Association of Environmental Engineering and Science Professors Newsletter

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President's Letter

Dear Colleagues,

The last few months have been an exciting start to the new millennium. AEESP recently launched its new web site. If you haven't already done so, I strongly encourage you to peruse it. The navigation and overall appearance are much improved. In addition, the new site also boasts a new e-version of the graduate register, making it more accessible to a wider audience. Keith Strevett (U. of Oklahoma) did a wonderful job spearheading the graduate register effort. Kurt Paterson (Michigan Tech) single-handedly renovated the site and deserves our deepest and most sincere thanks.

In an effort to move environmental engineering toward a more nationally influential posture, I recently met with top executives from selected non-governmental environmental groups to inform them of the expertise and intellectual resources available within AEESP and encouraged them to contact appropriate members directly as their needs arise. Potential opportunities for collaboration were discussed with representatives from Clean Water Network, National Wildlife Federation, Natural Resources Defense Council, Resources for the Future, Sierra Club, United Nations Environmental Programme, and the World Resources Institute. An immediate beneficial outcome is that The Clean Water Network has tentatively agreed to add an AEESP member to its Board of Directors.

As President of AEESP, I recently moderated a congressional briefing on Capitol Hill addressing the environmental implications of nanotechnology and genome-enabled research. The event was co-sponsored by AAES, AIChE, ASCE, and ASME. The speakers did a wonderful job for a "standing-room only" audience. Four separate presentations comprised the briefing:

- Genome-Enabled Environmental Science - David Stahl (U. Washington)
- Environmental Applications of Nanotechnology Research - Gil Lee (Purdue U.)
- Industrial Applications with Environmental Impact - John Carberry (DuPont)
- Coupled Human and Natural Systems - Jerry Schnoor (U. Iowa)

As I noted in a previous Newsletter, AEESP in cooperation with AAEE has suggested the names of accomplished and respected environmental engineers for top environmental posts (e.g. EPA, DoE, DoD) in the new Administration. Although I have received letters from the Secretaries of Energy and Defense thanking us for the nominations, we still await some measure of success deriving from these efforts.

AEESP has been working to improve the funding climate for environmental engineering research within the Bush Administration. Through the Coalition for National Science Funding (CNSF), AEESP along with 79 other organizations signed a letter that would support doubling the NSF's budget by 2006. The letter strongly urged the Administration and Congress to provide no less than $5.1 billion, a 15% increase, for the NSF in FY 2002. Although I am not fond of placing tables in letters, I think it valuable to consider the following "preliminary" budget specter. As you can see, it appears that our request will go unfulfilled. Indeed, the disparity between "health-based" and "natural science & engineering-based" research funding continues to widen at an alarming rate. Moreover, many federal departments will find the coming year one of fiscal contraction if not exigency. However, a particular nota bene in the NSF preliminary budget are funds targeted for the

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President's Math and Science Partnership initiative ($200 million) for States to join with institutions of higher education in strengthening math and science education in grades K-12.

Department	*FY 2001 (billion $)*	*Proposed FY 2002 (billion $)*	*Increase/Decrease (%)*
Commerce	5.1	4.8	-5.9
Defense	296.3	310.5	+4.8
Energy	19.7	19.0	-3.7
EPA	7.8	7.3	-6.4
Interior	10.2	9.8	-3.9
NIH	20.3	23.1	+13.2
NSF	4.4	4.5	+2.3
Transportation	18.4	16.3	-11.4

Through the continuing efforts of Kathi Ream, Mike Aitken (UNC) and Mort Barlaz (NC State) had the opportunity to attend part of a meeting of NSF's Committee on Environmental Research and Education as observers. This committee will help to shape the scope of environmental research to be sponsored by NSF in the future. Dick Luthy (Stanford), a former AEESP president, is one of only two engineers on this important NSF committee.

Other notable activities over the last few months include Kim Hayes (U. of Michigan) agreeing to co-chair the AAES Environment Committee and the formation of an ad hoc committee chaired by Lisa Alvarez-Cohen (UC-Berkeley) to explore the recent offer by the Association of Environmental Health and Science to form a strategic partnership. A report will be forthcoming at the May Board meeting.

With best wishes for a placid end to the academic year,

Domenico Grasso, President

INITIAL NOTICE

2002 AEESP/AAEE CONFERENCE ON EDUCATION AND RESEARCH NEEDS IN ENVIRONMENTAL ENGINEERING AND SCIENCE

University of Toronto
August 11-13, 2002
Pre and post conference activities August 10 and 14

DETAILS TO BE ANNOUNCED - PLAN TO ATTEND!

Questions ???? - contact:
Division of Environmental Engineering, University of Toronto
Sandy Walker, Administrator: eep@ecf.utoronto.ca
Phil Byer, Chair: byer@ecf.utoronto.ca

Format for submissions

Please note that the preferred file format for newsletter submissions is Microsoft Word. Photos, logos and other images should be in .tif format. Photos may be sent as prints or scanned at 300 dpi resolution. Please identify all subjects in photographs and provide names, dates, event and location. Submissions should be sent to Roger Ely, AEESP Newsletter Editor, roger.ely@yale.edu; Department of Chemical Engineering, P.O. Box 208286, Yale University, New Haven, CT 06520-8286; phone (203) 432-4386; fax (203) 432-2881.

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New AEESP web site

Dear AEESP colleagues,
A few short notes from the AEESP internet resources division:

Our web site, www.aeesp.org, was completely redesigned in January. Some notable features are:

- Streamlined content—should load fast via T1 or modem connection.
- Online job submission form—get your job posted faster this way. Easy to use!
- Improved interface, incorporating many of your comments from the past few years.
- Links to your program's web site, categorized by B.S., M.S. and Ph.D.
- An electronic version of the AEESP Graduate Register, 2000 edition.
- Online web polls of interest to AEESP members.
- Spotlight featuring your program and sustaining member links.

The old email list (aeespnews@bigmac.cee.mtu.edu) is back in operation after a seven week (unplanned) absence. We are currently working on an expanded email list service; until then, keep using this list.

Best regards,
Prof. Kurt Paterson
Michigan Technological University

AEESP lecture

Professor Joan B. Rose, University of South Florida, will present the AEESP Lecture at the AWWA Conference in Washington, D.C. this summer. Her presentation, entitled "Water in the News, What's a Water Microbiologist to Do?" is scheduled to begin at 1:00 p.m. on Monday, June 18, in Rooms 13-15 at the D.C. Convention Center.

Timing couldn't be better

A briefing on "Genomes and Nanotechnology: The Future of Environmental Research" was held for the U.S. Congress, its members and staff, on March 1, 2001. The briefing aptly coincided with the same-day release of the preliminary summary of the Bush administration's FY 2002 budget, where research areas, with the exception of the National Institutes of Health and the Department of Defense, are funded at lower levels than in recent years. The briefing message was heard clearly: Federal funding for genome research and nanotechnology is **critical**; to the extent that a flat budget for this interdisciplinary environmental research could weaken its cutting edge, jeopardizing the nation's future economic success and the planet's sustainability.

The event, which was held in the Rayburn House Office Building, was co-sponsored by AEESP and four sister societies--American Association of Engineering Societies, American Society of Civil Engineers, American Institute of Chemical Engineers, and American Society of Mechanical Engineers International. AEESP president Domenico Grasso served as the briefing's moderator and the discussion panel's chair.

David Stahl's (University of Washington, Seattle) presentation focused on "Genome-Enabled Environmental Science." He painted the picture by describing Earth as the planet of microbes, "the glue that binds together the macroscopic world." "Microbes are in the driver's seat," he stated. "They 'designed' the biosphere and they determine the rates at which matter is degraded and transformed....The greatest repository of genetic information is in the microbes. As such, microbes are profoundly significant to biotechnology, environmental engineering, and environmental science." Despite their central role, Stahl noted that little is known about microbes. Should genome research dollars shrink, knowledge about how microbes shape the environment on a local or global scale, as well as knowledge about how they might be effectively used in environmental engineering, will lose its focus.

"Environmental Applications of Nanotechnology Research" framed Gil Lee's (Purdue University) presentation. Lee said that, "[t]he National Nanotechnology Initiative is one of the most important programs in engineering and the physical and chemical sciences in the last 20 years." He supported his assertion by describing some exciting results of the national investment in nano-science and technology. Nanometer scale R&D is developing a new generation of materials that will allow the nation to advance with more efficient chemical production, cleaner industries and tools. It will create more effective materials used in remediation and management of environmental contaminants, and will provide new insights about nanometer scale materials in the environment.

