



18th National STS Meeting

the annual conference for
NASTS

20-22 February 2003 • 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

New Tasks for STS

Featured Speakers:

Willem Vanderburg, University of Toronto
Charles E. Lee, USEPA
John Penick, North Carolina State University

Featured Event:

A tribute to Ivan Illich:

Carl Mitcham, Lee Hoinacki, Dianne Connelley, panelists

Conference Highlights

- Plenary sessions
- Contributed papers, panels, workshops, and roundtable discussions
- Opportunities to interact with learners of all ages and diverse backgrounds
- Thursday evening reception (light meal included)
- Continental breakfast and lunch included Friday and Saturday
- Saturday evening banquet
- Fourth Annual NASTS Grad Student Paper Contest

President's Welcome

I welcome you to the 18th annual conference of the National Association for Science, Technology and Society (NASTS). NASTS is a unique organization, and the participants in this, as well as in all previous conferences, reflect this. While there are several professional associations devoted to science, technology, and society, and while STS is, by nature, an interdisciplinary endeavor, I am convinced that NASTS is the only organization that remains committed to bringing together the widest possible range of interests and backgrounds relevant to this endeavor. Its conference is the only place where critics of the role of science and technology in society can come together and interact with scientists and engineers, and with those committed to expanding the understanding of science and technology. It is also the only place I can think of, where teachers and researchers at all levels (from university and independent research organizations to primary school) can interact in the setting of a professional forum with students at all levels. There is true value in this type of interaction: it is the only way to attain the exchange of the broadest range of ideas which is necessary to address the immensely complex problem of socially responsible use of science and technology. By participating in this conference you have chosen to take on the challenge it represents. May you also reap its benefits to the fullest.

Constantine Hadjilambrinos, President

STS-18 at-a-glance

Thursday, 20 February, 2003

Registration 4:00pm – 8:00pm

Reception 7:00pm – 8:30pm. **Welcoming remarks:** Constantine Hadjilambrinos, President, NASTS

Harbor IA

Harbor IIA

Harbor IB

Harbor IIB

Friday, 21 February, 2003

Friday, 21 Feb. 7:30am – 8:30am **Continental Breakfast** Harbor Foyer

Session I , Friday, 21 February 2003, 8:30am – 9:30am	Environmental Education I Jeff Weld Stephen Adams Brandi Magill & Kelley Dalfonso	Reconsideration of STS in Elementary Methods King and Milson	Ethics in Medicine and Law Kenneth Foster, <i>et al.</i>	Multicultural & Multidisciplinary Ross McDonald
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Friday, 21 Feb. 9:45am – 10:45am **Plenary I** Willem Vanderburg Director, Centre for Technology and Social Development, Faculty of Applied Science and Engineering, University of Toronto. Harbor IB

Session II , Friday, 21 February 2003, 11:00am – 12:00n	Technological Education I Edward Kennedy Mike Geselowitz Chas. Guenther	Prof. Development of Egyptian Teachers Susan Blunck Silvio Avedano	Special Groups Roli Varma Zames & Zames Fleischer Paul Pojman	Literature's Study of Tech Stivers, Van der Laan, Russo, Goudreau
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Friday, 21 Feb. 12:00pm – 1:30pm **Lunch**

Session III , Friday, 21 February 2003, 1:30pm – 2:30pm	Curriculum Mike Robinson Robert Yager	Insects Under Water T. Orkwiszewski and Lori King	MTBE Contamination C. Zarcadoolas Jessica Galante	B-STIS I W. Vanderburg Richard Stivers John Byrne
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Friday, 21 Feb. 2:45pm – 3:45pm **Plenary II** Charles E. Lee Associate Director for Policy and Interagency Liaison, Office of Environmental Justice, U. S. Environmental Protection Agency. Harbor IB

Session IV , Friday, 21 February 2003, 4:00pm – 5:00pm	Two Decades of STS at Colby Sylvia Kraemer Jeff Owen	Student-centered Science Thomas Lord Holly Travis Mike Sawicki	Sustainable Development R. Scattone H. Yamaguchi	B-STIS I (continued)
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Friday, 21 Feb. 5:15pm – 6:15pm **NASTS Membership Meeting** Harbor IB

Saturday, 22 February 2003

Saturday, 22 Feb. 7:30am – 8:45am **Continental Breakfast** Harbor Foyer

Session V , Sat., 22 February 2003, 9:00am – 10:00am	Technological Education II R. Shearman Jerry Streichler	NASA Distance Learning Ron Shaneyfelt	Contesting Environmental Justice CEEP, U of Del	Ethics Margaret Gilleo Foltz and Foltz Michael Rockler
Session VI , Sat., 22 February 2003, 10:15am – 11:15am	Environmental Education II John Roeder L. Spier-Dance Diane Thiel	Ed Potential in L RPGs John Wilkes Andrew Gallant Patrick Groulx	Globalization and Environmental Conflict CEEP, U of Del	Communication G. Pellegrino Foltz, Ferber, & Pugliese Tony Moore

Saturday, 22 Feb. 11:30am – 12:15pm **Epsilon Pi Tau Exemplary Initiation** Harbor IB

Saturday, 22 Feb. 12:15pm – 1:30pm **Lunch** Box lunches will be provided.

