Association of Environmental Engineering and Science Professors Newsletter

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In this issue...

New editor

Beginning with the January 2002 issue, Prof. Amy Childress of the University of Nevada will become the editor of the AEESP Newsletter. All submissions should be sent to Amy at **amyec@unr.edu** or

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President's Letter

Dear Colleagues,

Back at the turn of the last century, the President of the United States wrote, "[W]hat is a technical education? It is one which condemns all but the extraordinary individual to a minor part in life, to a part not of command or direction but of specific performance."[1]

Nearly a century later we must ask ourselves, "Have we as engineers risen to commensurate leadership positions in the 'techno-society' in which we now live?" A recent Harris Poll indicated that the majority of Americans (living in the most technologically advanced nation in the world) are not even clear on what engineers do.

The historical bifurcation of technical and liberal education may result in technological "advances" that are not always well-informed or in the long-term, best interest of society. Pirsig in the neo-classic, *Zen and the Art of Motorcycle Maintenance*, points to a possible cause, "What's wrong with technology is that it's not connected in any real way with matters of the spirit and of the heart. And so it does blind, ugly things quite by accident and gets hated for that."[2]

Historically we have "trained" engineers in very narrow vocationally oriented disciplines ready to be "productive" on the job as soon as they graduate. Indeed, Woodrow Wilson relegated the "skillful servant of society along mechanical lines" to the non-ruling class. "We want one class of persons to have a liberal education, and we want another class of persons, a very much larger class…to forgo the privilege of a liberal education."[3]

Fortunately, history is not destiny and Pirsig provides a ray of hope. "The way to resolve the conflict is to break down the barriers of dualistic thought that prevent a real understanding of what technology is–not an exploitation of nature, but a fusion of nature and the human spirit into a new kind of creation that transcends both."[4]

Engineering education has a unique potential for providing the intellectual scaffolding to not only skillfully serve society but simultaneously to realize the creative firmament of the human spirit. In his recent book on the unification of knowledge, *Consilience*,[5] Harvard professor E.O. Wilson makes the bold statement that, "The greatest enterprise of the mind has always been and always will be the attempted linkage of the sciences and the humanities." Isn't this just another way of defining engineering: the application of math and science to serve humanity?

We cannot, however, just send our 18-year-old students to the "other side" of campus for humanities classes and consider our obligation for providing a broad and "liberal" education fulfilled. How can we expect these young students to make the connection between the sciences and humanities on their own? We must compliment the rigors of our technical classes with the humanistic framework within which engineering must reside. It is for us to make this connection for our students. Of all the engineering disciplines, environmental engineering readily lends itself to this. If we cannot or do not do it, how can we expect our colleagues in other disciplines to do it? WE must ensure the broad and liberal education of our students and prepare them for leadership roles required of a technologically advanced

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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: Amy E. Childress, Ph.D., amyec@unr.edu, University of Nevada, Reno, Dept. of Civil Engineering/258, Reno, NV 89557-0152; phone (775) 784-6942; fax (775) 784-1390.

Letters to the President may be sent to:

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society.

Engineering and its relationship to the environment are changing rapidly. Bruce Logan's recent editorial [August 2001] in the *Journal of Environmental Engineering*, where he recounted a struggle to explain what he did for a living is apropos. I recently reviewed our Mission Statement with an eye toward planning for the future [Goal #2 specifically identifies the need for long-range planning]. Some of our other goals are very broad and relate to leadership roles for AEESP in environmental engineering [e.g., Goal #4–to provide a forum for review of curricula, Goal #9–to assist public agencies, professional societies and other groups through advisory and consultative services, etc.]. Given our limited resources, there is a need to prioritize our goals and develop strategies to achieve them. If we are to maintain a leadership stature and not be marginalized, we must plan now to position ourselves for the future.

Given the increasingly important role that environmental factors play in all engineering decisions, there is increasing opportunity for our membership to provide guidance to the broader engineering community. To ensure that AEESP continues to assist its members in assuming leadership roles in this regard, a strategic plan must be developed that identifies a prioritized listing of goals to best serve its members and the profession. Equally important is the identification of strategies (with realistic timelines) to realize these goals. I have asked Bruce Logan and Dave Dzombak to lead an effort to develop a detailed strategic plan that builds on our Mission Statement.

It is difficult to believe that this is my last letter as President. This has been a fast paced and industrious year for AEESP–having led a congressional briefing, lobbied for increased environmental research funding, and met with the leadership of many environmental NGOs. One of the more exciting activities undertaken was the nomination of distinguished AEESP members to positions in the new Administration. I have recently learned that two of the candidates that AEESP nominated have been interviewed for Associate Administrator roles at EPA. Although correlation is not necessarily causation, AEESP is fortunate, nonetheless, to have two of its members considered for such important positions.

In an effort to continue to ensure fiscal responsibility, the Board approved several cost cutting and revenue generating measures. As many of you know, we will begin to charge a modest fee for faculty advertisements. We also converted the annual Executive Committee meeting to a conference call and will attempt to hold other Board meetings on university and college campuses rather than hotel facilities.

At our recent Board meeting in Ann Arbor, it was suggested that we consider recognizing distinguished members of our field through the establishment of a "Fellow" grade similar to other professional societies. Aarne Vesilind is currently heading a committee to explore this.

It has been a great honor to serve as president this past year, and I hope to continue to serve AEESP in meaningful ways in the future.

Domenico Grasso,
President

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[1] Wilson, W. (1909) "Liberal Education" as cited in *Harper's*, Vol. 303, No. 1816, September 2001. p. 53.
[2] Pirsig, R. (1974) *Zen and the Art of Motorcycle Maintenance: An Inquiry into Values*, Quill, New York. p. 168.
[3] Wilson, op cit., p. 53.
[4] Pirsig, op cit., p. 291.
[5] Wilson, E. (1998) *Consilience: the Unity of Knowledge*, Knopf, New York.

New AEESP Environmental Processes Lab Manual now available

Two years ago, members of the board of AEESP decided that the time was right to begin upgrading the manuals published by AEESP that are intended to help its members teach environmental engineering and science. The first of the revised manuals, Environmental Engineering Processes Laboratory Manual, is now ready for sale.

