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The President's Corner

AEESP

Someone once remarked that an environmental engineering colleague of mine was not a Areal microbiologist." I found this amazing as I personally considered my colleague to be a profoundly insightful microbiologist--but the fact remained that his BS degree stated engineer, and not scientist. On the other hand, I have often heard many engineers remark that the work of some environmental engineers is "not real engineering," or more specifically, not real "civil engineering." At an oceanographic sciences meeting many years ago, I had a similar experience. I found myself one day trying to avoid eye contact in an elevator when other meeting attendees that I did not know, got on the elevator. You see, both "Arizona" and "Engineering" appeared on my name tag, and I could almost see the question forming, "Why is this person here?" Of course, I was not considered at these meetings to be a "real oceanographer," an opinion that would not change no matter how many research cruises I went on or how many papers I published in "real journals" such as Limnology and Oceanography and Deep Sea Research. Perhaps this categorization was just, as I described myself both then and now simply as an Environmental Engineer with a "wide range of interests."

The debate about whether engineers are real scientists, and whether scientists should be allowed to join engineering departments is an old one in our profession. The fact remains that there have almost always been public health scientists and microbiologists on the Sanitary and Environmental Engineering faculty. This need to have scientists join with engineers, and to break down barriers in categorizing a person as one or the other, is a defining and inherent aspect of our profession.

I am therefore pleased to report that, pending confirmation by the Board of Directors at our annual fall Board meeting, our organization will henceforth be known as the Association of Environmental Engineering and Science Professors (AEESP). This name change reflects the membership qualifications in our bylaws that membership is restricted to full time faculty or instructors "in environmental engineering or related fields." The name change was not, however, a unanimous decision as it only narrowly passed the required two-thirds vote. I personally do not believe that there will be any mad rush for thousands of scientists to join our organization and change its nature. Instead, I hope the name change will primarily demonstrate what has always been true: the organization embraces both environmental engineers and scientists. Perhaps for the first time, this name change will convince "scientists" working in engineering departments, or "engineers" in science departments, that all are equal members of our interdisciplinary organization.

The report from the Environmental Engineering Frontiers Workshop, mentioned in the last newsletter, is now being published, and should be mailed to all AEEP members in September of this year. The Frontiers Workshop group recognized that collaboration of environmental scientists and engineers was critical for solving environmental problems that face the world in the coming decades, and called for an even greater collaboration of individuals from different disciplines. The Frontiers Workshop group also emphasized that many environmental challenges are global in nature. This recognition of a global environment is timely, as the amendment to our bylaws to change our membership requirements from including only faculty in North America to include faculty at foreign universities, was passed. By changing our name and geographical qualifications, we have shown that our door is open to our science and engineering colleagues (as are other associations for our members) not just in the USA but around

**December 1,
1998**

**is the
SUBMISSIONS
DEADLINE**

**for the
January '99
*AEEP News***



the world. With these two changes, we have begun an important process of having AEESP take a lead in addressing the environmental issues facing the world today.

As this is my last letter as President of AEEP, I would like to thank all of you that helped the organization, through participation in committees and other activities, during this past year. I would especially like to thank my fellow board members, and those participants of the NSF/AEEP Environmental Engineering Frontiers Conference, for their support and help.

I look forward to seeing all of you next year at the AEESP Research Conference to be held at Penn State on August 1-3 (with workshops on July 31).

Bruce Logan, blogan@psu.edu

AEEP News and Announcements



*Association of
Environmental
Engineering
Professors
Newsletter*

The AEEP Newsletter is published January, April, and September by the Association of Environmental Engineering Professors, 2208 Harrington Court, Champaign, IL 61821.

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Please send submissions and comments to the editor.

To estimate the amount of lead time needed for your announcement, please note that members receive the newsletter 6-8 weeks after

WEFTEC '98 71st Annual Conference and Exposition

**October 3-7, 1998
Orlando, Florida**

AEEP/WEF Scientists' Luncheon

Monday, October 5, 1998
12:00 – 1:30 p.m.
Orange County Convention Center

AEEP Meet & Greet

Monday, October 5, 1998
5:00 – 7:00 p.m.
Omni Rosen Hotel
Salon 9

that members receive the newsletter 6-8 weeks after the submissions deadline.

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Speaker: Dr. Thomas D. Fontaine

Title: Scientific and Engineering
Approaches for Preserving
and Enhancing the
Everglades-Florida Bay
Ecosystem

The 1998 AEEP Lecture will follow the Scientists' Luncheon.