Session VII , Sat., 22 February 2003, 1:30pm – 2:30pm	Teacher Education R. & L. Monhardt B. Spector & Ruth Burkett	Health Rustum Roy Tanya Slaweki W. Vanderburg	Environmental Issues C. Hadjilambrinos Christine Keiner	Technology Shawn Collins Aldrin Sweeney Rhona Leibel
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Saturday, 22 Feb. 2:45pm – 3:45pm **Plenary III** Tribute to Ivan Illich: Rustum Roy, Carl Mitcham, Lee Hoinacki, Dianne Connelley Harbor IB

Session VIII , Sat., 22 February 2003, 4:00pm – 5:00pm	Gender, War & Peace Monica Antanazzo Bre Ann Chisholm Clemente Abrokwa		The NASA Mindset and the Normal Accident John Wilkes	
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Saturday, 22 Feb. 6:00pm – 7:00pm **Cocktail hour** – cash bar. Harbor Foyer.

Saturday, 22 Feb. 7:00pm - **Banquet** - **Speaker: Dr. John Penick**, North Carolina State University. McHenry.

Thursday, 20 February 2003

4-8 p.m., Registration

Harbor Foyer

7-8:30 p.m., Evening Reception

Harbor Foyer

Friday, 21 February 2003

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

Harbor Foyer

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

Harbor Foyer

8:30-9:30 a.m.

Concurrent Sessions I

Roundtable

Harbor IIA

Papers

Harbor IA

Environmental Education I

Ecophobes to Ecophiles: A Transformative General Education Course on Environment/Technology/Society

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

A three-year study of the transformative effects of an undergraduate E/T/S seminar course hanging on by a thread in the face of budget cuts and interdisciplinary purgatory indicates numerous benefits to a learner-centered approach to this topic, including increased optimism over the resolution of E/T/S problems, improved attitudes about studying E/T/S issues, and improved analytical skills for grappling with complex E/T/S issues.

Views of High School Students about the Appropriate Roles of Lay Persons and Scientists in Decision-Making about Climate Change

Stephen Adams, California State University, Long Beach, CA, sadams2@csulb.edu

Efforts to educate high school students about climate change (and decision-making about it) should consider the students' views of the appropriate roles of the public. This presentation discusses views of high school students about the appropriate roles of experts and lay persons in responding to climate change. It is the sixth in a series using climate change as a context for inquiries into scientific literacy and information literacy.

Pilot Study: Does Constructivism Work at the Community College Level?

Brandi Magill and Kelley Dalfonso, California University of Pennsylvania, N. Huntingdon, PA, brandimagill2001@yahoo.com

At Westmoreland County Community College, various constructivist techniques were used with the twelve students in a Biology II class and the twenty students in an Anatomy and Physiology I class. Each student had similar prior knowledge. The results of analyzing student attendance and scores will be important for future studies.

"There Oughta be a Law": A (re)consideration of STS in Elementary Methods Coursework

Kenneth P. King, Northern Illinois University, DeKalb, IL, kking1@niu.edu

Andrew J. Milson, Baylor University, Waco, TX, Andrew_Milson@baylor.edu

Both social studies educators and science educators have promoted STS education as relevant to both disciplines at all grade levels, yet much of the literature is directed toward the secondary science education community. This roundtable explores prospective elementary teachers' engagement in an STS project conducted in preservice, elementary science and social studies methods courses at a large midwestern university. Findings indicate that although prospective elementary teachers comprehend and support the rationale for STS instruction, they appear hesitant to fully engage in the scientific inquiry, civic dialogue, and decision making necessary to conduct STS investigations.

Papers

Harbor IB

Ethical Considerations in Medicine and the Law

Long-Term Use of the LVAD: Fixing the Heart or Breaking the Budget?

Pamela Douglas, Heather E. Lee, Priya Raina, and Kenneth R. Foster, University of Pennsylvania, Philadelphia, PA, kfoster@seas.upenn.edu

We explore a case history based on a newly-emerging technology — the use of left ventricular assist devices (LVADs) to maintain patients with chronic heart failure. The devices have been proven effective for short-term use as "bridge to transplants," *i.e.*, for maintaining patients who are awaiting a heart transplant. The use of this technology is currently limited by the availability of hearts for transplant, currently about 2000 a year in the US. However, a major medical study published in 2001 suggests the effectiveness of the LVAD as destination therapy for long-term maintenance of patients. With more than 200,000 cases of heart failure in the US each year, and an average cost of treatment in excess of \$250,000 per patient, this will open up a market for the devices that potentially could exceed \$50 billion per year. Does society have the ethical obligation to develop and provide this life-saving technology to gravely ill patients?