This lab manual contains 32 new labs, many of which contain several parts, as well as four "classic" laboratories from the previous version of the lab manual. The labs include sections on:

- Transport and Partitioning Processes
- Chemical Processes
- Biological Processes
- Particle Dynamics and Separations
- Design Applications

The labs vary greatly in their complexity and include those suitable for both undergraduate and graduate students. The goal of this manual was to include a little bit of something for everybody.

The manual has been duplicated onto CD with point and click access to the labs in pdf form. Each lab that is written for the students is accompanied by written "Instructor Notes" to help the instructor implement the laboratory. Purchase of the CD by an instructor allows for printing and duplicating labs for distribution to the instructor's students. Posting the labs electronically on a secure server for access to students within a particular class is also permissible.

The CD is available at the following rates:

AEESP members:	$50
Students:	$25
Other non-members:	$75

Please send a check or credit card information to Joanne Fetzner in the AEESP office, jfetzner@uiuc.edu; 217-398-6969, to order your copy of this manual. Please send any comments about the manual to the editor, Susan E. Powers, sep@clarkson.edu. We expect that we will update this manual periodically as suggestions for improvement are incorporated.

AEESP would also like to continue its efforts to update additional laboratory manuals. We have a few volunteers to start on an environmental biology lab manual, but need more help, especially from an established professor. Please contact Susan Powers if you are interested in helping with this project or have ideas for other manuals that AEESP could publish.

New AEESP Newsletter editor

Beginning with the January 2002 issue, **Prof. Amy Childress** of the University of Nevada will become the editor of the AEESP Newsletter. All submissions should be sent to Amy at amyec@unr.edu, or Amy E. Childress, Ph.D., University of Nevada, Reno, Department of Civil Engineering / 258, Reno, NV 89557-0152; tel: 775-784-6942; fax: 775-784-1390.

In Memoriam

Glen Cass

It is our sad duty to inform you that our colleague, **Glen Cass**, passed away Monday, July 30, 2001, at 10:15 p.m. in Duke Hospital, Durham, N.C., of cancer. Present at the time of his passing were his wife and son. Glen remained mentally sharp and engaged until the end.

Glen was the Vice-President Elect of AAAR and chair of the Department of Earth and Atmospheric Sciences at Georgia Tech. He had previously been a member of the Caltech faculty for many years. His contributions to the field of aerosol science, and to AAAR were enormous. His untimely death sharply contrasts with the endless energy and dedication to work that characterized his life. The hundreds of letters that poured in over the last week after Glen's illness became widely known are testament to the admiration and affection he earned from his colleagues and students.

AAAR will honor Glen's memory at the upcoming annual meeting in Portland. Last week the AAAR Board passed a special resolution "to acknowledge and honor the many contributions that Dr. Glen Cass has made in advancing the field of aerosol science and supporting the AAAR through service as a Board Director and Officer" and "to specifically recognize Glen at the upcoming Annual Conference."

Georgia Tech will hold a memorial service for Glen on their campus at 2 p.m. on September 21. Details will be posted on the their web page (gatech.edu). Those wishing to attend should contact Dr. C. S. Kiang at chia.kiang@eas.gatech .edu, or Rita Bryan at rita.bryan@eas.gatech.edu.

Glen will be sorely missed. I am sure you join all of us at AAAR in expressing sincere condolences to the Cass family. Personal expressions of sympathy can be sent to them in care of his administrative assistant, Rita Bryan, Earth and Atmospheric Sciences, Georgia Institute of Technology, 221 Bobby Dodd Way - Old CE, Atlanta, Georgia 30332-0340.

--David Pui, William Chamiedes and Susanne Hering

Please note that a **Glen Cass Scholarship Fund** has been set up. Contributions should be made out to GEORGIA TECH FOUNDATION and mailed to: Ms. Rita Bryan, Earth and Atmospheric Sciences, Georgia Institute of Technology, 221 Bobby Dodd Way - OCE Bldg., Atlanta, Georgia 30332-0340. Please denote on the check: Glen Cass Scholarship Fund.

Richard Stessel

Dr. Richard Ian Stessel is remembered by his colleagues at the USF College of Engineering for his warm smile, quick wit and generous heart. Faculty and staff members of the College say they were stunned when that generous heart was stopped by a bolt of lightning on the afternoon of Aug. 10, 2001. News accounts report that Stessel, a 44-year-old associate professor in the College's Department of Civil and Environmental Engineering, was struck by a powerful bolt of lightning as he crossed the campus on his way to his laboratory near Central Receiving on West Holly Dr. in Tampa.

As soon as word of Stessel's fatal injury became widespread, phone calls and emails from concerned members of the University community and the general public began pouring into the College of Engineering. Many individuals, including alumni who were taught by Stessel during his 15-year career at USF, offered their thoughts and remembrances of their former mentor, and people who worked with Stessel expressed a sense of personal loss at hearing of his death. Many said Stessel could be counted on to lighten the mood on even the most hectic of days.

"I will, as I'm sure many others will, remember Dr. Stessel walking down the hall with arm loads of fruit cakes around the Christmas holiday time delivering them to everyone and spreading good will and holiday cheer," said Rob Tufts of the Center for Microelectronics Research.

Stessel's fellow faculty members remember a dedicated instructor and researcher who balanced his dedication with a playful wit.

"Richard and I would talk once in a while in the hallways. He had a unique sense of humor," said Dr. Autar K. Kaw, a professor in the Mechanical Engineering Department. "Just now, one of our colleagues said that in a brown bag lunch (an on-campus lecture series) a few years ago, he introduced himself and said, 'I am Richard Stessel; my research is garbage; my teaching is garbage.' He was referring to his area of expertise - solid waste!"

"Dr. Stessel's office was across the hall from mine. He was full of passion about life and peppered his passion with a lot of wit. I'll miss that a lot," said Dr. Paul McCright, of the Department of Industrial and Management Sciences Engineering in the College.

