-outs to use in the classroom with multiple grade level students.

A Contemporary Microcosm of the Nuclear Power Debate

Patrick Kaplo
Verizon

pat_kaplo@yahoo.com

John Wilkes

Worcester Polytechnic Institute, Worcester, MA
jmwilkes@wpi.edu

Wilkes studied the relationship between nuclear knowledge and opinion in the period 1978-90, pre- and post-Three Mile Island (TMI), and found there was no relationship between levels of knowledge and support for nuclear power plant construction. Kaplo recently taught and studied 64 eighth graders, reconstructing the 1970-and 80's nuclear debate for them in class. Examination of the class opinion data reveals a distribution that has shifted pro-nuclear, looking like the general US population, pre-TMI. The males in particular learned many facts and shifted pro-nuclear. MBTI data collected to assess the unit response by learning style suggests that this was a "thinking" as opposed to a "feeling" reaction to new information at odds with prior perceptions and beliefs, not a gender finding *per se*.

Papers

Harbor IIA

Papers

Camden View

Using Ethics to Address Social Issues

Should Corcovado National Park in Costa Rica Be Saved? A Test Case of Universal Environmental Ethics Principles

Paul Durbin
University of Delaware, Newark, DE
pdurbin@udel.edu

Corcovado National Park in Costa Rica is one of the most pristine rainforests in the world, but it is also threatened in significant ways. This presentation recounts several threats to the forest and what happened to save it. The issue is what motivated those who made those efforts — and what lessons we can draw from that for the future.

Discerning Prometheus: The Cry for Wisdom in an Age of Technology

Bob Wauzzinski
Ball State University, Muncie, IN
Wabber15@aol.com

This interdisciplinary attempt to adjudicate the social place, importance, and meaning of technology, based on my book, *Discerning Prometheus: The Cry for Wisdom in an Age of Technology*, covers technological optimism, pessimism, realism, and the structuralists. The book highlights important principles to each movement, views of what it means to be human, and the nature of the world around us. This seminar will also look at the social space allotted to technology by the positions outlined.

Workshop

Harbor IIB

STS as a Vital Ecumenism

W. H. Vanderburg (with Namir Khan), University of Toronto, Toronto, ON
vanderb@mie.utoronto.ca

As the new editor-in-chief of BSTS, I will review the state of the art in order to outline an appropriate editorial response for the future. Our civilization and our schools and universities are threatened by an intellectual fundamentalism, and STS is an essential heresy that can help us regulate technology to enhance the quality of life, promote peace and justice, and ensure a humane common future. Intended to provoke audience discussion.

Standards, Pre-Service, and Education Policy I

Presider: Michael Robinson
University of Nevada, Reno, NV
robinson@equinox.unr.edu

Policy Implications of School Choice for Science, Technology, and Society

David Devraj Kumar
Florida Atlantic University, Davie, FL
david@fau.edu

Even though there is growing public support for school choice, there is no research on the effect of school choice on STS. What effect will school choice have on STS education? How to address school choice in STS curricula? These are a few of the many critical questions facing STS. They will be addressed from available science education studies involving school choice.

Beliefs of Science Teachers Towards the Implementation of Social/Technological Issues: Are We Addressing National Standards?

Jon E. Pedersen
University of Oklahoma, Norman, OK
Pedersenj@ou.edu

Many of the topics we are called upon to teach as science educators are controversial in nature and are directly linked to the global community. However, including these controversial issues in the extant curriculum of science has, at best, been limited, even though the *National Science Education Standards* specifically indicate that science and technology as well as science in personal and social perspectives are important. A study indicates that teachers believe that controversial topics are important but that teaching them lacks support from communities.

An Alternative Celebration of Science and Technology

Bernice Hauser
Horace Mann School, Riverdale, NY
Bernice_Hauser@horacemann.org

This paper describes how an independent school addressed the myriad issues elicited from a schoolwide reading of *Galileo's Daughter*, by Deva Sobel. A sample program listing the topics, workshops, and speakers will be distributed. This integration of humanities and the social sciences with the technology and science of the era is a model of an alternative to the usual science fair as a way to celebrate science and technology.

11:30 a.m.-12:30 p.m. NASTS Business Meeting

Harbor IB

12:30-1:30 p.m., Lunch (box lunches available in Harbor Foyer)

1:30-2:30 p.m. Concurrent Sessions VI

Workshop

Harbor IA

You Can Be An Inventor — Your Students Can Too

Fred Amram

University of Minnesota, Minneapolis, MN
amram001@maroon.tc.umn.edu

In order to create an invention, students must learn to go through an entire inventing process from problem identification, through product design, and finally to implementation. This workshop leads participants through a compressed inventing project and explores how the inventing activity should focus on the student, the process, and the product. Handouts review the process and provide worksheets for teachers and other activity leaders.