Friday, 21 February 2003

New Technologies for Telling the Truth

Kenneth R. Foster and Sang Lee, University of Pennsylvania, Philadelphia, PA, kfoster@seas.upenn.edu

Generally excluded from court on reasons of uncertain reliability, polygraph testing is widely used by federal agencies and private employers to screen employees for potential security risks, leakers of information, and other behavior problems. Conventional polygraphy measures changes in physiological responses (such as skin impedance) when the subject is asked a series of questions and thus provides very indirect measures of performance. Now emerging are new technologies whose proponents claim to provide more direct information related to brain function, which are said to provide more direct tests of truth telling than conventional polygraphy. These include functional MRI and "brain fingerprinting" (based on detecting evoked response) that is said to determine the presence or absence of a memory in a subject. Some proponents of these technologies advocate their use for screening for terrorists. What are the ethical and legal consequences of new polygraphy technologies, and what evaluation is needed before they should be used in the legal process?

Roundtable

Harbor IIB

Nontraditional Student Empowerment in STS: Bridging Multicultural Experiences and Multidisciplinary Inquiry

Ross MacDonald, University of California, Davis, CA, rbmacdonald@ucdavis.edu

We have evidence that the creative processes by which students build personal bridges across their worlds is similar to the creative processes that first-year students need to master in order to build bridges across disciplinary worlds. These interdisciplinary bridges are critical to the STS field. Our focus is a deep consideration of diversity in STS research and curriculum.

PLENARY I

Friday, 21 February 2003

9:45 - 10:45 a.m.

Harbor IIB

Introduction: Constantine Hadjilambrinos, NASTS President

Speaker: Willem H. Venderburg, Director, Centre for Technology and Social Development, Faculty of Applied Science and Engineering, University of Toronto

Topic: The Urgent Need for Knowledge Infrastructure Renewal: A New Task for STS?

11:00 a.m.-12:00 noon

Concurrent Sessions II

Papers

Harbor IA

Technological Education I

Advantages of Teaching Technology Systems in Society Using Teleconferencing

Edward C. Kennedy III, University of Toledo, Toledo, OH, Edward.Kennedy@utoledo.edu, and Todd C. Waggoner, Bowling Green State University, Bowling Green, OH, wtodd@bgnet.bgsu.edu

This presentation begins with a short introduction on teleconferencing as delivered in the university classroom. In this setting teleconferencing can link guest speakers from around the world to each other and to diverse student populations from different regions, so that they can interact with each other as if they were

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sitting in the same room. Particularly to be addressed are the advantages of using teleconferencing to teach *Technology Systems in Society* courses.

What increases our understanding of what is: the IEEE Virtual Museum as a Tool to Integrate Culture and Technoscience

Michael Geselowitz, Rutgers University, New Brunswick, NJ, m.geselowitz@ieee.org

This presentation will explain and demonstrate the IEEE Virtual Museum, a new website that uses the history of science and technology to bridge the gap between technoscience and the liberal arts and to promote technological literacy at the precollege level. This site explores how technology works while examining the historical trajectory and social ramifications of that technology, enabling science and technology teachers to bring humanities in to their classrooms, while humanities teachers learn to integrate science and technology into theirs.

Engineering Education and the Precautionary Principle

Charles J. Guenther, Jr., St. Louis Community College, St. Louis, MO, cguenther@stlcc.edu

Although engineering education often includes instruction in ethics and economics, such coursework does not generally address fundamental questions of social and economic justice. This paper presents an outline for an engineering course that would examine the role of technology as it affects the lives of ordinary people, and consider practical ways for implementing the precautionary principle in engineering practice.

Workshop

Harbor IIA

Enhancing the Professional Development of Egyptian Teachers Through Language, Culture, Science, and Technology

Susan M. Blunck and Silvio Avedano, University of Maryland, Baltimore County, Baltimore, MD
blunck@umbc.edu, savend1@umbc.edu

An international clamor is developing for innovative and collaborative approaches to teacher professional development. Through scenarios, the presenters will illustrate active learning activities used in delivering a professional development program that integrates language, culture, technology, and content specific elements at the University of Maryland, Baltimore County, with visiting Egyptian teachers. Participants will experience the language, technology, content subject matter, and cultural challenges the Egyptian teachers encounter during their training in the United States.