The memorial service for Stessel was held at 12 p.m. Wednesday, Aug. 15 at the C.E. Prevatt Funeral Home in Temple Terrace. Stessel is survived by his wife, Susan Glaser, and his parents, Mr. and Mrs. Paul Stessel of Chapel Hill, NC. He was a graduate of Harvard University in Cambridge, Mass., and received a doctorate degree from Duke University in Chapel Hill. He came to USF from Columbia University in New York and was the author of numerous scholarly articles. Stessel was a well-known expert in the field of recycling and solid-waste disposal and was the author of the book *Recycling and Resource Recovery Engineering.*

Donations in honor of Stessel can be made to the **USF Foundation** to support a scholarship in his memory. --David Liller

Programs & Places

Virginia Tech

AN INTERDISCIPLINARY PROGRAM IN ENVIRONMENTAL BIOGEOCHEMISTRY. Virginia Tech has received funding from the Department of Education for an ambitious new interdisciplinary program in Environmental Biogeochemistry, a critically important area for environmental protection and restoration. The project will support six Doctoral Fellows who will 1) perform research in the integrated field of Environmental Biogeochemistry or its underlying disciplines, 2) engage in a supervised teaching experience, 3) travel internationally for a research or training experience, and 4) conduct an outreach program in a rural or urban area. Fellowships will be awarded based on academic excellence, financial need, and intent to pursue a career in teaching or research. Recipients must either be citizens or permanent residents of the United States. Each three-year fellowship includes a stipend of $20,000 per year, tuition, fees, a book allowance, research supplies, and support for travel to conferences, including an international research or educational experience.

These fellowships are available beginning fall semester 2001 or spring semester 2002. Funding is provided by the U.S. Department of Education under their program of Graduate Assistance in Areas of National Need. Review of applications will begin immediately and will continue until all positions are filled. Qualified individuals with background and interest in biology, chemistry, environmental engineering, environmental science, geology, geotechnical engineering, hydrogeology, soil science, water resources engineering, or related fields are encouraged to apply. Those interested in applying for a GAANN fellowship at Virginia Tech should contact Ms. Sherry Burke (540-231-4595, sbburke@vt.edu) for more information and application materials. Prospective students are also encouraged to visit our web site at www.ce.vt.edu/GAANN. Virginia Tech does not discriminate against employees, students, or applicants on the basis of race, color, sex, sexual orientation, disability, age, veteran status, national origin, religion or political affiliation.

Comings & Goings

AEESP members, please share items of professional achievement with other AEESP members. Send a brief note via e-mail to: Amy E. Childress, AEESP Newsletter Editor, amyec@unr.edu.

Lehigh University

Dr. Derick G. Brown joined the Department of Civil and Environmental Engineering at Lehigh University as an assistant professor in August 2001. Dr. Brown received his Ph.D. in environmental engineering from Princeton University.

University of North Carolina, Chapel Hill

The Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, is pleased to announce that **Professor Philip C. Singer** has been selected as the first Daniel A. Okun Distinguished Professor of Environmental Engineering. Professor Singer is an accomplished scholar with expertise in drinking water quality and is a member of the National Academy of Engineering. He has won several teaching awards and many awards from the American Water Works Association, including the A.P. Black Research Award, Life Membership, and nine awards jointly with students for their best papers and academic achievements. Professor Singer received a Bachelor's in Civil Engineering from the Cooper Union in 1963, a Master of Science in Sanitary Engineering from Northwestern in 1964, and a Doctor of Philosophy in Environmental Sciences and Engineering from Harvard in 1969. He has served on the faculty in the Department since 1973 and is Director of the Drinking Water Research Center, which he founded in 1999.

The Daniel A. Okun Distinguished Professorship in Environmental Engineering is a tribute to the legacy of Kenan Professor Emeritus of Environmental Engineering, Daniel A. Okun. Professor Okun served as Chair of the Department of Environmental Sciences and Engineering from 1955 to 1973, is a member of the National Academy of Engineering, and recently was named one of the Top 125 Engineers in 125 Years of Engineering by *Engineering News Record*.

The Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill, is also pleased to announce that **Robert G. Wetzel** has joined the Department as Professor. Dr. Wetzel is an internationally renowned scholar who brings preeminence in the fields of limnology and wetlands ecology to the department and the university. Dr. Wetzel's research interests are to evaluate and quantify mechanisms regulating metabolism, growth, and productivity of aquatic organisms and factors regulating material and energy fluxes in aquatic systems. Dr. Wetzel received a B.Sc. in Biology and an M.Sc. in Fisheries from the University of Michigan, and a Ph.D. in Zoology from the University of California at Davis. He has served on the faculties at Michigan State University, Uppsala University, University of Michigan, and the University of Alabama. He has been the General Secretary and Treasurer of the National Association of Theoretical and Applied Limnology since 1968, serves as editor, co-editor, or member of 12 editorial boards of professional journals, and was elected to the American Academy of Arts and Sciences in 1993.

University of North Carolina, Charlotte

Dr. Hilary I. Inyang has joined the University of North Carolina at Charlotte as the Duke Energy Distinguished Professor of Environmental Engineering and Science. Dr. Inyang holds a joint appointment in the Department of Civil Engineering and the Department of Geography and Earth Science at UNC Charlotte. Dr. Inyang will direct the building of a doctoral program in Infrastructure and Environmental Systems (IES), and will lead the University's new Geoenvironmental and Energy Systems Research Lab and its proposed Global Institute for Energy and Environmental Systems.

Dr. Inyang comes to UNC Charlotte from the University of Massachusetts, Lowell, where he was a university (Distinguished) professor and director of the Center for Environmental Engineering, Science and Technology. He was also a professor in the Graduate School of Marine Science and Technology of the University of Massachussets System, as well as a DuPont Young Professor of Environmental Science and Engineering. He is an author/coauthor of more than 100 technical articles on various aspects of geoenvironmental engineering, and the textbook, *Geotechnical Engineering: Principles and Applications*. Dr. Inyang is on the editorial boards of six refereed international journals.

Dr. Inyang is currently the Chair of the Environmental Engineering Committee of the Science Advisory Board of the U.S. Environmental Protection Agency and a memeber of the National Advisory Council for Environmental Policy and Technology. He has been the U.S. signatory for the international collaboration with the Russian Academy of Science, and has served on more than 50 federal panels and committees. Dr. Inyang is the president of the International Society of Environmental Geotechnology (ISEG) and directs the International Consortium of Environmental and Energy Research Institutes and Centers (ICEERIC).