DuPont's John Carberry spoke about "Genomes and Nanotechnology--Industrial Applications with Environmental Impact." He emphasized the important role the government plays in maintaining the U.S. chemical industry's competitive advantage. He argued that through the federal support of higher education, the faculty researchers and their discover-

ies, the universities provide fundamental knowledge leading to the development of technology platforms. Traditionally, the chemical industry has turned research into value through application. "The work in genome research and nanotechnology," said Carberry, "is giving rise to other possibilities that the U.S. chemical industry can use to enhance the quality of life." He pointed out that genome-based research would lead to a clearer understanding of biological impacts and life processes, which in turn will allow optimization of resources. For example, Carberry suggested that the outcomes of optimization might generate a larger and higher quality crop yield with less input of energy and capital requirements; or create new values from farmlands producing polymers, chemicals, or foods with new beneficial traits. Similarly, Carberry offered that nanotechnology research would decrease human environmental impact by lowering resource demands. Micro-assemblies with superior catalysts will produce better products, higher yields for less waste, and immobilization of catalysts for easier containment without functionality loss.

Panelist Jerald Schnoor (University of Iowa) reinforced the need for federal support of interdisciplinary research in understanding the "Dynamics of Coupled Natural and Human Systems." Emphasizing that the national prosperity relies on natural capital (e.g., natural resources, soil quality), Schnoor advocated federal investment in nanotechnologies, genomics and biocomplexity, and sustainable development. He wove a context for decision making as he provided an overview of biocomplexity, the importance of biodiversity, and the requirements of a sustainable society. He asked those gathered for the briefing, "How do we make decisions in the face of biocomplexity and uncertainty? Within a risk-based paradigm, or a precautionary principle?" Schnoor held that scientific "products" are necessary for ecological and economic forecasting.

In Memoriam...Bernard B. Berger

We regret to announce that Professor Emeritus Bernard B. Berger died Friday, December 8, 2000 in Amherst, Massachusetts. Professor Berger received his B.S. in Public Health Engineering from the Massachusetts Institute of Technology in 1935 and his M.S. in Sanitary Engineering from Harvard University in 1948. He served as an officer in the United States Public Health Service from 1941 to 1966. While in the Public Health Service, Professor Berger had many assignments in the United States and abroad. Between 1954 and 1963, he was in charge of research activities in water supply and water pollution control at the Public Health Service's Robert A. Taft Sanitary Engineering Center, in Cincinnati, Ohio. At that time, the Center was the primary Federal research organization in the water field. Professor Berger initiated the Federal program on advanced wastewater treatment research that identified and evaluated physico/chemical processes for separation of solids in wastewater with primary emphasis on synthetic organic compounds of industrial origins.

Professor Berger came to the University of Massachusetts/ Amherst in 1966. He was director of the Water Resources Research Center as well as a faculty member in the Department of Civil Engineering. He was one of the founders of the Environmental Engineering Graduate Program at the university. Between 1968 and 1969, he took a leave of absence from the University to serve as the Nation's Water Resources Specialist in the Office of Science and Technology, Executive Office of the President of the United States. He officially retired from the university in 1978, but remained active as Professor Emeritus up until a few weeks before his death.

Among his international activities, Professor Berger served in the early 1970s as a consultant in the formation of the Israel Environmental Service, later to become the Israel Department of the Environment. Subsequently, he was also active in the U.S. Committee for the Israel Environment, an advisory group of senior environmentalists. Professor Berger served as General Secretary of the second and third International Conferences on Water Pollution Control, and for several years chaired the U.S. Committee for the International Association on Water Pollution.

Professor Berger received many awards from professional organizations and government agencies in the United States and abroad. He was awarded the Chancellor's Medal and an honorary Doctor of Science Degree from the University of Massachusetts. He was elected to the National Academy of Engineering in 1979.

Bernard B. Berger was born in New York City and raised in Boston, the second of eight children. He leaves his wife, Neoma, of Amherst, Massachusetts; two sons, Paul of Alexandria, Virginia, and David, of Baltimore, Maryland; a daughter, Susan Berger Atkins; a son-in-law, Peter Atkins; and a grandson, Zachary Atkins, all of Altadena, California.

Professor Berger will be greatly missed by his many friends and colleagues. His wisdom and keen insight into technical matters were of great help to his co-workers. His kindness and friendship are equally missed.

[Thanks to Mike Switzenbaum for providing this article and photo.]

Takashi Asano to receive 2001 Stockholm Water Prize

Professor Takashi Asano, of the University of California at Davis (UCD), was announced as the 11th recipient of the prestigious Stockholm Water Prize, by the Stockholm Water Foundation, on March 22. The nominating committee wrote:

Professor Takashi Asano is awarded the 2001 Stockholm Water Prize for his outstanding contributions to efficient use of water in the domain of wastewater reclamation, recycling and reuse through theoretical developments, practical research and worldwide adaptation and promotion.

During the last 20 years, Professor Asano has been the world's foremost expert on the safe and beneficial use of recycled water. Water recycling means reusing treated wastewater instead of drinking-quality water for purposes such as agricultural and landscape irrigation, industrial processes, toilet flushing, environmental enhancement and replenishing of depleted groundwater aquifers.

Professor Asano, a naturalized U.S. citizen, was born in Sapporo, Japan, in 1937 and moved to the United States in 1963. He is married to Holly Newcomb Asano and lives in Davis, California.

Research into reuse of a limited water resource

In the late 1970s and throughout the 1980s, Professor Asano spearheaded basic water reuse research at the California State Water Resources Control Board (SWRCB). This research contributed to a *Guidance Manual – Irrigation With Reclaimed Municipal Wastewater*, and culminated in the California Water Recycling Criteria, which now form the basis for most international projects and decrees within the domain of wastewater reclamation, recycling and reuse. In recent years, Professor Asano has contributed substantially to this area by evaluating the safe use of reclaimed water through microbial risk assessment in water reuse. This represents an expansion of research on public health protection, wastewater treatment technology, process reliability within the field of wastewater reclamation, recycling and reuse and includes, for example, virus-monitoring data together with new approaches in *reliability* and *expectation* using statistical evaluations and simulation.

An international champion for water reuse

While at SWRCB and at UCD, Professor Asano used his original water reuse investigations for worldwide promotion of the field and also for the expansion and adaptation of the research results in both developed and developing countries. He recognized early that developing countries in arid and semi-arid regions in the world, with a fast growing population and limited economic resources, need special attention. He contributed significantly to solutions of water scarcity problems in developing countries through assignments with international organizations like the World Bank, the World Health Organization and the Food and Agriculture Organization, where he consulted on the safe use of the wastewater resources in the context of integrated water resources management.

Professor Asano has also contributed to the world's knowledge of water conservation and efficient use of water through active participation in international organizations, through the education of young water scientists and engineers, and by authoring more than 50 articles and books, including the edited book *Water Reclamation and Reuse*, the definitive reference work on the subject. His most notable contribution, however, was initiating the formation of the International Association on Water Quality's Specialist Group on Wastewater Reclamation, Recycling and Reuse in 1987, and the worldwide network for water reuse research and practice. In addition, he has acted as a catalyst for technological advancement and as a mediator among scientists, practitioners and politicians in arid and semi-arid countries where water is needed most and priced the highest, and among Asian countries and the western world. He has spent much of the last decade traveling throughout the world and assisting countries in the areas of integrated water resources management, efficient uses of water, water conservation and water reuse.

The Stockholm Water Prize

HM King Carl XVI Gustaf of Sweden is the Patron of the Stockholm Water Prize and will present it to Professor Asano on August 16 at a Royal Ceremony and Banquet in the Stockholm City Hall during the World Water Week in Stockholm. The Stockholm Water Prize, founded in 1990, includes a USD 150,000 award and is presented annually to an institution, organization, individual or company that has made a substantial contribution to the preservation, enhancement or availability of the world's water resources. The Prize recognizes outstanding research, action or education that increases knowledge of water as a resource and protects its usability for all life.

Stockholm Water Prize Founders include Anglian Water, Aragon Fondkommission, Bacardi Limited, Compaq, DuPont, Fujitsu Siemens Computers, General Motors, Grundfos, ITT Flygt, Kemira Kemwater, KPMG, Ragn-Sells, Scandinavian Airlines (SAS), SNECMA, Stockholm Water Festival, Swedish State Railways (SJ), Uponor Group and the Water Environment Federation.

For more information, visit www.siwi.org.

The Stockholm International Water Institute (SIWI), a scientific, technical and educational organization, contributes to international efforts to combat the escalating global water crisis by facilitating research, raising awareness and stimulating action on world water issues. SIWI administers the Stockholm Water Prize, Stockholm Junior Water Prize, Stockholm Water Symposium, Stockholm Water Initiative, Stockholm Industry Water Award and Swedish Baltic Sea Water Award.