Papers

Harbor IB

Special Groups

Women of Color in Information Technology

Roli Varma, University of New Mexico, Albuquerque, NM, varma@mgt.unm.edu

An ongoing study under grants from the Sloan Foundation and the National Science Foundation examines how women of color maintain membership in the undergraduate academic culture of information technology that is not traditionally designed to host them. It draws upon over 100 ethnographic interviews with white, black, Hispanic, Native American, and Asian male and female undergraduate students majoring in computer science and computer engineering in two public research universities, one historically Black college, and one tribal college. The analysis shows that women of color provide a valuable learning perspective to the geek community.

Government Denial and Rights of Disabled Veterans

Doris Zames Fleischer and Frieda Zames, New Jersey Institute of Technology, Newark, NJ, sirod@inch.com, friedazames@erols.com

While awareness of illnesses resulting from "Agent Orange" exposures to US servicemen in Vietnam date to 1969, newspaper references didn't appear until 1979. Five years after the 1991 Gulf War, however, accounts of Congressional hearings revealed US troop exposures to synergistic effects of more toxins than may ever

have been dumped on people. Combined with secret exposures of military personnel to atomic and mustard gas tests (1940s-1960s), the pattern of bureaucratic denial of resulting disabilities may be a harbinger of consequences of warfare involving increasingly dangerous forms of technology.

Race-Gender Issues in Science Education

Paul Pojman, Towson University, Towson, MD, ppojman@towson.edu

The humanities and sciences agree that over the last century and a half the sciences have supported numerous immoral social-political positions. However, there is disagreement as to what was "wrong" with those positions: science stresses that what was "wrong" was factual, empirical error, while the humanities stress that what was "wrong" has little to do with empiricism but rather with social consequences. Focusing in particular on race and gender theory, this paper examines ways of teaching these issues at the college level, seeing science education as important not only for technology but also for social responsibility.

Roundtable

Harbor IIB

Literature's Unique Study of Technology

Richard Stivers and James Van der Laan, Illinois State University, Normal, IL; John Paul Russo, University of Miami; Kim Goudreau, Highland Community College

Every discipline makes a unique contribution to the study of a phenomenon. No one discipline, moreover, is sufficient to understand the meaning of its object of study. The question for the panel and the audience is literature's unique contribution to the study of science and technology. Special attention will be given to Don DeLillo's novel *White Noise*.

12:00 noon-1:30 p.m.

Lunch

(box lunches available in Harbor Foyer)

1:30-2:30 p.m.

Concurrent Sessions III

Papers

Harbor IA

Curriculum

High School AP Science and Mathematics: How Do They Correlate with STEM Careers?

Mike Robinson, University of Nevada, Reno, NV, robinson@equinox.unr.edu

This paper presents the background of AP classes and their impact on STEM (Science, Technology, Engineering, and Mathematics) career choices of college students. Data were collected on the number of AP classes offered in calculus, biology, chemistry, and physics, the percentage of students taking these classes, and the percentage who said they would pursue a STEM career track in college. Students who take AP classes in calculus and the sciences

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are found to be more likely to select a STEM-related college major. The profession and socioeconomic level of parents were also found to affect the number of AP classes offered as well as which ethnic groups primarily take them.

Standards Indicate Goals — Which??

Robert E. Yager, University of Iowa, Iowa City, IA, robert-yager@uiowa.edu

Science, math, and technology standards provide educational goals — all of which provide a rationale for STS instruction. And yet, there are few attempts to meet these goals directly. Most continue to organize instruction around disciplinary topics — usually with the rationale that they are prerequisite facts needed to resolve problems or taking actions. This session focuses on taking goals seriously and allowing them to frame the curriculum and daily instruction.

Workshop

Harbor IIA

Insects That Swim Under Water

Terri Orkwiszewski and Lori King, Indiana University of Pennsylvania, Indiana, PA, choochoo@kiski.net, trlord@iup.edu

A pilot program initiated by preservice education students for first-year college biology students was implemented using student-centered inquiry lesson plans conducted at a local environmental center. The hands-on constructivist activities aided the students in their preparation and execution of outdoor activities while incorporating science standards. This presentation will incorporate attendees into a similar learning environment.

Panel

Harbor IB

Anatomy of a Water Crisis: MTBE Contamination and Science-Public Communication

Christina Zarcadoolas and Jessica Galante, Brown University, Providence, RI, caz@brown.edu, Jessica_Galante@brown.edu

Because the water supply of Pascoag, RI, was contaminated with the gasoline additive methyl tertiary butyl ether (MTBE), Pascoag residents were advised for more than four months not to drink or cook with the water, to sponge-bathe young children, and to use adequate ventilation when showering. Student research interviews revealed major disconnects in the communication to residents about the science and known health risks. Recommendations to improve public environmental literacy will be presented.