San Jose State University

Dr. Udeme J. Ndon, Chair of the AEESP Diversity Committee, has received his tenure and promotion to Associate Professor at San Jose State University. Professor Ndon received his bachelor's degree in mathematics from Harding University, Arkansas and his master's degree in applied mathematics from Western Illinois University. He continued his education at Iowa State University, where he received his bachelor's (BSCE) and master's (MSCE) degrees in civil engineering and his Ph.D. in civil (environmental) engineering with a minor in chemical engineering in 1995. Prior to joining the faculty at San Jose State University (SJSU), Dr. Ndon taught as a lecturer at Western Illinois University and Iowa State University. He taught for one year as a lecturer at the University of Central Florida, where he also served as a research associate. He has worked for about two years for an environmental engineering consulting company as a project/research engineer. During the past five years at SJSU, Dr. Ndon has taught numerous undergraduate and graduate courses in civil and environmental engineering. He has advised many master's degree students in environmental engineering, including students in multi-disciplinary environmental and general engineering programs. He is the founder and advisor of the SJSU Water Environment Engineering Organization, a SJSU student chapter of the state and federal WEF (Water Environment Federation).

Dr. Ndon and his students have published numerous technical papers and have made numerous professional conference presentations. He received the 1998/1999 SJSU Sybil B. Weir/John Galm Endowment Award for his various achievements and served as one of the two co-acting directors (1996-2000) of the Engineering Track of the SJSU Environmental Health and Safety Program.

Employment Opportunities

University of Missouri-Rolla

POST-DOCTORAL RESEARCH ASSOCIATE POSITIONS, ENVIRONMENTAL RESEARCH CENTER. The Environmental Research Center at the University of Missouri-Rolla is seeking four (4) postdoctoral research associates to assist with several federally funded research projects. We are seeking individuals with training in either science or engineering and expertise in biological processes, physicochemical processes, and/or analytical methods. Two positions will involve development and pilot-testing of odor control technologies, and characterization and control of anaerobic treatment processes including nutrient removal. A third position will focus on advanced oxidation and ozonation processes in water treatment with a focus on byproduct analysis. A fourth position will focus on the fate of inserted genes in corn plants.

Research will be conducted in the Environmental Research Center using state-of-the-art instrumentation. Analytical expertise with instruments including GC/MS, LC/MS, TOC, IC, GC, and HPLC is desirable. Experimentation will be conducted at both lab- and pilot-scale.

We anticipate that the successful candidates will start between August and October 2001. Each position is for a two-year period subject to satisfactory performance review. The salary range is from $32,000-36,000 depending on background and experience. The University of Missouri-Rolla is an equal opportunity, affirmative action employer.

Interested applicants should submit a vitae, the names (with email, address, and telephone) of three references, copies of several representative publications, and a statement of research interests to: Dr. Craig D. Adams, University of Missouri-Rolla, Environmental Research Center, 202 Civil Engineering Bldg., Rolla, MO 65409. Applications may be mailed, emailed (adams@umr.edu), or faxed to (573) 341-4729. For more information, please see www.umr.edu/~environ, or call (573) 341-4041.

Stanford University

ENVIRONMENTAL AND WATER STUDIES PROGRAM. Stanford University's Department of Civil and Environmental Engineering invites applications for a tenure-track faculty position in its Environmental and Water Studies Program at the junior (assistant or untenured associate professor) level. Our program builds on a tradition of complementary, interactive investigations comprising theory, laboratory studies, field work, and computational modeling. We are conducting a broad search to develop new opportunities for teaching and research within our program and to build bridges to other programs at Stanford. The successful applicant will contribute to solving problems in one (or more) of the general areas of environmental transport and chemodynamics, pollution prevention and green chemistry, environmental impacts of energy exploitation and generation, and environmental informatics. Within a broad search we seek a faculty member with demonstrated excellence and leadership capabilities in one of the following areas:

- Computation of multi-scale environmental fluid processes; e.g., numerical simulation and motions of large bodies of water; pollutant transport; air pollution.
- Fate of organic compounds in aquatic systems and ecological functioning of natural surface waters; e.g., detection and modeling of contaminant transport, uptake, and accumulation in aquatic food chains.
- Environmental organic chemistry; e.g., measurement and

transformation of novel, persistent, and biologically active organics in natural and engineered systems.
- Limnology, aquatic ecology, and the hydrologic engineering of surface water ecosystems; e.g., quantitative understanding of habitat restoration, water supply reliability, fisheries protection, etc.

The new faculty member must fit the program's history of interdisciplinary collaboration, and support for environmental planning and policy making. Applicants are strongly encouraged to send a resumé, academic transcripts, a 2-3 page description of teaching and research interests and experience, and a list of five references by November 15, 2001 to: Professor Richard G. Luthy, Chair of Search Committee, Department of Civil and Environmental Engineering, 380 Panama Mall, Stanford University, Stanford, CA 94305-4020. Applications will be accepted until the position is filled. E-mail inquiries can be sent to luthy@stanford.edu. Further information about the position and department can be found online at http://www-ce.stanford.edu/. Stanford University is an equal opportunity employer and welcomes nominations of women and minority group members and applications from them.

Texas A&M University

SENIOR RESEARCH DEVELOPMENT ASSOCIATE. The Research Development and Grant Writing Division of the Texas Engineering Experiment Station, Texas A&M University, invites applicants for a Senior Research Development Associate. Duties: Develop and write university-based research and scientific research/education proposals to federal agencies (e.g., NSF, EPA, NOAA), particularly in areas of environmental science and engineering. Help develop major multidisciplinary and multi-institutional integrative partnerships for broad based environmental centers and projects. Requirements: M.S. or Ph.D. in science or engineering fields applicable to broad based environmental research, e.g., coastal and near shore environments along the Gulf of Mexico, U.S./Mexico border regions, and environmental research important to Texas and the Southwest. With minimum 3-5 years technical experience in environmental engineering or science, either in a university research setting or in an engineering/scientific consulting firm, including the development and writing of technical reports, studies, and proposals. Exemplary written and related communication skills complemented by strong technical background in the calculus-based disciplines of environmental science (e.g., chemistry, biochemistry, molecular biology, toxicology, oceanography, geosciences) or environmental engineering in a self-directed environment. Please forward resume with salary requirements, along with writing samples of technical reports, studies, and/or proposals and references, including a list of funded proposals by dollar amount, funding agency, and topic. Mail to Mike Cronan, P.E., 310D Wisenbaker Engineering Research Center, Mail Stop 3126, Texas A&M University, College Station, TX 77843-3126. No phone calls; email questions to mikecronan@tamu.edu.