Comings & Goings

AEESP members, please share items of professional achievement with other AEESP members...Send a brief note via e-mail to: Roger Ely, AEESP Newsletter Editor, roger.ely@yale.edu.

University of Texas at Austin

The Administrator of EPA has appointed **Dr. Raymond C. Loehr**, PE, DEE, as the chairman of the EPA Research Strategies Advisory Committee (RSAC). RSAC is a standing committee of the EPA Science Advisory Board (SAB) and was established to provide broad advice to the Administrator on research planning, management and budget development. RSAC also provides a point of focus for the SAB to consider the overall directions of intramural and extramural research programs of EPA.

Dr. Loehr is the H.M. Alharthy Centennial Chair of Environmental Engineering at the University of Texas at Austin. During the period of 1988 through 1993, he was the chair of the EPA Science Advisory Board and of the EPA Executive Committee.

University of Toronto

Glynn Henry, Professor Emeritus at the University of Toronto, is co-inventor of a biological process (BIOSOL) that enables compost to be produced from metal-contaminated sludges. The BIOSOL process (U.S. Patent No. 6,066,256) follows 15 years of research and will be available to municipalities and industries through the University of Toronto's Innovation Foundation.

Carnegie Mellon University

Mitchell J. Small, professor of civil and environmental engineering and professor and associate department head of engineering, was recently named the first H. John Heinz III Professor of Environmental Engineering at Carnegie Mellon. A reception in his honor, given by John L. Anderson, Dean of the College of Engineering, is scheduled for April 26, 4:00-6:00 p.m., at the George A. Roberts Engineering Hall at Carnegie Mellon University.

Professor Small joined the Carnegie Mellon faculty in 1982 and currently holds a joint appointment in the Department of Civil and Environmental Engineering and the Department of Engineering and Public Policy. He also serves as the associate department head for graduate education in EPP.

Small's research involves mathematical modeling and statistical evaluation of environmental quality, exposure and risk; with applications to air, soil, surface-water and ground-water pollution problems. His recent work has evolved to consider the impact of human risk perception and behavior in exposure assessment, and has included collaboration with statisticians, toxicologists, economists, and behavioral and decision scientists. Current applications include the study of U.S. drinking-water regulations; site and soil remediation; and decision support for precautionary and sustainability-based approaches to environmental policy. Small is currently working on a book with two former students on "Integrated Modeling of Pollutant Transport, Fate and Exposure."

Actively involved in the environmental community, Small has provided advice to the U.S. Environmental Protection Agency (EPA) as a member of the EPA Science Advisory Board (SAB) and the Board of Scientific Counselors. Currently, he is the chair of the SAB Environmental Models Committee. Small has served on a number of National Research Council Committees reviewing issues of environmental contamination in the United States, most recently the NRC Committee on Environmental Remediation at Naval Facilities. He is also an associate editor for the journal *Environmental Science & Technology*, where he has helped to initiate a new section of the journal on environmental policy.

Small received his B.S. in Civil Engineering and Engineering & Public Affairs from Carnegie Mellon in 1975 and his Ph.D. in Environmental and Water Resources Engineering from the University of Michigan in 1982.

In the performance of his duties, both as a public servant and as a philanthropist, he was not merely tireless, he was joyfully ferocious, himself the embodiment of radiant living.
– Teresa Heinz

Senator John Heinz was born on October 23, 1938 in Pittsburgh, Pennsylvania. He represented the people of Pennsylvania for 20 years on Capitol Hill, five of them in the U.S. House of Representatives and 15 in the U.S. Senate. He earned a national reputation based on his work on retirement and aging concerns, health care, international trade and finance, human development and environmental issues.

Heinz earned a B.A. from Yale University in a special honors major: "History, Arts and Letters" in 1960 and a M.S. in Business Administration from Harvard University in 1963. At age 33, Heinz became the youngest member of the U.S. House of Representatives, winning a special election for Pennsylvania's 18th Congressional District. He served five years in Congress and was elected to the U.S. Senate in 1976.

Heinz was instrumental in pushing through legislation that put the Social Security system on sounder financial footing. He played a major role in strengthening laws regulating retirement policies, pension plans, health insurance and nursing homes. Regarded as one of the Senate's most innovative environmental thinkers, Heinz won a major victory for the world's rain forests in 1989 when President Bush signed his legislation. Heinz also authored legislation to protect ground water and cosponsored a bill to stem global warming.

In his years in Pittsburgh as well as on Capitol Hill, Heinz was an active participant in community and charitable endeavors, ranging from the arts to community development in the urban areas of western Pennsylvania. As chairman of the Heinz Endowments, he continued the Heinz family tradition of combining entrepreneurial skills with community activism.

Heinz died on April 4, 1991 in an airplane accident. His vision lives on through his wife, Teresa Heinz, and three sons, John, André and Christopher.

Programs & Places

Manhattan College

Manhattan College, Riverdale, New York, will offer the 46th Institute in Water Pollution Control, June 4-8. Two one-week courses offered concurrently are Water Quality Modeling and Treatment of Contaminated Waters. The cost for each course is $1,200. The courses are designed for practicing engineers and scientists in city, state and federal agencies, industrial concerns, research organizations, consulting engineering, and academic institutions. For more information, contact: Leah Christenson, Tel.: (718) 862-7276, Fax: (718) 862-8018; E-mail: lchriste@manhattan.edu; Manhattan College, Environmental Engineering Department, Riverdale, NY 10471.

New Mexico State University

A team of faculty members from New Mexico State University has been awarded a 3-year, $425,000 grant from the National Science Foundation to develop a repertoire of educational materials to be used in undergraduate hydraulics courses. The materials to be developed include computer models and simulations; computer-based tutorials and tests; in-class demos; collection of puzzles and riddles; and interactive lecture notes. The project involves development, testing, and evaluation of the materials during the third year. Several universities have committed to evaluate these materials in their own programs and more are being sought. An honorarium will be paid to external evaluators. The project team is led by Prof. N. Khandan in the Civil and Geological Engineering Department at NMSU. Please contact Prof. Khandan at nkhandan@nmsu.edu or (505) 646-5378 if any AEESP members would like to participate in the evaluation process during the 2002-2003 AY.

University of Central Florida

Call For Ph.D. Students. The University of Central Florida (UCF) is seeking several qualified Ph.D. students available to begin studies immediately, or as late as August 2001, for a large drinking water research project (total amount of funding: $3,000,000) funded by the American Water Works Association Research Foundation (AWWARF) and Tampa Bay Water (TBW) in a Tailored Collaboration grant. The purpose of the grant is to conduct research for required treatment and water quality criteria for distribution system blending of treated surface, ground and saline sources. The project will determine the effects of blending different finished waters on distribution system water quality by field simulation of proposed treatment changes. Prof. J. S. Taylor will be the principal investigator (PI), Drs. J. Dietz, S. K. Hong, A. A. Randall and L. A. Mulford will be Co-PIs. The project will require a minimum of three years to complete.

Students interested in conducting research on this project should contact Dr. J. S. Taylor, Civil and Environmental Engineering (CEE) Department, University of Central Florida, P.O. Box 162450, Orlando, FL 32816-2450; phone: 407-823-2785; fax: 407-823-6562; email: taylor@mail.ucf.edu. Students should have strong knowledge of water treatment, chemistry, microbiology, and water quality and hydraulic modeling. Biweekly stipend, partial or full tuition for three years, opportunities for national conference presentations and publication in refereed journals will be available for qualified Ph.D. students.

Penn State Harrisburg

Graduate research assistantships and fellowships are available in the Environmental Programs at Penn State Harrisburg. Penn State Harrisburg offers bachelor's and master's degrees in environmental engineering or science and is home to two training centers sponsored by the U.S. EPA and the Penn. Department of Environmental Protection. Graduates with degrees in biology, chemistry, environmental science, or engineering are eligible for one of our graduate degree programs. For more information, call the Program Office at 717-948-6358, or visit our web site at www.hbg.psu.edu/epc.

Brown and Caldwell

New Minority Scholarship Program. Brown and Caldwell is offering a new scholarship for minority students, which is available to juniors who will have completed their junior year by Summer 2001. Candidates for the scholarship should be majors in civil, chemical or environmental engineering. Successful candidates will receive an award of $3,000, coupled with a paid summer internship in one of Brown and Caldwell's offices. Six students will be selected to receive the award. The application deadline is March 31, 2001. Complete information about the award is available at the web site, www.brownandcaldwell.com. Applications may be downloaded from the web site. For more information, contact Eileen Healey, Brown and Caldwell, 201 No. Civic Dr., Walnut Creek, CA 94596-3864, EHealey@brwncald.com, (925) 210-2582. Brown and Caldwell also offers a graduate student program, the new Eckenfelder award, which will be advertised on their web site in Summer 2001.