Symposium

Harbor IIB

B-STs Symposium 1: Thinking About Globalization and Local Empowerment via the Work of Jacques Ellul, Lewis Mumford, and Robert Heilbroner (continued in session IV)

Willem Vanderburg, The University of Toronto, Toronto, ON

Richard Stivers, Illinois State University, Normal, IL
John Byrne, The University of Delaware, Newark, DE

PLENARY II

Friday, 21 February 2003

2:45-3:45 p.m.

Harbor IB

Introduction: Gary Varrella, Past President

Speaker: Charles Lee, Associate Director for Policy and Interagency Liaison, Office of Environmental Justice, US Environmental Protection Agency

4:00-5:00 p.m.

Concurrent Sessions IV

Panel

Harbor IIA

Paper

Harbor IA

After Two Decades: STS at Colby - Retrospect and Prospect

Sylvia K. Kraemer and Jeff Owen, Colby College, Waterville, ME, skraemer@colby.edu

This presentation will review the history of Colby's STS program, its current structure, and the findings of a visiting committee of distinguished STS experts invited to evaluate our program. The expectations for a recently added science and technology policy course will also be explored.

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Trade Teacher-Centered for Student-Centered Science Instruction: You'll be Glad You Did! (1 hr. Panel, Friday)

Thomas Lord, Holly Travis, and Mike Sawicki, Indiana University of Pennsylvania, Indiana, PA, trlord@iup.edu, njqh@iup.edu

This session will present an ongoing study with student-centered teaching, which indicate that students' awareness is heightened when they are challenged with a question and attempt to solve it with partners in a noncompetitive setting. This way of teaching is similar to the way scientists solve real problems and directs the

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participants toward understanding instead of memorization. Participants will experience this teaching style with hands on-minds on discovery activities in a variety of academic settings.

Roundtable

Harbor IB

International Dimensions of Sustainable Development: An Energy Perspective

The Role of Sustainability Knowledge in Energy Poverty Reduction in Africa

Lawrence Agbemabiese, UNEP, Paris, France
Raymond Scattone, CEEP, University of Delaware, Newark, DE

This presentation will look at the gap between existing "energy-poverty" and technologies that are available to meet energy needs in environmentally sound, affordable, convenient, and reliable ways. A core challenge for sustainable energy development in Africa is the need to create institutional pathways to mechanisms that enable people and communities to become aware of and interact with existing and emerging "sustainable knowledge commons." Examples of emerging knowledge partnerships and networks whose members share the goal of energy-poverty reduction for Africa will be discussed.

Saturday, 22 February 2003

8 a.m.-noon. Registration

Harbor Foyer

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

Harbor Foyer

9-10 a.m.

Concurrent Sessions V

Papers

Harbor IA

Technological Education II

Approaching STS via a Course on Geographic Information Systems (GIS)

Richard Shearman, Rochester Institute of Technology, rlsgh@rit.edu

This presentation will discuss how Geographic Information Systems can provide a useful context for exploring principles in STS. I will share my personal experience in team teaching an interdisciplinary GIS course offered by the Colleges of both Science and Liberal Arts at RIT that is also part of a student "learn and serve" program.

National Agencies' Call for Technology Literacy

Jerry Streicher, Bowling Green State University, Bowling Green, OH, jstreic@bgsu.edu

Technically Speaking: Why All Americans Need to Know More About Technology, published by the National Academy of Engineering in cooperation with the National Research Council and the National Science Foundation, lays responsible for technology

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Japanese Foreign Aid Policy on the Energy Sector: Is Japan Doing Good or Not?

Hideka Yamaguchi, CEEP, University of Delaware, Newark, DE

Modernity has brought drastic economic growth and material affluence to the North but it has contributed little to the South. Japan is the world's second largest economy and has attempted to alleviate these problems by providing several development-assistance programs. Japan's Official Development Assistance has been the world's largest since 1991. These contributions, however, have not always been successful improving economic, environmental, social and health conditions. The purpose of this presentation is to evaluate Japan's foreign aid policy on development in the South, with a focus on energy sector strategies.

5:15-6:15 p.m.

NASTS Membership Meeting

Harbor IB

education on the education sector, with virtually all academic disciplines to be involved. The realities of American education suggest that politics and competition among disciplines for resources will likely intervene. Issues will be outlined and open for group discussion.

Workshop

Harbor IIA

NASA's Distance Learning Programs are ON THE AIR! (1 hr. Sat a.m. workshop)

Ron Shaneyfelt, NASA Langley Research Center, Hampton, VA, r.k.shaneyfelt@larc.nasa.gov

NASA's Distance Learning Programs are available free and copyright free for classroom use. They include a wide range of math, science, and technology topics for learners K-adult and feature student activities designed by teachers using Problem Based Learning (PBL) strategies correlated to National Science Education Standards. Participants will receive information about and view samples of each of the NASA programs and conduct at least one hands-on activity presented on one of the associated websites.