Speaker: Dr. Gary Saylor

Title: Molecular Probes and
Biosensors in the Analysis of
Waste Treatment and
Bioremediation

NOTE: You DO need to register for the Luncheon through WEFTEC, but DO NOT need to be registered for the conference to attend.

For information, call:

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NOTE: Award Presentations will be made.

New Board Members

Congratulations to the new AEEP Board members serving three-year terms, beginning October 1998. They are Professor Domenico Grasso, University of Connecticut; Professor John Novak, Virginia Polytechnic Institute; and Professor Susan Powers, Clarkson University.

Organizations of Interest

AGU Fall Meeting

Dear Colleagues,

We would like to call your attention to a special session we are organizing for the Fall Meeting of the American Geophysical Union (AGU) December 6-10, 1998, in San Francisco. The session description and deadlines for abstract submission are given below. Please consider contributing an abstract and presentation (either platform or poster) to this special session. We hope to see you in San Francisco.

Sincerely,

James A. Smith

Susan E. Burns

Dept. of Civil Engineering

University of Virginia

pects are especially encouraged.

Abstracts must be submitted to both AGU and to one of the special session conveners. The deadline for abstract submission to AGU is August 26th (postal/express mail submissions) or September 2nd (interactive web form submissions). The deadline for submission to one of the conveners (by fax, conventional mail, or e-mail) is September 2nd. Detailed instructions for abstract preparation and submission can be found at the AGU web site at the following URL: <http://www.agu.org>.

Conveners: Susan E. Burns, Dept. of Civil Engineering, University of Virginia, Charlottesville, VA 22903-2442, Phone: 1-804-924-6370, E-mail: sburns@virginia.edu; James A. Smith, Dept. of Civil Engineering, University of Virginia, Charlottesville, VA 22903-2442, Phone: 1-804-924-7991, E-mail: jsmith@virginia.edu.

Physical and Chemical Remediation of Contaminated Aquifers

Physical and chemical techniques for the remediation of contaminated soil and ground water continue to evolve. This session examines recent innovative techniques for the removal and/or stabilization of contaminants in the subsurface. Suggested topics include, but are not limited to, innovative concepts in air sparging (including physical and chemical techniques to increase mass transfer or to enhance bioremediation), electrokinetic treatment for the removal of metals, in-situ vitrification for the stabilization of inorganic contaminants, natural physico-chemical remediation processes, and surfactant-enhanced remediation of organic contaminants. Both experimental data and model interpretations are welcome; however, studies that include both as-

University of Florida offers new graduate degree program

The University of Florida is offering a new Ph.D. program in concert with its existing Ph.D. program in Environmental Engineering Sciences. The new Interdisciplinary Ecology program offers 120 courses in ecology, natural science, social science, and sustainability studies, with 255 faculty advisers. Assistantships and tuition payments are available and applications are now being accepted for Fall 1999. Details and application materials can be obtained on the internet at <http://web.cnre.ufl.edu/Ecology.htm> or email osteen@nervm.nerdc.ufl.edu, or contact the Dean's Office, College of Natural Resources and Environment, Box 118100, University of Florida, Gainesville, Florida 32611; phone (352) 392-9230.

Employment Opportunities

California Institute of Technology

ENVIRONMENTAL MICROBIOLOGY. The Division of Engineering and Applied Science at the California Institute of Technology invites applications and nominations for one tenure-track position at the assistant professor level in the academic program of Environmental Engineering Science. The term of the initial appointment is normally four years, and appointment is contingent upon completion of Ph.D. Exceptionally well qualified applicants may also be considered at the associate or full professor level. The primary area of interest is Environmental Microbiology. We are looking for an individual who has an outstanding research record in molecular biology applied to environmental systems and who has a commitment to teaching and research in the environmental sciences and engineering. Candidates should send a curriculum vitae, including the names

of three references with e-mail contact information, a list of publications, and a statement of research and teaching interests to: Prof. Michael R. Hoffmann, Environmental Engineering Science Search Committee, W. M. Keck Laboratories, 138-78, California Institute of Technology, Pasadena, CA 91125 (E-Mail: mrh@cco.caltech.edu). *Caltech is an Equal Opportunity/Affirmative Action employer and encourages applications from women, minorities, veterans, and disabled persons.*