U.S. Air Force Academy

FACULTY POSITION. The United States Air Force Academy, located just north of Colorado Springs, Colo., is an undergraduate institution which awards the Bachelor of Science degree as part of its mission to inspire and develop outstanding young men and women to become Air Force officers with knowledge, character and discipline. Faculty applications are invited from candidates who can contribute to this mission by interacting with cadets, both in and out of the classroom, as instructors and mentors. Applications are invited from candidates with strong interests and experience in teaching, developing undergraduate courses, using computers and advanced technology to enhance education, and who possess the potential for sustained intellectual contributions. The Academy faculty is an integrated group of military and civilian educators. Essential qualities expected of every faculty member include the personal attributes of integrity, industry, cooperation, initiative, and breadth of intellectual interests. The ability to accommodate a service academy environment is essential. The student body consists of approximately 4,000 men and women representing every state and several foreign countries. In addition to a core curriculum of academic and professional courses, majors are offered in 30 academic disciplines. It is anticipated the following position will be established effective June 24, 2002. Initial appointment will be for three years. Reappointment might be possible based upon Air Force and departmental needs, funding availability, and an assessment of performance. The focus of this position is on teaching. **Instructor/Assistant Professor of Environmental Engineering, #02-12CE. Instructor Qualifications:** A Master of Science degree in Environmental Engineering or Civil Engineering (environmental emphasis) from an ABET accredited institution is required. **Assistant Professor Qualifications:** A doctoral degree in Environmental Engineering or Civil Engineering with major emphasis in environmental engineering or a closely related field is required. Preference will be given to candidates with demonstrated excellence in teaching undergraduate environmental related topics and who possess an established record of innovation and research in the field. Professional registration and/or experience in industry are highly desirable. **Deadline for applications is December 1, 2001. Requirements:** U.S. citizenship required. The selected candidate will be subject to a security investigation and must meet eligibility requirements for access to classified information. **Salary:** Commensurate with level of appointment and qualifications. Salary is based on a 12-month work year. **To apply:** Send a letter of application, curriculum vitae (include country of citizenship), legible copies of your official transcripts, and the names, addresses, and phone numbers of three references familiar with your professional work to: 10 MSS/DPCO, (Attn: Ms. Karen Warner, #02-12CE), 8034 Edgerton Drive, Suite 100, U.S. Air Force Academy, CO 80840-2205. Note: Please state whether you are applying for the Instructor position, Assistant Professor position, or both. *The Federal Government is an equal opportunity employer. U.S. citizenship required.*

JOHNS HOPKINS
U N I V E R S I T Y

Department of Geography and Environmental Engineering
Whiting School of Engineering

The Department of Geography and Environmental Engineering anticipates hiring two Assistant Professors in the following general areas:

- **ENVIRONMENT AND SOCIETY**
  (e.g., institutional, social and economic causes and consequences of environmental change at scales from local to global; regional patterns of resource use and environmental degradation)

- **AIR POLLUTION CHEMISTRY**
  (e.g., aerosol sampling or characterization, experimental or combined experimental/modeling approaches to studying homogeneous or heterogeneous atmospheric chemistry)

- **ENVIRONMENTAL INFORMATION TECHNOLOGY**
  (e.g., data assimilation, scientific computing, modeling/statistics of complex environmental processes)

- **ENVIRONMENTAL MOLECULAR BIOTECHNOLOGY**
  (e.g., application of microbial, molecular biological, or biochemical techniques to environmental systems)

These positions are part of Whiting School of Engineering strategic planning initiatives in Environmental Engineering, Science and Policy; Computational Modeling; Bioengineering; Materials; and Information Technology. For further information on the department please refer to the web page http://www.jhu.edu/~dogee/.

Applicants should demonstrate a potential for high-quality teaching as well as for developing a sponsored research program. For full consideration, candidates should apply by November 1, 2001. Expected starting date is July 1, 2002. Applications should include a complete resume, examples of published work, a statement outlining teaching and research interests, and the addresses of four individuals willing to provide references. Send materials to:

Chair of Search Committee
3400 N. Charles St., 313 Ames Hall
Department of Geography and Environmental Engineering
Johns Hopkins University
Baltimore, MD 21218

The Johns Hopkins University is an Equal Opportunity/Affirmative Action Employer. Women and minorities are strongly encouraged to apply.

University of Connecticut
Northeast Utilities
Endowed Chairs in
Environmental Engineering

The University of Connecticut is seeking two distinguished scholars, full professors with records of excellence in research and teaching, to fill two endowed chairs in the School of Engineering. Endowments supporting these chairs have been established by Northeast Utilities with matching funds provided by UCONN 2000 (a $1 billion State program to enhance the University's infrastructure and programming). The School of Engineering is ranked 26th among public universities in research expenditures, and has recently established 11 new endowed chairs/named professorships. Detailed information on the School of Engineering departments, faculty, facilities (including the Environmental Research Institute) and descriptions of education, research and outreach programs can be found at http://www.engr.uconn.edu/.

The selected candidates are expected to provide scholarly leadership and make significant contributions to the University's teaching, outreach, and service missions while conducting nationally recognized fundamental research in the broad area of environmental engineering. Although not restricted, areas of interest include: Biotechnology, Air Quality, Combustion, Energy Technology, Fuel Cell Science and Technology, Pollution Prevention, and Soil and Water Quality. Each incumbent will control the revenue from their individual $1 million endowment, subject to the conditions of the endowment, and will be a faculty member in one of the six departments in the School of Engineering.

Nomination letters and applications that include a letter of interest, a current curriculum vitae, and the names of at least four references, should be forwarded to Prof. John Enderle, Chair, NU Endowed Chairs in Environmental Engineering Search Committee, 260 Glenbrook Road, University of Connecticut, Storrs, CT 06269-2157; phone: (860) 486-5521; email: jenderle@bme.uconn.edu.

Salary, benefits, and a competitive start-up package for each position will be commensurate with the record of the applicant. These positions are full-time at the rank of full professor. Applicant screening will begin immediately and continue until the positions are filled. The University of Connecticut encourages applications from minorities, women, and people with disabilities.