Papers

Harbor IB

Center for Energy and Environmental Problems (U Del) Session

"Contesting Environmental Justice"

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Papers

Ethical Considerations

Competing Economic Paradigms in the 21st Century

Margaret Gilleo, Fontbonne University, St. Louis, MO, trees@accessus.net

Along with "life, liberty, and the pursuit of happiness," most Americans believe they have a constitutional right to unrestrained free-market capitalism. Morality is not a consideration in economic activity or decision making. However, because economics affects every aspect of human life, many contemporary moral theologians and ethicists assert that ethics must be an integral component of economics. This paper will compare the prevailing economic paradigm with new models in which morality plays a significant role.

Technology, Religion, and Trust

Franz Foltz, Rochester Institute of Technology, fafgsh@rit.edu, and Rev. Frederick Foltz, ELCA

Much has been written about the relationship between science and religion, while little has been done on technology and religion. Yet technology shapes and is shaped by society. Many new technologies, such as human cloning and the worldwide web, are pressing at the boundaries of religion. This presentation will report on an ongoing study to explore the relationship between technology and religion and will particularly focus on issues of trust, the cyberchurch, and the ever-changing relationship between humans and their God.

Ethics for Education and Technology

Michael J. Rockler, National-Louis University, Rockville, MD, mrocards@aol.com

This presentation will examine ethical perspectives that can be used to help educators and persons working with technology to formulate an ethical stance on issues that are faced professionally in this work. Several perspectives and theories will be briefly discussed with emphasis on the duty ethics of Kant. Participants will be asked to respond to particular issues on the basis of perspectives which they choose to help define their own ethical perspective.

10:15-11:15 a.m.

Concurrent Sessions VI

Papers

Harbor IA

Environmental Education II

Active Physics Chapters on Energy

John L. Roeder, The Calhoun School, New York, NY, jlroeder@aol.com

Two new *Active Physics* chapters focused on energy topics have been developed. "Light Up My Life," written by Arthur Eisenkraft and Jon Harkness, challenges students to evaluate lighting in a given situation and formulate a plan that improves the quality of the lighting at less cost. More recently I have written "Energy for Living," which challenges students to meet their future energy needs for heating, electricity, and transportation without fossil fuels.

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Harbor IIB

Uniting the Two Solitudes: Removing the Boundaries Between Classroom and Laboratory in an Undergraduate STS Forensic Science Class for Nonscience Majors (wants computer and projector for PowerPoint)

Lesley Spier-Dance, University of British Columbia, Vancouver, BC, spierl@ucfv.bc.ca

This presentation will examine the use of an STS approach to a forensic science lab course for nonscience majors at a University College in British Columbia. The transdisciplinary nature of forensic science provides opportunities to emphasize the relationships between natural sciences, associated technologies, and societal issues. A number of lab experiments will be described in order to illustrate pedagogically important features relating to the STS emphasis of this course. Benefits and drawbacks that have been encountered in this class will be described.

Approaching Nature Through Creative Writing

Diane Thiel, University of New Mexico, Albuquerque, NJ, dthiel@unm.edu

Literature in general, and poetry in particular, present a unique way for exploring one's relationship with and understanding of nature. This presentation will discuss ways in which creative writing can help us explore nature and present some examples of poems which do just that.

Roundtable

Harbor IIA

The STS Educational Potential in LRPGs

John M. Wilkes, Andrew Gallant, and Patrick Groulx, Worcester Polytechnic Institute, Worcester, MA, jmwilkes@wpi.edu

The authors of a role-playing game involving reactions to "Suicide Mission to Chernobyl" played the night before at a Student Pugwash banquet in Washington, DC, will discuss the relative merits of the game as part of a course with an STS educational agenda. Particular points to be addressed are whether the game enhanced the educational value of the video and whether the experience of playing the game offers as much as a typical term paper or book review assignment.

Papers

Harbor IB

Center for Energy and Environmental Problems (U Del) Session

"Globalization and Environmental Conflict"

Papers

Harbor IIB

Communications

Representations and Uses of the Intranet: a Comparative Case Study

Giuseppina Pellegrino, Università della Calabria, Arcavacata de Rende, Italy, gpellegrinous@yahoo.com

Starting from a constructivist approach to technology and looking at the Communities of Practice dimension, results of a comparison

between an Italian and a UK company are presented. Common issues and problems emerge in the process of domestication, namely problems in using collaborative tools and in integrating the Intranet into everyday working practices. Despite the representation of the Intranet as an effective communication medium, the two case studies show many ties in the process of company history and culture, skills and workgroups, and use of other technologies.

The Politics of State Legislature Websites: Making eGovernment more Participatory

Paul Ferber, Franz Foltz, and Rudy Pugliese, Rochester Institute of Technology, phfgss@rit.edu, fafgsh@rit.edu, rpugliese@firstclass.rit.edu

Websites have become a common method by which political entities attempt to disseminate information to citizens. But do they actually increase public participation or just provide additional

access to those already "in"? This report of an ongoing interdisciplinary research project on the quality of state legislative websites and their effect on citizen participation will summarize our research findings so far and explore ways for improving state sites.