Organizations of Interest

AWMA annual meeting

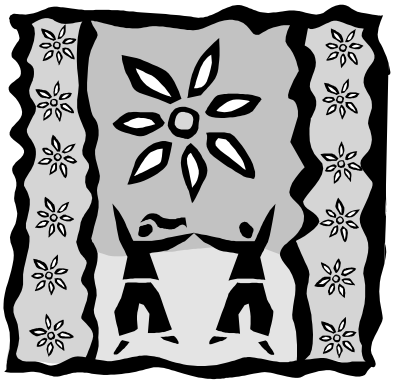
The annual meeting of the Air & Waste Management Association, to be held June 24-28, 2001, in Orlando, Florida, will feature an excellent program for students and environmental educators, including a student poster contest, a career panel session, and a behind the scenes tour of Disney World that includes the co-generation plant, wastewater treatment plant, and materials recycling facility. Social activities for students will include a Mexican buffet feast. AEESP will be hosting a Meet-and-Greet breakfast especially for environmental engineering and science educators that will provide an opportunity for networking and socializing. Judges are needed for the student paper contest. Please contact Prof. Chang-Yu Wu, Department of Environmental Engineering Sciences, University of Florida, cywu@ufl.edu, 352-392-0845, if you would like to judge student papers and posters at the conference.

AWRA elects board members

John S. Grounds, III, P.E., has been elected to serve as president of the American Water Resources Association for 2001. Grounds is a senior engineer with Halff Associates, Inc., in Houston, Texas. He is responsible for the management, design and analysis of hydraulic and hydrologic engineering projects.

Dr. Grounds has served AWRA for many years. In 1989, he reorganized and revived the Texas Section of AWRA, which hosted four state symposia during his two-year presidency. Most recently, he was the General Chairperson for the 1995 National Conference and Symposium in Houston. He has served on several committees, including the Conference and Planning Committee. He is active in other professional societies, including the American Society of Civil Engineers, having served in local and state offices, Chi Epsilon, the Civil Engineering honorary, and the Society of American Military Engineers.

Dr. Grounds received a bachelor's degree in civil engineering from Southern Methodist University and master's and Ph.D. degrees in civil engineering from the University of Houston. He is currently responsible for the design of 7,200 feet of 78-inch sanitary sewer relief tunnel to reduce overflows into the City of Houston's natural waterways.



Kenneth J. Lanfear has been elected to the position of president-elect for 2001. Lanfear is the Gateway to the Earth program coordinator at the U.S. Geological Survey in Reston, Virginia. He will become the Association's president in 2002.

Elected to three-year terms on the Board commencing January 1, 2001 are: **D. Briane Adams**, staff hydrologist, U.S. Geological Survey Southeast Region, Atlanta, Ga., as secretary/treasurer; **Melinda Lalor**, associate professor, Department of Civil & Environmental Engineering, University of Alabama-Birmingham, Birmingham, Ala., as director; and **Parker J. Wigington, Jr.**, research hydrologist, Western Ecology Division, National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency, Corvallis, Ore., as director.

Continuing on the Board of Directors are: **David R. DeWalle**, professor, School of Forest Resources, Pennsylvania State University, State College, Penn.; **Robert J. Moresi**, senior hydrogeologist, Moffatt & Nichol Engineering, Tampa, Fla.; **Jane L. Valentine**, School of Public Health, University of California, Los Angeles; **Ronald Yates**, chief of engineering and water management, Lakes and Rivers Division, U.S. Army Corps of Engineers, Cincinnati, Ohio; and **Janet L. Bowers**, executive director, Chester County Water Resources Authority, West Chester, Penn., as immediate past president.

The American Water Resources Association's mission is to advance multidisciplinary water resources management and research.

AWRA scholarship recipients

The American Water Resources Association has selected the 2000 scholarship recipients for its Richard A. Herbert Memorial Educational Scholarship Fund. Over 35 applications, received from around the country, were considered for receipt of the $1,000 scholarships, one awarded to an undergraduate student and one to a graduate student.

Michael Seider of Neenah, Wis., is the recipient of the undergraduate scholarship. Seider is enrolled at the University of Wisconsin-Stevens Point College of Natural Resources as a fisheries student. He has been recognized for his academic excellence and student involvement and is a member of Phi Kappa Phi and Xi Sigma Pi. Seider currently serves as the Student Advisory Panel representative for AWRA and was the president of the student chapter of the American Fisheries Society during the 1999-2000 academic year. Besides being very active in fisheries in an academic sense, he is an active fisherman who works hard to conserve the natural resources. Seider's goal is

to earn a Ph.D. in a water resources subject and to teach at the university level.

Kurt Kelsey of Marinette, Wis., is the recipient of the graduate student scholarship. Kelsey is enrolled at the University of Wisconsin-Stevens Point College of Natural Resources, where he received a bachelor's degree in watershed management and is now pursuing a master's degree in Natural Resources. Kelsey was a member of the UWSP-AWRA student chapter for five years and has been a national member for the last three years. He is a member of the UWSP Soil and Water Conservation Society student chapter and a national member of the International Erosion Control Association. Kelsey's goal is to work toward reducing the amount of sediments entering our water bodies to improve the quality of our water resources.

WDSA / EWRI symposium

The 4th annual WDSA symposium will be held in conjunction with the Environmental & Water Resources Institute (EWRI) meeting in Orlando this May. This year the symposium includes 13 coordinated technical sessions with 45 papers. The complete program can be viewed from the conference web site at http://www.ecn.purdue.edu/Water2001/index?action=ListProgram&sym_code=SY07.

Next year's symposium will likely be during the 2002 EWRI Water Resources Planning & Management division meeting, which I believe is planned for Virginia Tech in Blacksburg, Virginia, USA. Details will be announced in the fall. --Jim Uber

Publications

Free examination copies of Polymath numerical analysis software

POLYMATH is a user-friendly interactive numerical analysis package that is available for educational and professional use. It is widely used by many colleges and universities in the United States and throughout the world, particularly by Chemical Engineering Departments. It is also on CD-ROMs accompanying several Prentice Hall textbooks.

POLYMATH is written by faculty and inexpensive site licenses are available through the CACHE Corporation (Computer Aids for Chemical Engineering, a nonprofit educational corporation started by NSF and National Academy of Engineering, www.cache.org). Site licenses allow students to have POLYMATH on their own personal computers.

This software has almost no learning curve, is extremely easy to use, and can be a powerful problem-solving tool for many courses in Environmental Engineering and in undergraduate/graduate research. It has been recently rewritten in Visual Basic 6.0 and is supported by all 32-bit Windows operating systems, including Windows 95, 98, 98SE, 2000, ME and NT.

Problem solving capabilities include:

- Linear Equations - up to 200 simultaneous equations (to 64 with very convenient input)
- Nonlinear Equations - up to 200 simultaneous nonlinear and explicit algebraic equations
- Differential Equations - up to 200 simultaneous ordinary differential and explicit algebraic equations
- Data analysis and Regression - up to 600 data points with capabilities for linear, multiple linear, and nonlinear regressions with extensive statistics plus polynomial and spline fitting with interpolation and graphing capabilities

Detailed information on POLYMATH is available at www.polymath-software.com. Free examination copies via download or CD-ROMs are available from Professor Mike Cutlip at the University of Connecticut, Michael.Cutlip@Uconn.Edu.

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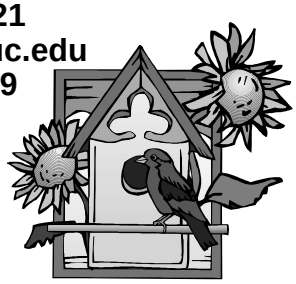
2208 Harrington Court
Champaign, IL 61821
e-mail: jfetzner@uiuc.edu
phone: 217-398-6969
fax: 217-355-9232



Employment Opportunities

Clemson University

RESEARCH ASSOCIATE POSITION. The Department of Environmental Engineering & Science at Clemson University invites applications for a Post-Doctoral Research Associate position. The primary responsibility of the successful candidate will be to explore different approaches/techniques to tailor the surfaces of carbon fibers and activated carbons in order to gain insight to adsorption mechanisms of priority organic pollutants and to produce novel sorbents. In addition, there will be opportunities to collaborate on projects related to disinfection by-product formation and control, natural organic matter (NOM) isolation, fractionation, characterization, and interactions of NOM and colloids with membrane materials.

Applicants should have a Ph.D. in Environmental Engineering, Chemical Engineering, Material Sciences or a closely related field. Experience with GC and HPLC analyses is required. Familiarity with gas sorption systems, vapor/liquid-solid interactions and surface characterization techniques is desirable.