Panel

Harbor IB

Energy, Language, and Myth: Exploring the Universe of Discourse

Raymond P. Scattone

Rochester Institute of Technology, Rochester, NY

psgsm@rit.edu

Lawrence Agbemabiese

United Nations Energy Program

This presentation combines the ideas of Roland Barthes, Herbert Marcuse, and Langdon Winner to argue that the language that is currently used to discuss energy-related issues, policies, and programs is a very restrictive one that "closes off the universe of discourse" to questions of efficiency as expressed in power per units of money. The audience will be asked to engage in a discussion of what will can be done to move the current energy debate to move beyond narrow efficiency-based concerns and address a broader range of interests and ideas (such as global warming).

Papers

Harbor IIA

Ethical Dimensions of Science and Technology in a Global System

Presider: Wenda Bauchspies

Pennsylvania State University, University Park, PA

wkb4@psu.edu

Ethical Issues in the Global Economy

Margaret P. Gilleo

Maryville University, St. Louis, MO

trees@primary.net

This presentation explores the implications of globalization and its effects on both the Earth's poor and the Earth itself. It illustrates how poverty goes hand in hand with environmental degradation. The economic and moral impacts of international financial and regulatory organizations are analyzed and discussed. The presentation demonstrates how the economically marginalized suffer not only from the obvious lacks of food, clothing and shelter, but also from polluted air, an unpotable water supply, and macro issues such as global warming.

Imports and Exports of Science and Technology

Bugrahan Yalvac

Pennsylvania State University, University Park, PA

bxy119@psu.edu

Ethics and values affect science and its enterprise (Brickhouse, 1998; Longino, 1996). According to Lederman (1992), the nature of science refers to "the values and assumptions inherent to the development of scientific knowledge." This presentation will address the essence of ethics and values entering in and exported from science and technology. It will discuss in which respect science education reform movements and related documents include the role of ethics and values in science and technology.

HIV-AIDS: Our Warning Call for Sustainability and Ethics Issues

Deva-Marie Beck

Union Institute Graduate School

wfdn@cais.com

HIV-AIDS remains an increasingly critical human problem in and of itself. Yet this pandemic is one of our most poignant markers, a warning sign of massive proportions. Today, HIV-AIDS can give us a clear correlation between poverty and disease — between ethical, economic and environmental degradation and human suffering. At both global and community levels, HIV-AIDS is a symptom of mankind's continued unsustainable choices. It is a symptom we must heed.

Panel

Harbor IIB

Public Participation in Setting Ethical Guidelines for Biotech Research: Mechanism with Teeth

Douglas Taylor and Jessica Henry

Virginia Polytechnic Institute, Blacksburg, VA

TaylorCITM@earthlink.net, jehenry@vt.edu

Traditionally, the research community in the west has sought to involve the public in determining science & technology policy. Advisory committees and panels such as those employed by the EPA or the NIH are examples of this tradition. We argue that such mechanisms will not serve as effective or equitable means for setting ethical standards for biotechnological research. Rather, public participation must occur from the initial stages of any research project and must include robust mechanisms for ensuring that the voice of the public is given equal weight in the determination of what is an appropriate and ethical course of action for universities, industry and government. We present Community-Based Participatory Research as such a mechanism.

Membership Dues Due 1 April

Why not renew your membership while you're
here at the Conference?

Papers

Power, Politics, and Public Participation III

Counting All the Votes? Elections, Ballots, Voting and Technology

Al Wurth

Lehigh University, Bethlehem, PA
ahwl@Lehigh.edu

This presentation will explore some of the issues in the technology of elections raised by the recent controversy surrounding the 2000 Presidential election in Florida: the vote-count controversy, identification of various types of error, the reliability of ballot and vote-counting systems, the roles of election officials, and evaluation of the role and mystique of technology as a source of and remedy for election controversies. Participants will specify criteria for politically legitimate elections, and evaluate proposals for election reforms.

2:45-3:45 p.m. Concurrent Sessions VII

Workshop

Harbor IA

Inquiry and Environment/Ecology: Addressing New PA Standards

Reiko Goto, Carnegie Mellon University and Val Lucas, Pittsburgh, PA
rcgoto@andrew.cmu.edu

Since 1997 the Nine Mile Run Greenway Project has been developing an educational program and classroom activities that engage school children and their teachers in the creative opportunities offered by a brownfield site. In 1999, the STUDIO team received a grant from the State of Pennsylvania State Development of Education to create education modules and reference materials for teachers. We chose to focus this project on urban watersheds to meet the educational needs of a wider audience and build on the environmental standards of the State Pennsylvania. This workshop will present our inquiry-based, interdisciplinary approach to urban ecology, art, science and the environment.