Book Reviews by Aarne Vesilind

Aquatic Pollution: An Introductory Text

Edward A. Laws, John Wiley & Sons, 2000

The summer was passing by, and the weather was getting cooler. The grasshopper, having lollygagged all summer and not made any preparations for winter, began to worry about his immediate future. So he went to the wise old owl.

"Wise old owl," the grasshopper said, "I don't want to die at the end of the summer. How can I live through the winter?"

"No problem," replied the wise old owl, "You just fly over to that cabin and crawl in the chimney. When you get to the fireplace, you change yourself into a cricket, hide between the stones over winter, and in the spring you change yourself back into a grasshopper and that is that."

"Oh, thank you!" cried the grasshopper and started off toward the cabin.

Some minutes later, the grasshopper came back.

"Wise old owl," he asked, "how do I change myself into a cricket?"

"Ah, that is not my problem. That's implementation. I just make policy," replied the wise old owl.

We sometimes make that distinction between policy and implementation when we consider the science and the engineering of environmental problems. Engineers have been known to dismiss scientists with the put-down: "Oh, they just make policy" and don't offer any rational solution for the problems they describe.

No more. This book, written by a scientist, is just full of solutions. In fact, each chapter has a section called "correctives." That is, now that you know something about the problem, what are we going to do about it?

The book begins with a chapter on fundamental concepts, and goes on to talk about photosynthesis, physical factors affecting production, cultural eutrophication (case studies), nonpoint source pollution, seawater treatment, pathogens in natural waters, toxicology, industrial pollution, pesticides, thermal pollution and power plants, metals, oil pollution, radioactivity, acid deposition, groundwater pollution, and plastics in the sea. I particularly like the last chapter. Plastics in the sea is a pervasive and difficult problem. It is water pollution of the worst sort, and yet we seldom think about it that way.

I learned a lot reading this book, and I recommend it highly to others. It is eminently useful as a text, and will also come in handy as a reference book for all wise old owls.

Edward A. Laws is Professor of oceanography at the University of Hawaii, Honolulu.

Frontiers in Urban Water Management: Deadlock or Hope

Cedo Maksimotic and José Alberto Tejada-Guibert, International Water Association/UNESCO, 2001 (available from IWA London)

For many years, my wife and I have had a camp in New Hampshire that sported an electric toilet. Our place was too close to the lake to accommodate a tile field or a composting toilet, so the only solution was to use an Incinolet, a trade name for a company whose logo is an outhouse being hit by lightning, with the legend: "What a way to go!" The Incinolet was noisy and stunk to high heaven, but it worked. This summer we finally replaced it with a real flush toilet (and pumped subsurface treatment system). Our boys were quite upset when we took out the Incinolet, however. It turns out that they had used the Incinolet as a litmus test for judging the compatibility of life partners. Any girl who refused to use it was eliminated from further consideration.

The electric toilet is just one of many ideas that have been suggested for the more effective management of human waste in urban environments. This book, published by the International Water Association, is just full of other ideas. Reading it is a mind-expanding experience. We are so used to having only one way of managing waste (using water as the carrier) that we forget to think of alternatives. If you are in any way concerned with how water is best managed in our cities, then this is a book for you. The book addresses the challenge of urban water management, and has chapters on urban water as a part of integrated catchment management, interactions with the environment, infrastructure integration issues, emerging paradigms in water supply and sanitation, problems of developing countries, economic and financial issues, social, institution and regulatory issues, and concludes with an excellent chapter on the outlook for the 21st century.

This is an idea book (as in lightning bolts). A worthy publication of the IWA that continues to be a force in international water management.

Čedo Maksimotić is with the Department of Civil and Environmental Engineering, Imperial College of Science, Technology and Medicine, London, UK, and José Alberto Tejada-Guibert is with the Secretariat for the International Hydrological Programme, UNESCO, Paris.

Sediment Flux Modeling

Dominic M. DiToro, John Wiley & Sons, 2001

Back in 1963, I was an intern working on the Delaware Estuary Project in Philadelphia. Being your basic grunt, my job was to run the thousands of BOD samples collected from the estuary so that Bob Thomann, the technical director of the project, could validate his new-fangled mathematical model on something called the computer. One day I started to run the final DO on the BOD bottles that had been in the incubator for 5 days and was getting weird results. The dissolved oxygen levels were very high, often higher than saturation. Being a conscientious sort, I remixed all the Winkler chemicals, and tried it again, with the same result. Finally in exasperation I called on Bob for help. He had no better ideas as to what was happening. Nobody ever *made* oxygen in a BOD bottle before.

Then we discovered the answer to our problem. I don't remember if it was Bob, or me, or some other clever person who thought of it, but we found that the little switch in the incubator that is supposed to turn off the light when the door closes was broken, and the light was on the whole time, allowing the algae in the bottle to make oxygen.

I have used that little story many times to illustrate both the concept of a BOD, as well as the misplaced trust we put on switches (and technology in general).

Reading Dom DiToro's excellent book on sediment modeling brought back that whole great summer in Philadelphia, and reminded me of the center of excellence in mathematical modeling of estuaries that continues to exist at Manhattan. Without a doubt, this book is a continuation of this excellence, and is the definitive work on sediments. It will continue to be the primary reference for many years.

The main focus of the book is the mathematical modeling of the processes that occur in sediments and that determine the extent to which materials that settle to the sediment are recycled to the water column. The book is well organized, and includes chapters on the properties of sediments, model formulation, ammonia, and nitrate. It starts out simply, with a steady state model and goes on to analyze the movement of phosphorus, silica, oxygen equivalents, sulfide, methane, and sulfide. The book concludes with mass transport and numerical methods, model calibration applications (Chesapeake Bay, Long Island Sound, and Lake Champlain), time-variable behavior, calcium and alkalinity, manganese, iron, and cadmium. Particularly good are the applications (although I was personally disappointed to not see the Delaware Estuary as an example).

If you are working on sediments and the interaction between sediments and water, this is a book you have to buy. Masterfully done.

Dom DiToro is the Donald J. O'Connor Chair of Environmental Engineering at Manhattan College.

Water and Wastewater Technology

Fourth Edition, Mark J. Hammer and Mark J. Hammer, Jr., Prentice-Hall, 2001

In the midst of an interminable shopping trip, my wife and I decided to have lunch at a fast food restaurant. Among other stuff, I had a small chili and my wife had a diet cola. When we were finished, my wife said that she needed a lid for her unfinished cola. I took the discarded lid from my chili container and put it on top of her cola cup. It was an expedient and even brilliant solution to a stated problem.