The starting date for the position is August 15, 2001. The appointment will be for 1 year, with renewals possible for up to 3 years. Applications will be accepted until the position is filled. Salary is negotiable, commensurate with qualifications and experience. Send an application letter describing qualifications and research interest, a curriculum vitae, and the names, addresses (postal and email), and telephone numbers of three references to: Tanju Karanfil, Assistant Professor, Clemson University, Department of Environmental Engineering & Science, L. G. Rich Environmental Research Laboratory, Box 340919, Clemson, SC 29634-0919; phone: (864) 656-1005; email: TKARANF@clemson.edu; web: http://www.ces.clemson.edu/ees/karanfil/index.html.

Clemson University is an equal-opportunity, affirmative-action employer, committed to employing a highly qualified, diverse faculty and staff. Women and minorities are encouraged to apply.

University of North Carolina, Charlotte

LIMITED-TERM AND VISITING RESEARCH ASSOCIATESHIPS AND PROFESSORSHIPS. The Geoenvironmental and Energy Systems Research Laboratory (GESRL) of the evolving Global Institute for Energy and Environmental Systems (GIEES) at the University of North Carolina Charlotte invites applications from suitably qualified candidates within and outside the United States for limited-term and visiting research associateships and professorships (3-12 months) beginning in March 2001. Job titles will depend on the applicant's qualifications and planned professional activities. GIEES is planned as a cross-disciplinary, cross-College research-focused entity involving disciplinary sectors such as engineering, chemistry, earth and environmental sciences, biological sciences, physics, energy systems and public policy. It was recently selected as the headquarters of the International Consortium of Environmental and Energy Research Institutes and Centers (ICEERIC) as well as the International Society of Environmental Geotechnology (ISEG). Fields of interest include, but are not limited to:

- Thermodynamics of soil-contaminant interactions
- Colloid-aqueous polymer reactions for dust control
- Durability of waste containment barrier materials
- Stable isotope geochemical analysis of water, contaminants and geomaterials
- Contaminant leachability modeling and testing
- Modeling of contaminant fate and transport in the subsurface
- Contaminated site cleanup processes
- Bioremediation of contaminated materials
- Biomonitoring techniques for aquatic systems
- Water quality modeling and testing
- Wastewater treatment techniques
- Air quality modeling and monitoring techniques
- Geophysical techniques for site characterization
- Tomography and CT-imaging of porous materials
- Fabrication of chemical sensors
- Modeling of radiation transport in soils
- Risk assessment for energy installations and pipelines
- Reliability modeling of waste storage systems
- Renewable energy generation systems
- Underground space excavation techniques for energy and waste storage
- GIS applications in environmental analysis
- Time-series analysis of natural and anthropogenic hazards
- Application of decision theory to environmental and energy policy
- Quantitative analysis of national energy systems and requirements

Successful candidates will be expected to collaborate with other program personnel on research proposal development, research implementation, authorship of peer-reviewed research articles, seminar presentations and associated professional activities. A Ph.D. is required for most positions. Masters degree holders will be considered for some positions. Monthly stipends range from U.S. $1,000 to $4,000, depending on the availability of funds. Preference will be given to applicants who can be partially or fully supported independently through fellowships or sabbatical leave arrangements by their home institutions or

governments. These are non-tenure track positions. Applications are accepted on a continuous basis. Interested applicants are requested to forward their resumes and letters of research interest to: Hilary I. Inyang, Ph.D., Duke Energy Distinguished Professor and Director, GESRL, c/o C. C. Cameron Research Center, University of North Carolina Charlotte, 9201 University City Boulevard, Charlotte, NC 28223-0001. UNC Charlotte is an AA/EOE organization.

University of Oklahoma

Two graduate research assistantships are available in the School of Civil Engineering and Environmental Science (CEES) at the University of Oklahoma for qualified students pursuing the M.S. or Ph.D. degrees in environmental science or engineering. The assistantships include competitive stipends, health benefits, and full tuition waivers. Qualified M.S. or Ph.D. students will conduct laboratory studies to investigate the transformation of groundwater pollutants by reactive minerals and natural organic matter, with application in predicting the fate of these pollutants in natural and engineered systems. CEES has an active and exciting environmental science and engineering research program. Visit our website (http://www.ou.edu/cees/) to learn more about our department. For further information on the research assistant positions described here, please contact Professor Liz Butler at ecbutler@ou.edu or 405-325-3606.

Rutgers, The State University of New Jersey

PROFESSOR IN ENVIRONMENTAL SCIENCES AND ENGINEERING. As part of an expansion of its environmental engineering program in Cook College (CC) and the School of Engineering (SOE), Rutgers, The State University of New Jersey, is seeking a distinguished scholar of international stature, with a record of excellence in research and teaching. The candidate will play a central role in an initiative of excellence in Environmental Sciences and Engineering jointly sponsored through CC and SOE. This is the first of six Environmental Engineering faculty positions (one at the Full Professor level and five at the Assistant Professor level) to be filled in the next 2-3 years.

We seek an individual with the following qualifications:

- An established reputation for scholarship in the field of environmental engineering and sciences;
- A record of excellence, accomplishment and leadership in the field;
- Recognized strength in education.

We anticipate that the candidate will:

- Lead a strong research program in environmental engineering and sciences with a presence in both CC and the SOE;
- Provide leadership and teach in the undergraduate and graduate programs in environmental engineering;
- Play a key role in the recruitment of five assistant professors and in defining the vision and plan that will strengthen the environmental engineering and sciences programs at the University.

Applications should include a statement of research/teaching interests, a CV, names, addresses (electronic also) and telephone numbers of five references, sent to: Roni Avissar, Chair, EESC, Rutgers University, 14 College Farm Road, New Brunswick, NJ 08901-8551. Electronic submission of all requested material to search@envsci.rutgers.edu is preferred. Review of applications will begin March 15, 2001, and continue until the position is filled. For more information on Rutgers University, please consult our Website at http://www.rutgers.edu.

Rutgers University is an Equal Opportunity/Affirmative Action Employer.

University of Wisconsin, Madison

FACULTY POSITION, ENVIRONMENTAL ENGINEERING. The Department of Civil and Environmental Engineering of the University of Wisconsin-Madison seeks a tenure-track faculty whose research interests are truly innovative and outstanding. It is expected that the position will be filled at the level of Assistant Professor. However, exceptional candidates at higher academic levels will also be considered. Applicants should have formal degrees in civil/environmental engineering, or related fields. The successful candidate is expected to develop and sustain an externally funded research program of the highest quality in a high profile area of Environmental Science and Engineering; expected to work at interdisciplinary boundaries by developing collaborative research interactions with colleagues both within and outside the department; and required to teach and advise undergraduate and graduate students.

The Environmental Science and Engineering program at the University of Wisconsin is comprised of 16 faculty members working in both traditional and non-traditional areas such as: water and wastewater treatment, aquatic and air pollution chemistry, advanced treatment technologies, environmental biotechnology, environmental geotechnics, and water resources. For a description of the current research activities of this group, applicants are directed to the program's web page at http://www.engr.wisc.edu/enveng.

Please send a detailed resume, a statement of research and teaching interests, and a list of at least three references to: Professor Marc A. Anderson, Chair, Environmental Engineering Search Committee, Department of Civil and Environmental Engineering, Environmental Chemistry and Technology Program, University of Wisconsin-Madison, 660 N. Park Street, Madison, Wisconsin 53706.

Apply by June 1, 2001 to insure consideration. The University of Wisconsin is an equal opportunity, affirmative action employer. Women and members of underrepresented groups are encouraged to apply.

Washington University in St. Louis

SCHOOL OF ENGINEERING & APPLIED SCIENCE

TENURE TRACK FACULTY POSITIONS

ENVIRONMENTAL ENGINEERING SCIENCE

The Environmental Engineering Science Program at Washington University in St. Louis invites nominations and applications for two junior level tenure-track faculty positions. The Environmental Engineering Science Program (www.env.wustl. edu) is an Engineering School-wide, multi-disciplinary Graduate Program with nine affiliated faculty members having tenure track appointments in Chemical Engineering (www.che.wustl.edu), Civil Engineering (www.cive.wustl.edu) and/or Mechanical Engineering (www.mesun4.wustl.edu). The successful applicants to the current two positions will have tenure track appointments in Chemical and/or Civil Engineering.