Structure and Development of Technological Design through Comparative Studies of American Technological Change

Tony Moore, Rensselaer Polytechnic Institute, Troy, NY, Mooret2@rpi.edu

The fact that some technologies can produce a qualitative change in the human condition as soon as they are used in any form belies the notion of neutrality. This presentation emphasizes new cultural forms produced by technology and asks readers to think about the social and cultural ramifications of technological development and to counter attitudes of technological determinism.

Exemplary Initiation of new members into Epsilon Pi Tau

11:30 a.m -12:15 p.m.

Harbor IB

The Exemplary Initiation is Epsilon Pi Tau's demonstration of support of NASTS. During this impressive but brief ceremony of induction, a team composed of NASTS leaders recognizes the accomplishments of selected officers and conference participants by symbolically passing the baton of leadership. The term "Exemplary" pertains to the quality of the inductees and of those who conduct the ceremony.

Known as "the International Honorary for Professions in Technology," Epsilon Pi Tau has supported NASTS for many years and was recently designated NASTS' official honorary. All conference participants are invited to observe the ceremony, congratulate the inductees, and learn more about Epsilon Pi Tau and its work to advance NASTS programs.

12:15-1:30 p.m., Lunch (box lunches available in Harbor Foyer)

1:30-2:30 p.m.

Concurrent Sessions VII

Papers

Harbor IA

Teacher Education

STS: On the Trail with the Lewis and Clark Expedition (Saturday)

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

This session celebrates the accomplishments of Meriwether Lewis and William Clark and their corps of explorers and provides an STS framework for integrating science, social studies, and language arts in the form of activities from an elementary science and social studies methods course taught at Utah State. Strategies to integrate science with other subject areas in a university science methods class or an elementary classroom will be presented. The celebration of the Lewis and Clark bicentennial in 2003 makes this topic timely and relevant for educators.

MSTS Inquiry for Career Change Teachers

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

This presentation will share the design of and students' responses to a Web-enhanced course titled *Inquiry methods integrating science, mathematics, technology and society (MSTS) in elementary grades*. The course was part of the pilot test of a novel approach to a compressed time alternative pathway Masters of Arts degree for career change students in elementary education. Students' responses indicated this approach to MSTS and inquiry served to unify many of the other courses in the degree program.

Have you renewed your NASTS membership?

Symposium

B-STs Symposium 2: Overcoming Disciplinarity in Secondary and Post-Secondary Education

Convener: Willem Vanderburg, University of Toronto, Toronto, ON, vanderb@mie.utoronto.ca

Health as a Theme for Integration - Theory and Experience

Rustum Roy, Pennsylvania State University, University Park, PA, "The Theory"

Tanya Slawewski, Pennsylvania State University, University Park, PA, "The Content"

Willem Vanderburg, "Health as a Way of Understanding Workplaces and Cities"

Papers

Environmental Issues

National Political Culture and Civic Activism: a Comparative Study of Environmental Organizations in the US and Ukraine

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

The US and Ukraine are two countries with very different "political cultures." This study compares the evolution of environmental organizations in the two countries in order to determine how specific characteristics of political culture affect the development and role of nongovernmental environmental organizations. The study finds that political culture not only affects the effectiveness of environmental organizations but also has a strong impact on citizen involvement in such organizations.

Overselling big Science: The Chesapeake Bay Hydraulic Model, 1965-85

Christine Keiner, Rochester Institute of Technology, Rochester, NY, cmkgsh@rit.edu

Occupying nine acres and costing \$24 million, the Chesapeake Bay Hydraulic Model was authorized by Congress in 1965 to help the Army Corps of Engineers predict environmental changes of proposed navigation projects. Breakdowns, maintenance costs, and computer modeling advances forced the shutdown of this largest estuary model ever built in 1984. This paper analyzes the strategies used by the model's boosters to persuade Congress to authorize and fund it.

Harbor IIA

Papers

Designing Mechanisms of Knowledge Transfer for Systems Engineers

Shawn Collins, University of Connecticut, Storrs, CT, shawn.collins@utcfuelcells.com

Many engineering corporations are attempting to adapt successful manufacturing quality initiatives to the office environment. Since a fundamental aspect of this environment is information, these adaptations can benefit from considering the cultural domains in which engineers, creators of that information, participate. Results from ethnographic research conducted among systems engineers at a research engineering company will be discussed in terms of ramifications for 1) designing training curricula, 2) transition from oral to written knowledge transfer, 3) design philosophy, and 4) use of ethnography to facilitate technology transfer.