"Just like an engineer," groused my wife, "Solving one problem while making more problems."

"What problems?" I asked, offended by the lack of gratitude.

"Now when the cola splashes on the underside of the lid, it will taste like dilute chili."

Another challenge for the engineer! How to make sure the cola does not splash on the underside of the lid? A barrier, perhaps? The foil hamburger wrapper under the lid, held securely in place by the edge?

Before I could solve that problem, my wife had gotten another lid for her cola and was walking out the door, muttering something about her mother having warned her about engineers.

Samuel Florman described the process of solving problems by engineers as the "existential pleasure of engineering," the freedom from societal restrictions and concerns to focus only on the problem at hand. This joy of solving problems has to be the greatest single driving force for engineers. But the problems engineers solve are almost without exception the problems of other people. This is why engineering is so often called the "people-serving profession." If you want something done that requires technical skill, call an engineer. We are ready to serve (even if some of our more imaginative solutions are rejected by an ungrateful clientele!).

The book by Hammer+Hammer (or Hammer^2) is a grand example of the joy of solving problems that earmarks engineering. The authors make no pretense of telling us all this theory stuff. They want to solve problems and seem to genuinely express enthusiasm for this undertaking. Although they start out with two chapters on chemistry and biology, the heart of the book are the chapters on hydraulics and the design of water and wastewater treatment plants. They include a chapter

on the operation of wastewater systems, clearly indicating the practical nature of their approach.

This is not a book you would want to use as the primary text in an upper level course for engineering students, but it is full of practical stuff that would be very helpful to them in a senior design problem, for example. The primary use of this book would be as the second course in a technology-rich curriculum. It is well written, with lots of pictures and graphs, and is nicely presented. If you have ever worried that someday a smart-alecky student will ask you the difference between a gate valve and globe valve, this is the book you want.

Mark J. Hammer Sr. is an independent consultant in Lincoln, Nebraska, and Mark J. Hammer Jr., is with HDR Engineering, Inc.

Lexicon of Musical Invective

Nicolas Slonimsky, Norton, 2000

Many of you kind readers have commented on my book reviews, for which I am very grateful. I try to be fair and considerate, but occasionally I am brutally honest if the book deserves it. One of my colleagues recently told me that he decided not to write a book in fear that I might review it. That hurt. I hope he was kidding. I try to be nice as much as I can.

In order to demonstrate just how nice I am, I want to contrast the reviews of works by people who we now acknowledge to be great composers—at least in the sense that they pushed the limits of musical style—often over the edge of understanding and enjoyment. In this book, by the late Nicolas Slonimsky, we find the following reviews:

On Brahms: "The composition (C major symphony) reminded me of a visit to a sawmill in the Adirondack Mountains. Great logs of melodies were hauled up with superhuman power and noisily sawed into boards of phrases varying in length and thickness. Some of them were again reduced to shingles and laths or figures, to be finally stacked away in a colossal pile of a climax." (Clarence Lucas, *Musical Courier*, NY, Dec. 6, 1893)

On Copland: "If there exists anywhere in the world a stranger concatenation of meaninglessly ugly sounds and distorted rhythms than Mr. Copland's Piano Concerto, Boston has been spared it." (Warren Storrey Smith, *Boston Post*, Jan. 29, 1927)

On Gershwin: "How trite and feeble and conventional the tunes are [in the *Rhapsody in Blue*]; how sentimental and vapid the harmonic treatment, under its disguise of fussy and futile counterpoint! Weep over the lifelessness of the melody and harmony, so derivative, so stale, so inexpressive!" (Lawrence Gilman, *NY Tribune*, Feb. 13, 1924)

On Liszt: "In the dreary streets of Weimar, where Franz Liszt reigns, like a musical King of Death, and quaffs destruction to harmony with beer and metaphysics, the Teutonic dilettanti have allowed their wits to go astray, and become dupes of the grossest charlatanism." (*Musical World*, London, Jan. 20, 1855)

On Reigger: "It sounded as though a pack of rats were being slowly tortured to death, and meanwhile, from time to time, a dying cow groaned." (Walter Abendroth, *Allgemeine Musikzeitung*, Berlin, Mar. 25, 1932)

On Schoenberg: "The tonal rows in Schoenberg's latest works impresses us as mute, numb, empty, expressionless. They are the result of error followed through with ingenious consistency." (*Signale*, Berlin, Feb. 9, 1910)

Again on Schoenberg: "It has been said that it is difficult to score a noise well. In his Five Orchestral Pieces, Schoenberg has certainly succeeded in doing this. There were passages that suggested a bomb in a poultry-yard; cackles, shrieks, caterwauls; and then—crash!" (Louis Elson, *Boston Daily Advertiser*, Dec. 19, 1914)

On Strauss: "Flutes chased one another all over the ledger lines; oboes squeaked convulsively; clarinets coughed in their highest register; stopped cornets wailed in nasal tones; trombones bellowed; triangles and tambours rattled; and the timpani player lost his patience and several pounds of flesh in his desperate attempts to thump his three kettledrums as often and as hard as the score demanded. *Til Eulenspiegel* is a horrible example of what can be done with an orchestra by a determined and deadly decadent." (*NY times*, Feb. 28, 1896)

On Varese: "It sounded a good deal like a combination of early morning in the Mott Haven freight yards, feeding time at the zoo and a Sixth Avenue trolley rounding a curve, with an intoxicated woodpecker thrown in for good measure." (Ernest Newman, *NY Evening Post*, Mar. 2, 1925)

On Wagner: "A more horrendous Katzenjammer than Wagner achieves in his *Meistersinger* could not be accomplished even if all the organ grinders in Berlin were locked up in Renz's Circus, each grinding out a different tune." (Heinrich Dorn, *Montagszeitung*, Berlin, 1870)

There now. The next time I say something nasty about a book, you will note how timid I really am compared to the invective produced by these reviewers.

Swarm Intelligence

James Kennedy and Russell C. Eberhart, Morgan Kaufmann Publishing (Academic Press), 2001

Years ago, Jim Lamb at UNC had a book that listed all the hundreds of patents that had been issued for a very simple idea: You put a series of plates at an angle into a settling tank, and you dramatically lower the depth to which a particle has to settle in order to be removed. In effect, you greatly increase the overflow rate, or put in another way, you decrease the settling velocity of the critical particle. The commercially available Lamella Separator is a device that puts this old idea to work.