Preference will be given to applicants with expertise in the following areas:

- Environmental Nanotechnology
- Physico-Chemical Processes in the natural or engineered Environment
- Environmentally Benign Processing/Green Chemistry
- Environmental Analytical Chemistry
- Molecular and Statistical Thermodynamics
- Water and Waste Water Treatment and Reuse
- Colloidal Systems
- Environmental Hydrology

The successful candidates should have an earned Ph.D. in Environmental Engineering Science, Chemical Engineering, Civil Engineering or a related discipline. One of the positions will be preferably filled by an individual who has demonstrated activities in the application of atomistic and molecular techniques in the study of environmental problems. The selected candidates are expected to teach classes at the undergraduate and graduate Level. They will be expected to conduct research and teach in the Program focal areas of Sustainable Technology and Water Quality, as well as complement and be able to establish collaborative research and teaching initiatives with the existing faculty in the Aerosols and Air Quality focal area. In addition to funding for the Faculty and support by the School of Engineering and Applied Sciences, the Environmental Engineering Science Program has Endowment support exceeding $ 8 million.

Washington University in St. Louis, founded in 1853, is a medium sized, independent research university dedicated to challenging its faculty and students alike to seek new knowledge and greater understanding of an ever changing, multi-cultural world. The university is counted among the world's leaders in teaching and research and draws students (with 6,509 undergraduates and 5,579 graduate and professional students, as well as 1,384 part time students) and faculty to St. Louis from all 50 states and more than 90 other nations.

Applicants should provide a resume, brief description of research and teaching interests, and list of three references (with telephone numbers and email addresses) to:

Dr. Pratim Biswas
Jens Professor and Director
Environmental Engineering Science Program
Washington University in St. Louis
One Brookings Drive, Campus Box 1180
Washington University in St. Louis
St. Louis, MO 63130
Tel: 314-935-5548; email: pratim.biswas@seas.wustl.edu

Review of applications will begin April 1, 2001 but applications will be received until the positions are filled. Washington University is an Equal Opportunity and Affirmative Action Employer. Applications from women and minority groups are strongly encouraged.

Environmental Systems and Processes: Principles, Modeling, and Design

Walter J. Weber Jr., John Wiley & Sons, New York, 2001

One of the reasons we have so much misunderstanding in the world is that animals in one country cannot talk to animals in another country. Consider the problem of roosters, for example. An American rooster would say "cockadoodledoo" while a Jordanian rooster would respond with "kukukuku" which would be totally unintelligible to a German rooster who would say "kikarikari," while a Japanese rooster would weigh in with "kukikokoko." And an Estonian rooster would say "kukkelekuu" not being understood by any other rooster in the entire world. The problem for dogs is equally daunting. A Japanese dog would say "wan-wan," a Turkish dog "hav-hav," an Indian dog "bho-bho," an Arabian dog "how-how," and the Estonian dog "auh-auh." It is amazing to me that in the interest of world peace and international understanding someone has not published a dictionary that would assist animal communication between the various languages.

The same problem of different languages used to express the same concept is true in science and engineering, of course. One person might say something in a language intelligible only to them and be totally misunderstood by others, and only with a dictionary will it become clear what was meant. Walt Weber's book is in a different language, and it is not at all clear to the casual observer what he means. Getting into the book takes effort and not a few trips to the dictionary of the mind. He does not make it easy for you because he does not speak the same language as most of us. But the more you dig, the more you begin to believe that his language is worth learning.

This book, a derivative of the seminal work *Process Dynamics in Environmental Systems*, co-authored with Fran DiGiano of UNC, is specifically designed as a textbook in an introductory environmental engineering course. It is, however, not in the language we are used to. Walt introduces general concepts first and then illustrates them through the use of problems, which are imaginative and extensive. In fact, the prolific problems are the best part of this book. And only someone with Walt's extensive knowledge of the field could have developed them. The problems are worth the price of the book all by themselves.

The contents of the book reads like another language: environmental systems and processes, process and systems characterization, process and systems modeling, fluid flow and mass transport, elementary process equilibria, process energy relationships, elementary process rates, complex process rates, ideal system modeling and design, hybrid system modeling and design, nonideal system modeling and design, multiphase process equilibria, interfacial process equilibria, passive interphase mass transfer, reactive interphase mass transfer, and multiphase system modeling and design. (Now tell me, in your own language, what is in the book.)

But don't let this language fool you. This approach is beautifully integrated (using the problems) with various areas in environmental engineering, although the water environment is understandably the most important. I can see how this book could be an effective tool in teaching an undergraduate environmental engineering course, but you the instructor would have to learn a new language to do so. Walt challenges us to get out of our comfortable but moribund ways of doing things and embrace a new and powerful approach to teaching environmental engineering.

While the language of the presentation may be foreign to many professors, the language of the book for the student is personal and easily understood. The book is obviously written by a senior professor who cares deeply for the field, who has done a great deal of thinking about it, and who wants to impart this knowledge to the upcoming generation. It is in short a superb text and deserves your consideration.

Walter J. Weber, Jr. is the Gordon Maskew Fair and Earnest Boyce Distinguished University Professor of Engineering and Sciences at the University of Michigan.

P. Aarne Vesilind,
Bucknell University

Water Quality Assessment of the Former Soviet Union

Vitaly Kimstach, Michel Meybeck, and Ellysar Baroudy (eds.), E & FN Spon, London, 1998

In 1900, John Spencer Bassett was a 36-year-old English professor at Trinity College (now Duke University). Although he was born and raised in eastern North Carolina, he believed that segregationist politicians in the South exploited the race issue for political gain and that the disfranchisement of blacks hurt the progress of the South. He called for a spirit of reconciliation between the races in the literary journal *South Atlantic Quarterly*. The most famous phrase out of the article, which his critics used unmercifully against him, was the claim that "...[Booker T.] Washington is a great man...and take him all in all the greatest man, save General Lee, born in the South in a hundred years..."

The establishment reaction was swift and vicious. Josephus Daniels, the powerful Democratic editor of the Raleigh *News and Observer* thundered in editorials against Bassett, calling for his dismissal. Most newspapers in North Carolina soon joined the chorus. The businessmen and Methodist ministers who made up the Trinity College board of trustees faced immense pressure to fire Bassett.

Fortunately, the president of Trinity College was John Kilgo, a Methodist minister and fighter for social causes. He rallied the faculty and students at Trinity College and convinced several influential trustees such as Benjamin Duke that academic freedom deserved protection. In a fateful meeting of the board of trustees the vote was 18 to 7 to support Bassett. This decision made national news and boosted the reputation of Trinity College. The affair set a precedent for other universities and made academic freedom a core value in university life.

All societies, be they universities or nations, have core values that set them apart from other organizations. Freedom of saying what is on one's mind (within bounds of legality and good taste) is now taken for granted in academia, but is a totally foreign concept in most corporations, for example. Many years ago when I worked for Bird Machine Company I wrote a paper and asked permission to have it published. The core value in that company was secrecy, and even though I could prove that the paper was not revealing anything that one could not learn in the open literature, the right to publish was denied. I could not, and did not, last very long in that society.

Sometimes societies are opaque to us and we don't even know what their core values are. Hitler's Germany was, in the 1930s, admired and respected by many, including Charles Lindberg, because they did not understand the basic values in such a society. In our own time, the collapse of the Soviet Union has opened up that formerly secretive society and helped us understand what values were inherent in the U.S.S.R.

This book is, in an unintended way, a window into this society and its values. In the brutally honest preface, Professor Victor I. Danilov-Danilyan speaks of the utter lack of environmental concern during the communist regime that finally collapsed in 1991. He blames this on the lack of economic aid after the Second World War, and the needs of the Cold War which did not take into account public health, social, cultural, and environmental damage caused by an economic system that stressed production above all other values.

Using resources from the United Nations and the World Health Organizations, the three editors have compiled a devastating book detailing the environmental damage suffered by watercourses during the Soviet era. The most chilling aspect of the book is the tone the editors use to express their conclusions. It is matter of fact. This is just the way it was. Here are some examples, taken at random from the thousands in the book:

> "In Latvia, 750 lakes disappeared during 1932-1973 (due to eutrophication and sedimentation)." "In Estonia, drained lands comprise about 40 percent of all agricultural land used and mineralization of water in reclaimed catchments areas increased from 70 mg/L to 420 mg/L." "In the former Soviet Union, 115 km^3 of untreated wastewater was discharged annually into natural water bodies."

Cubic kilometers! CUBIC KILOMETERS OF SEWAGE!! This is so matter of factly stated that the units almost escape you. How can the authors do that? Where is their outrage? Where is their sense of shame, or remorse, or even acknowledgment that this was a crime against the environment unparalleled in human history? What must have been the values in a society that allowed such destruction? This book catalogs dispassionately the cruel effects of the corrupt system that caused a good people to value little other than their own survival.

I suggest that you read this book when you are doing your income taxes. I am sure you will realize that our own country, even with all its foibles, has its values properly in place, and you will agree that paying our taxes is the privilege we enjoy for living in America.