Harbor IB

The Promises and Perils of Nanoscience and Nanotechnology: Exploring Emerging Social and Ethical Issues

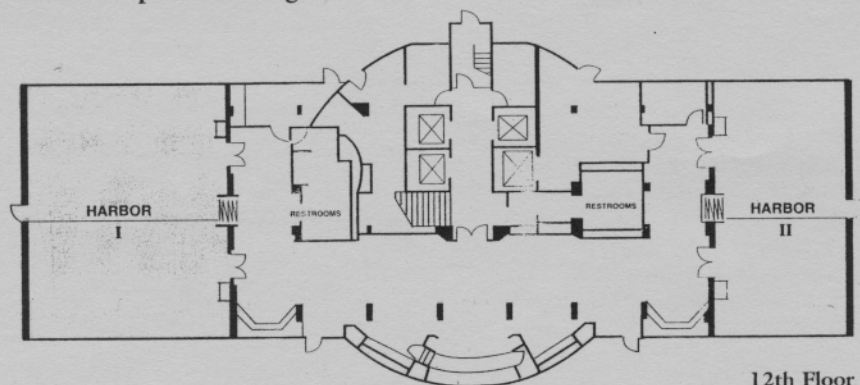
Aldrin E. Sweeney, University of Central Florida, Orlando, FL, asweeney@ucf.edu

Rapid advances in nanoscience and nanotechnology are profoundly influencing the ways in which we conceptualize the world of the future, and human ability to manipulate matter at the atomic and molecular levels offers previously unimagined possibilities for scientific discovery and technological applications. The convergence of nanotechnology with biotechnology, information technology, and cognitive science (NBIC) may hold promise for the improvement of human performance at a number of levels. A variety of social and ethical issues associated with these advances will be discussed.

Security is Now the Sturdy Child of Terror: Research After September 11

Rhona Leibel, Metropolitan State University, St. Paul, MN, rhona.leibel@metrostate.edu

Who ought to decide which research topics will be taken up, and with which voice scholarly communities will speak in public? Who ought to decide? And how ought that decision be made? This presentation addresses these questions to the sub-discipline of political science that studies international relations and more specifically works on what is termed security studies.



12th Floor

PLENARY III

Saturday, 22 February 2003
2:45-3:45 p.m.
Harbor IB

Introduction: Rustum Roy, Pennsylvania State University, University Park, PA

Panelists: Carl Mitcham
Lee Hoinacki
Dianne Connelley

Topic: "A Tribute to Ivan Illich"

4:00-5:00 p.m.

Concurrent Sessions VIII

Roundtable

Harbor IB

The NASA Mindset and the Normal Accident

John Wilkes, Worcester Polytechnic Institute, Worcester, MA

Papers

Harbor IA

Gender, War, and Peace

Terrorism, War, and Gender: The Plight of the Iraqi Women

Monica Antanazzo, Pennsylvania State University, University Park, PA

For the first time in many years, Americans were reminded on 11 September 2001 of the horrors of war and destruction. Since then the United States has been trying hard to build a case of war against the Iraqi President, Saddam Hussein, because of his possession of weapons of mass destruction. Many Americans, forgetting the consequences of this war against innocent Iraqi women and children, support this war. This paper examines the present status and conditions of Iraqi women and how a war with the U.S. will affect their lifestyles.

Gender and the Civil Rights Movement: The Double-Edged Sword of the African-American Woman

Bre Ann Chisholm, Pennsylvania State University, University Park, PA

This paper discusses the feminist movement and examines the role of the African-American woman in the struggle for women's equality in the U.S. It discusses the problem faced by the African-American woman: being a woman and being Black, confronted with the task of fighting the "double-edged sword" of both gender and racial discrimination in the U.S.

Science and Technology: Agencies of Peace or Messengers of Destruction?

Clemente K. Abrokwa, Pennsylvania State University, University Park, PA

The study of science and the development of technology have contributed to the improvement of our lives and understanding of our world. Is the blame for weapons of mass destruction on technology or the human mind that created them? This paper looks at the impact of science and technology on society and human development and questions whether these instruments are agencies of peace or destroyers of life on Earth.

6:00-7:00 p.m.

Reception

Harbor Foyer

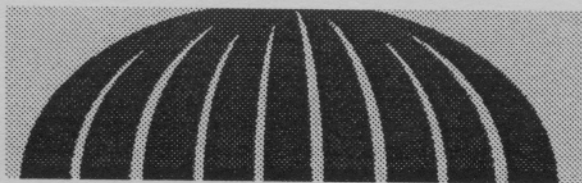
7:00 p.m.

Banquet

McHenry

Presentation of Graduate Student Contest Awards: Constantine Hadjilambrinos, NASTS President

Banquet Speaker: John Penick, North Carolina State University, John_Penick@ncsu.edu



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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