Other old ideas are born anew under different disguises. For example, finite element analysis, a computational technique for solving difficult structural problems, works because all elements in a structure are abutted by other elements, and they "learn" from each other. That is, the computer, through many iterations, finds the right stress and strain in each element. This would be impossible to do by hand, and thus this technique depends on the availability of the computer.

People can also be thought of as elements (or "particles" as defined by the authors of this fascinating work) who/which learn from their proximity to others. This is not a new idea of course. We have proof (sort of) from stories of feral children—children raised by animals and only later in life introduced to the human world. In all cases, these children were never able to adjust to language, manners, or morals. They did not have the abutting "particles" to help them develop. Another data point: Frederick the Great of Prussia was curious what the most basic of human languages was, and so he had some babies isolated from all human contact, waiting for them to develop their own means of communication. All of the babies died, and the experiment was unsuccessful.

Contact with others creates what the authors claim to be cultural intelligence. They are very careful with that word "intelligence," and more than once say that you can measure it however you want. All they suggest is that children who grow up with positive contact with others will learn much from these contacts, and we as a society will benefit. In effect, the "particles" come into positive contact and "learn" from other (abutting) people.

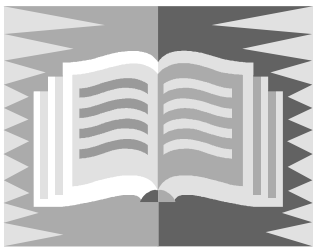
The authors call this "swarm intelligence," as in a swarm of bees or a school of fish. Not a new idea, of course, and it would be well enough to re-invent the ideas as sociological model, but what makes this book different is that the authors actually show how these ideas can be applied mathematically, much as when we apply ideas like the "Chinese postman" in systems analysis. Swarm intelligence is a new way of doing systems, and it seems to be a powerful new tool. In environmental engineering, where we so often deal with "swarms" of people (have you ever been to a public hearing on siting a landfill?), the understanding of this concept might be very useful.

James Kennedy is a social psychologist, and Russell Eberhart is an electrical engineer, both at the School of Engineering and Technology, Indiana University-Purdue University, Indianapolis.

Publications

Companion article to DBP history videotape

As a written companion to the videotape offered by AEESP, "1974 Revisited--A History of the Disinfection By-Product Issue" (contact Joanne Fetzner at jfetzner@uiuc.edu for a copy), Dr. James M. Symons has published a first person account of the early research into the discovery and control of THMs. Those interested in the written version of this story, see "The Early History of Disinfection By-Products--A Personal Chronicle," in the January (pp. 20-26) and April (pp. 7-15), 2001 issues of "Environmental Engineer," the publication of the American Academy of Environmental Engineers.



Call for co-authors, co-editors

Dr. Lawrence Wang is a retired environmental engineering professor with expertise in dissolved air flotation (DAF) technology. Dr. Wang is in process of compiling his accumulated DAF research data and case histories for publication of an environmental engineering book entitled "Flotation Engineering" in 2002. Up to two young and energetic Ph.D.s with knowledge in DAF and computer word processing will be invited to be the co-authors/co-editors. Those who are interested in academic publication and research shall e-mail your electronic resumes to Dr. Wang for consideration, usany@juno.com.

Conferences / Calls for Papers

International Conference on

Advances in Ozone Science and Engineering: Environmental Processes and Technological Applications

Hong Kong
April 15-16, 2002

This conference is being organized jointly by the International Ozone Association (IOA) and The Hong Kong Polytechnic University (Research Centre for Urban Environmental Technology & Management) and is sponsored by the Hong Kong Government. The conference will review all fundamental and applied aspects of ozone science and engineering, but particularly related to the following: atmospheric processes; urban air pollution; water, wastewater and industrial effluent treatment; advanced oxidation technologies; industrial applications; environmental impact effects; regional case studies. For further information see the conference web site (http://www.cse.polyu.edu.hk/rcuetm/ozone.htm) or contact Professor Nigel Graham: Department of Civil and Structural Engineering, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong; Tel: +852-2766-6010; Fax: +852-2334-6389; Email: cenigelg@polyu.edu.hk.

2002 AEESP/AAEE Conference on Education and Research Needs in Environmental Engineering and Science

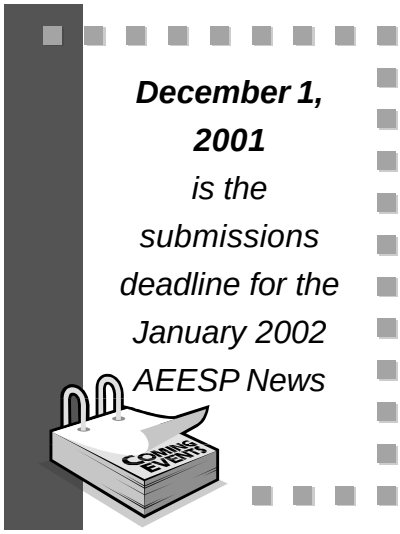
University of Toronto, Toronto, Canada
August 11-13, 2002

The Division of Environmental Engineering at the University of Toronto is planning an exciting and enjoyable conference with the theme "Integrated Environmental Teaching and Research: Linking Engineering and Science to Address Complex Problems." Sessions will address research and education issues in the following sub-themes through keynote speakers, accepted papers, posters and discussion periods:

1. Understanding Complex Environmental Systems
2. Use of Information Technologies for Monitoring and Data Management
3. Integrating Novel and Advanced Technologies into Understanding and Solving Environmental Problems
4. Sustainable Systems
5. Innovative Educational Approaches

A call for papers will be announced in the Fall. There will also be exhibits, social events, preconference workshops and postconference tours. A special website is being established to provide details of all aspects of the conference, and updates will be posted as our plans progress. Please visit the website at: http://www.ecf.utoronto.ca/apsc/misc/enveng/enviro/index.html. Inquiries should be sent via e-mail to: aeesp02@ecf.utoronto.ca (note: 02 = numeric: zero, two).

We hope you will plan to attend the 2002 conference!



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).

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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.

Association of Environmental Engineering and Science Professors Newsletter
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