Vitaly Kimstach is with the Arctic Monitoring and Assessment Programme in Olso, Michel Meybeck is with the Laboratory of Applied Geology of the University of Paris, and Ellysar Baroudy is with the Monitoring and Assessment Research Centre, Kings College London.

P. Aarne Vesilind,
Bucknell University

Green Engineering

Paul T. Anastas, Lauren G. Heine, and Tracy C. Williamson (eds.)
American Chemical Society Symposium Series 766, Washington D.C., 2000

Kermit the Frog laments in song: "It's not easy being green." It's probably even harder being a green engineer or a green scientist than being a green frog.

As the authors define it, "Green engineering is identifying methods of using renewable feedstocks, minimizing energy usage, and decreasing negative impact on human health and the environment. It achieves these goals while increasing efficiency, productivity, and profitability. The dual goals of environmental and economic benefits are essential to any approach toward sustainability."

This book is a compilation of papers from a recent ASC Symposium Series on green engineering. The papers are uniformly well presented and the book is effectively organized. Following a short introduction by the editors, the papers are divided into green processing (novel waterborne coatings, solventless coatings, eliminating solvents and acids, environmentally benign electroplating, and emission reduction in semiconductor manufacture), green application of carbon dioxide (reaction-separation processes, CO_2 in the pharmaceutical industry, drawing of fibers using CO_2, and carbonation of cement), environmentally benign catalysis (carbonization of aniline, combustion using catalysts, Zeolite technologies, recovery of sulfur, and kinetics for hydrodechlorination), and separations (replacement of volatile organic compounds, and separation research toward recovery of VOCs).

Being green is not easy, and teaching green is likewise not easy. But this book can be a useful addition to your library if green engineering is your calling.

Paul Anastas is with the White House Office of Science, Technology and Policy, Lauren G. Heine is with the International Sustainable Development Foundation, and Tracy Williamson is with the U.S. EPA.

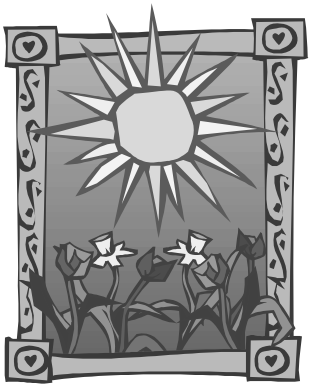
P. Aarne Vesilind,
Bucknell University

Foundations of Environmental Engineering

David C. Cooper, John D. Dietz, and Debra R. Reinhart
Waveland Press, Inc., Prospect Heights, IL, 2000

Most environmental engineering educators I know once complained about the lack of good alternatives available for introductory textbooks in the field. Today, there are numerous texts to choose among, each with its own particular approach, emphasis, or, in some cases, gimmick. Most are organized in the typical fashion, with a survey of basic scientific principles in the first half, followed by engineering applications in the second half of the book. Foundations of Environmental Engineering by Cooper, Dietz, and Reinhart is similarly arranged. As reflected by the title, the "foundations" are laid out in the opening chapters devoted to social, chemical, physical, and biological foundations. There seems to be clear and adequate coverage of the science and math necessary for the beginning environmental engineer, although there is no ecology presented, just microbial growth and oxygen demand. The second half of the book is organized by media type, the chapters entitled "air resources," "water resources," and "management of land-disposed wastes." The concluding chapter is a collection of case studies. There are conversion tables and tables of selected physical and chemical properties. Interestingly, the tables of physical properties of air and water are provided by Fahrenheit temperature only–not in degrees Celsius! There seems to be an emphasis on British units, although SI units are certainly provided. There are solutions to odd-numbered problems. The illustrative art work is adequate but minimal–all in black and white.

This text includes a feature I have not noticed in other environmental texts. The authors have recognized that computers are now universally available to students, and that students should be competent in their use. Therefore, the authors introduce computerized solution techniques, including the use of spreadsheets and the use of computer code (BASIC). This approach is particularly useful in the solution of problems which have no rational solution, but must be approximated numerically. They present algorithms for selected problems as "Pseudocode." This is a stylized form of the more traditional handwritten problem-solving approach most of us were taught early in our engineering education, i.e., defining system parameters, identifying given and unknown information, selecting appropriate equations and symbols, making an initial estimate of unknown but essential parameters, calculating an initial result, followed by iterations until a satisfactory convergence occurs.



In a book such as this, it is necessary to provide only superficial treatment of many topics. There seems to be an emphasis on air quality/pollution control topics (65 pages), while all of water quality and water resources, potable water treatment, and wastewater treatment is allocated 56 pages. Very little detail is provided on the unit operations of the typical water or wastewater treatment plant, especially as compared to older texts such as Peavy, Rowe, Tchobanoglous (1985). However, it is my personal opinion that Peavy et al. is a graduate text too often used for undergraduates, and that only the most highly motivated students can truly benefit from Peavy's seven hundred pages (compared to the 369 pages in Cooper et al.).

Nonetheless, this is a good book for an instructor interested in incorporating computerized solution techniques into the curriculum. I believe it should be given strong consideration alongside the many other fine texts now available.

David C. Cooper, John D. Dietz, and Debra R. Reinhart are all at the University of Central Florida in Orlando, Florida.

Rick Diz,
Gannon University

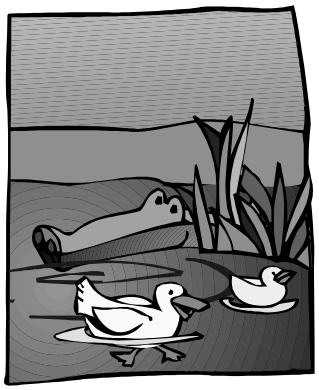
Conferences / Calls for Papers

Symposium on Sustainability

Clarkson University, Potsdam
June 16-19, 2001

Clarkson University's Center for Environmental Management and the National Science Foundation are sponsoring a Symposium on Sustainability, to be held on the Clarkson campus June 16-19, 2001. This event seeks to bring together those from a wide variety of backgrounds who are carrying out research on various aspects of sustainability. This first symposium places special emphasis on two major themes: the roles and needs of graduate student researchers who are currently working on sustainability-related topics, and the need to integrate findings from related but distinct areas of inquiry that contribute to the knowledge base in sustainability. For organizational purposes these areas are Industrial Ecology, Natural Ecology, Ecological Economics, and Policy for Sustainability. The symposium will feature both oral and poster presentations, keynote speakers, a panel discussion, and breakout sessions. Travel grants are available.

Please consider attending this symposium, presenting your work, and contributing to the exchange of information and viewpoints that will take place. Abstracts are due **April 1**. Potsdam, the location of Clarkson, is a small village in the foothills of the Adirondack Mountains. Many of you may want to extend your stays and partake in the many recreational and cultural activities that abound in the area during this time. Further information about the conference and registration can be found at http://www.clarkson.edu/~sustain, and about the Center for Environmental Management at http://www.clarkson.edu/cem.



Announcement & Call for Papers
AWRA / University of Dundee
International Specialty Conference

Globalization and Water Management: The Changing Value of Water

University of Dundee, West Park Centre, Dundee, Scotland
August 6-8, 2001

Water is widely regarded as a critical resource for the 21st century. But water is under severe stress in many parts of the world. Experts forecast that the situation will reach crisis proportions by 2025 unless effective action is taken. Innovative approaches are required: combining expertise from a range of disciplines--law, policy, economics, and science--and drawing upon the application of water conservation technologies, institutional and legislative reforms, and strong public participation in decision making.

This conference will examine the rapidly changing environment of water management during a period in which globalization of the economy, trade, and communications is rapidly spreading to all parts of the world. As a result, water is taking on new social, economic, and environmental values that must be taken into account in water resources decision making. What are the challenges posed by these changes? How can water lawyers, economists, hydrologists, and science respond to these?

The goal of this conference is to discuss the impacts of globalization on water management in the early 21st century, providing an opportunity for an interdisciplinary approach to water resources management (law, policy, economics and science).

- Examine models of integrating law, policy, economics and science.

- Present emerging state-of-the-art approaches to the valuation of water resources.
- Review the changing trends of ownership and control of water resources.
- Identify practical actions and management strategies to deal with the projected stresses on water resources--examples of true integrated land and water management.
- Examine water law issues, such as problems with existing legislation, enforcement mechanisms, incentives for compliance, dispute avoidance mechanisms.

You are invited to participate in this international forum at the University of Dundee. The conference is a unique joint venture between AWRA and the Water Law and Policy Program (WLPP) at the University of Dundee. Inquiries should be directed as indicated below. Abstracts must be received on or before **April 30, 2001**. More information is available at the AWRA web site, www.awra.org.

Dr. David W. Moody (Conference General Co-Chairperson), P.O. Box 717, Alstead, NH 03602; E-mail: dwmoody@beaverwood.com.