Papers

Harbor IB

The Politics of Water

Presider: Young-Doo Wang

Center for Energy and Environmental Policy, University of Delaware, Newark, DE

A Human Right to Safe Drinking Water

William J. Smith, Jr.

Center for Energy and Environmental Policy, University of Delaware, Newark, DE

Efficiency-Equity Conflicts in US Water Policy

Young-Doo Wang, Govind Gopakumar, and Amy Roe
Center for Energy and Environmental Policy, University of Delaware, Newark, DE

Camden View

Restructuring the Water Sector in India: Emerging Sustainable and Cost-Effective Options

Venkatesh Iyer

Center for Energy and Environmental Policy, University of Delaware, Newark, DE

Workshop

Harbor IIA

DATA: Data Analysis Using Technology Applications

Richard J. Batt, Deanna Rizzo, and Robin L. Harris

Buffalo State College, Buffalo, NY

battrj@bscmail.buffalostate.edu,

harrisrl@bscmail.buffalostate.edu

This workshop will present ways to use digital imaging: of fossil specimens of one species of eurypterid to determine total individual size; and of bacteria to count them for population studies. Digital imaging is fun, and you can manipulate images to find lost data, enhance photographs, and put yourself on the moon. Participants will be able to try out activities.

Panel

Harbor IIB

Member and Inter-Assembly Collaboration — Forming an Agenda II

Gary Varrella, George Mason University, Fairfax, VA

Stephen Cutcliffe, Lehigh University, Bethlehem, PA

Deva Beck, Union Institute Graduate School

Constantine Hadjilambrinos, Florida International University, Miami, FL

In an effort to stimulate more formal inter-assembly collaboration in NASTS, join us to brainstorm and discuss ideas from which inquiries and other STS-focused collaborations can be launched. The emphasis will be on exploring modest proposals that are doable, serving the goals of NASTS within the interest areas of the collaborating individuals. Certainly, commitments to larger endeavors may also result from this session and related follow-up actions by the interested individuals.

Papers

Camden View

Standards, Pre-Service, and Education Policy II

How Do K-12 Science and Mathematics Texts Cover Engineering and Technology?

Michael Robinson and Pamela Cantrell

University of Nevada, Reno, NV

robinson@unr.edu

Three major obstacles to implementing the National Science Education Standards are 1) inadequate teacher preparation, 2) discrepancies between state and national standards, and 3) inadequate K-12 science texts. By sampling some of the most widely used elementary and secondary school science and mathematics texts and reviewing their coverage of engineering and technology, this paper examines the third obstacle and suggests means of overcoming it.

Saturday, 3 March 2001

Are Science-Technology-Society Topics in Junior High School Earth Science Textbooks?

Lloyd H. Barrow and Fathi Ali Fadhi
University of Missouri, Columbia, MO
barrowl@missouri.edu

Five earth science textbooks published in the 1990s were analyzed for their inclusion of the twelve science and technology-related issues and problems identified by Rodger Bybee (1987) and for their inclusion of activities focused on STS. The topics of air quality and atmosphere, energy shortages, water resources, land use, hazardous substances, and mineral resources received more coverage than the others. But only 8.82% of the text pages were devoted to STS topics, and only 5.49% of the activities were focused on STS topics.

WebQuests: A Strategy for Integration of Technology in Preservice Science Teacher Education

David R. Wetzel
Muskingum College, New Concord, OH
dwetzel@muskingum.edu

This session will present findings of a computer-based technology strategy, WebQuests. During their science methods course, preservice teachers explored and developed this technology integration strategy to allow K-8 students to increase their understanding of environmental issues.

VISIONS PANEL

Saturday, 3 March 2001

4-5:30 p.m.

Harbor IB

Jon Pedersen, Oklahoma University, Norman, OK
Steve Cutcliffe, Lehigh University, Bethlehem, PA
Diane Thiel, Poet and author of *Echolocations*, winner of the 2000 Nicholas Roerich Poetry Prize.
Moderator: Deva Beck, Union Institute Graduate School

6 p.m., Cocktails - cash bar available

7 p.m., Banquet
McHenry

Presentation of Graduate Student Contest Awards: Franz Foltz

Introduction: Franz Foltz, Conference Chairman

Speaker: Taft Broome, Conference Treasurer

Topic: "Toward a New Discipline: Philosophy of Engineering"

The National Academy of Engineering recently established a project to lay the foundations for, and organize a scholarly community around, a new learned discipline called philosophy of engineering. George Bugliarello and I are members of the steering committee for that project, and I am its chair. This dinner address is a call to all NASTS members to join in the NAE's great adventure. There is a place in it for each of us!



NASTS

National Association for Science, Technology and Society

An Association With a Mission

- To re-integrate western culture to include Technology and Society
- To create a *technologically* literate citizenry
- To help human societal values direct an evolving technology
- To provide a radically new approach to education concerned with science and technology at all levels

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