Dr. Patricia Wouters (Conference General Co-Chairperson), Water Law and Policy Program, Department of Law, University of Dundee, Dundee, Scotland; Phone: +44 138234 4456; Fax: +44 1382 322 578; E-mail: p.k.wouters@dundee.ac.uk.

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Call for Papers

Analysis of Environmental Phenomena at Molecular Scales

Division of Environmental Chemistry
222nd American Chemical Society (ACS) National Meeting, Chicago, IL
August 26-30, 2001

During the past decade, a number of new techniques have become sufficiently developed to apply to the study of environmental phenomena at molecular scales. Examples include: atomic force microscopy (AFM) and other high-resolution microscopy techniques; X-ray absorption spectroscopy using high-energy synchrotron radiation sources; other spectroscopic techniques such as nuclear magnetic resonance (NMR) and electron spin resonance (ESR) techniques, surface plasmon spectroscopy, surface FTIR, surface Raman spectroscopy, modern mass spectrometry that includes both "soft" and "hard" ionization techniques involving time-of-flight-secondary ion mass spectrometry (TOF-SIMS), Fourier transform ion cyclotron resonance mass spectrometry, gas chromatography-mass spectrometry, pyrolysis-gas chromatography-mass spectrometry; and *ab-initio* molecular modeling. The purpose of this session will be to demonstrate how these new molecular-level techniques are transforming our understanding of a variety of environmental problems such as pollutant-mineral-natural organic matter bonding, enhanced chemical catalysis and destruction, and colloid/biocolloid adhesion and transport.

Technical abstracts are solicited for this special environmental chemistry symposium. Abstracts must be submitted in electronic form (Word files) to one of the organizers (see below). Both the Short Abstract and the Extended Abstract should be prepared according to the ACS instructions, available from the ACS website at http://www.acs.org/meetings/abstract/absdown.html. **THE DEADLINE FOR ABSTRACT SUBMITTAL IS APRIL 23, 2001.**

Organizers:

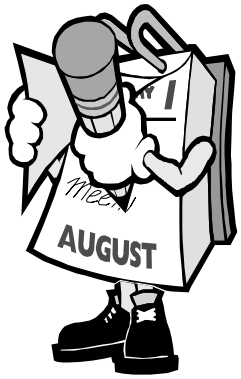
Bruce E. Logan, COE Environmental Institute, 212 Sackett Building, Penn State University, University Park, PA 16802; Phone: 814-863-7908; E-mail: blogan@psu.edu.

Patrick G. Hatcher, Department of Chemistry, Ohio State University, Newman and Wolfrom Lab, 100 West 18th Avenue, Columbus, OH 43210; Phone: 614-688-8799; E-mail: hatcher.42@osu.edu.

Kimberly Gray, Dept. of Civil Engineering, Northwestern University, 2145 Sheridan Road, Evanston, IL 60208-3109; Phone: 847-467-4252; E-mail: k-gray@northwestern.edu.

August 1, 2001

is the submissions deadline for the September 2001 AEESP News



Call for Papers

IV Inter-American Dialogue on Water Management "In Quest of Solutions"

Foz de Iguaçu, Brazil
September 2-6, 2001

Inter-American Dialogues on Water Management are a series of meetings for exchanging experiences on all aspects of water resources mangement in the Americas. The first Inter-American Dialogue on Water Mangement in 1993 led to the formation of the Inter-American Water Resources Network (IWRN), which now includes more than 130 organizations. This conference will continue to address the development of a Water Action Plan for the Americas and steps that need to be taken between now and the Third World Water Forum in Japan in 2003 to implement the Water Vision. Along with technical and practical presentations, Dialogue IV will provide a tour of the world's largest hydroelectric plant, Itapú Dam and Power Station, and a visit to the spectacular water falls, Foz do Iguaçu, on the border of Brazil, Argentina and Paraguay.

More information may be obtained from the Inter-American Water Resources Network's home page, www.iwrn.net. Abstracts of proposed papers should be sent to Dialogue Secretariat, dialogo@acquacon.com.br, by **April 30, 2001**. Authors will be notified if their proposed paper is accepted for Dialogue IV by May 15, 2001. Completed papers will be due to the Dialogue Secretariat by June 30, 2001.

For further information, contact: Bernhard Griesinger, Inter-American Water Resources Network, Organization of American States, 1889 F. St., NW, Washington, D.C. 20006; Phone: (202) 458-3570; Fax: (202) 458-3560; E-mail: bgriesinger@oas.org.

Third Conference on Solid-Liquid Separation Systems

Davos, Switzerland
September 30-October 5, 2001

Sponsored by United Engineering Foundation and European Science Foundation. Solid-liquid separations are widely used unit operations in the chemical, mining, pulp and paper, wastewater, sugar, pharmaceutical, ceramics and other industries. They include cake and deep-bed filtration, expression, clarification, thickening, centrifugation and hydrocycloning. New technologies of increasing significance are bioseparation and nanotechnology. Fundamental aspects of solid-liquid separation processes include properties of suspensions (particle size, shape, particle-particle interaction, surface characteristics, yield stress and concentration), sediments and porous cakes (permeability, porosity and compressibility). While much practical progress has been made in materials of construction, mechanical operation and control of equipment, a significant gap still persists between theoretical research and its application to the design and optimization of commercial processes. This conference intends to continue the two preceding events in this series, the last one of which took place at Kahuku, Oahu, Hawaii, April 18-23, 1999, whose main objectives were to provide a review of the state-of-the-art in solid-liquid separation research and to assess the applicability of research to industrial processes. Moreover, since researchers in an increasing variety of disciplines of science such as biology, chemistry, chemical engineering, civil engineering, mineral processing, computers science and mathematics have become interested in solid-liquid separation systems, the conference became a forum for international interdisciplinary discussion. More information: http://www.engfnd.org/1ax.html. For an idea of the types of papers presented at the previous conference, refer to Chemical Engineering Journal 80 (1-3), 2000 (http://www.elsevier.nl/inca/publications/store/6/0/1/2/7/3/). This conference is also associated with the Solid/Liquid Separation Roundtable, at http://209.15.29.180/index.html.

Advanced Membrane Technology

Barga (Tuscany), Italy
October 14-19, 2001

Details on this conference can be found at http://www.engfnd.org/1bb.html. The conference will include sessions on membrane contactors, membrane bioreactors (for water treatment, waste water treatment and applications in biotechnology) and membrane applications in water treatment. If you are interested in presenting a paper in any of these areas please submit an abstract on-line following the instructions given on the conference web site. Abstracts are due by **April 1, 2001**.

Call for Papers

Fourth Water Information Summit

Panamá City, Republic of Panamá
October 25-27, 2001

Water information summits bring together water information users, information specialists and webmasters to explore ways of improving the quality of water information and making better use of the internet to share information with the public, water organizations and across borders. This conference will be held in conjunction with a meeting of the Central American Environment Commission and the Water Fair for Central America and the Caribbean. Abstracts of proposed papers should be sent by e-mail to the Summit Secretariat, wis4@cathalac.org, by **June 30, 2001**. Formatting instructions are available from www.waterweb.org.

NOTE: The AEESP membership application form is available online at **http://www.aeesp.org**, under "organization" and "membership" (http://bigmac.civil.mtu.edu/aeesp/org/membership.html).

Application for Membership

Association of Environmental Engineering and Science Professors

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PLEASE ATTACH A BRIEF (1-3 PAGE) CURRICULUM VITAE

Membership in AEESP is on a calendar-year basis. When you join the Association, you will be sent the current AEESP Membership Directory and previous Newsletters and other materials which have been sent to members during the year, if your application is received prior to October 1. If you join after October 1, your membership will begin the following calendar year, but the current AEESP Membership Directory will be sent to you immediately upon approval of your membership by the Association's Secretary.

RANK / STATUS	ANNUAL DUES
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Regular Member (Assoc. Professor)	$ 60.00
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Please return this form along with your dues and c.v. to the Secretary of AEESP:

Kim F. Hayes
Civil Engineering
University of Michigan
Ann Arbor, MI 48109-2125

Enclosed are my AEESP dues in the amount of U.S. $_____.

_____
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Please send address changes to:
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Please send submissions and comments to the editor:
Roger Ely, AEESP Newsletter Editor, Department of Chemical Engineering, P.O. Box 208286, Yale University, New Haven, CT 06520-8286; phone (203) 432-4386; fax (203) 432-2881; e-mail roger.ely@yale.edu.
Editorial Asst.: Cindy Lawrence, cynthial@uidaho.edu.

To estimate the amount of lead time needed for your announcement, please note that members receive the newsletter 4-6 weeks after the submissions deadline.

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