ENVIRONMENTAL FLUID MECHANICS. The Division of Engineering and Applied Science at the California Institute of Technology invites applications and nominations for one tenure-track position at the assistant professor level in the academic program of Environmental Engineering Science. The term of the initial appointment is normally four years, and appointment is contingent upon completion of Ph.D. Exceptionally well

qualified applicants may also be considered at the associate or full professor level. The primary area of interest is Environmental Fluid Mechanics. We are looking for an individual who has an outstanding research record in fluid mechanics and transport applied to environmental or engineered systems, and who has a commitment to teaching and research in the environmental sciences and engineering. Candidates should send a curriculum vitae, including the names of three references with e-mail contact information, a list of publications, and a statement of research and teaching interests to: Prof. Michael R. Hoffmann, Environmental Engineering Science Search Committee, W. M. Keck Laboratories, 138-78, California Institute of Technology, Pasadena, CA 91125 (E-Mail: mrh@cco.caltech.edu). *Caltech is an Equal Opportunity/Affirmative Action employer and encourages applications from women, minorities, veterans, and disabled persons.*

GLOBAL ENVIRONMENTAL SCIENCE. The Division of Engineering and Applied Science and the Division of Geological and Planetary Sciences at the California Institute of Technology (Caltech) jointly invite applications and nominations for a tenure-track faculty position at the assistant professor level in the area of Global Environmental Science. The term of the initial appointment is normally four years, and appointment is contingent upon completion of Ph.D. Exceptionally well-qualified applicants may also be considered at the associate or full professor level. We are looking for an individual who has an outstanding research record and potential in a suitable scientific or engineering discipline with a primary focus on global-scale environmental systems. Candidates should also have a serious commitment to teaching in this area. Research specialties of interest include climatology, oceanography, environmental geochemistry or biogeochemistry, atmospheric sciences, dynamic meteorology, paleoclimatology, paleoceanography, and geomorphology. Candidates should send a curriculum vitae, including the names of three references with e-mail contact information, a list of publications, and a statement of research and teaching interests to the: Global Environmental Science Search Committee, W. M. Keck Laboratories, 138-78, California Institute of Technology, Pasadena, CA 91125. *Caltech is an Equal Opportunity/Affirmative Action employer and encourages applications from women, minorities, veterans, and disabled persons.*

Northwestern University

MICROBIOLOGY POSITION IN ENVIRONMENTAL ENGINEERING. The Civil Engineering Department at Northwestern University invites applications for a tenure-track, assistant professor position in its Environmental Engineering program. The position is for an outstanding microbiological scientist eager to develop a program encompassing fundamental to applied scholarship that addresses innovations and advances in environmental biotechnology. Applicants must possess an earned doctorate in microbiology or related field. They will be expected to thrive in and promote our highly inter-disciplinary intellectual setting, which educates graduate and undergraduate students in a wide range of environmental sciences and quantitative skills. The ideal candidate should have an established record of achievement in microbial physiology, microbial genetics, geomicrobiology, microbial ecology, or related disciplines of relevance to environmental systems. Post-doctoral experience is highly desirable. The capacity to develop an externally funded research program—individually and in concert with other faculty—is essential. The salary is highly competitive and depends on the successful candidate's qualifications. Northwestern's Environmental Engineering program currently is comprised of 8 faculty who emphasize environmental microbiology and chemistry directed towards natural and engineered aquatic systems. The program has extensive capabilities in molecular biology and analytical chemistry, and this position expands our faculty in order to deepen our strength in environmental microbiology. Northwestern University is an equal opportunity, affirmative action employer. Applications from women and under-represented minorities are encouraged. Hiring is contingent upon eligibility to work in the United States of America. The position is available 1 September 1999. A letter describing research and teaching interests, an academic resume, and the name and contact information for at least three professional references should reach the search committee by 30 September 1998 in order to ensure full consideration, but the search will continue until a suitable candidate is hired. Application materials should be sent to: Dr. Bruce E. Rittmann, Environmental Microbiologist Search Committee, Department of Civil Engineering, Northwestern University, 2145 Sheridan Road, Evanston, IL 6020803109, U.S.A. Further information can be found on the program's website: <http://www.civil.nwu.edu/ehe>.

University of Maine

ENVIRONMENTAL ENGINEERING FACULTY POSITION. The Department of Civil and Environmental Engineering at the University of Maine invites applications for a tenure-track faculty position at the assistant or associate professor level in the area of environmental microbiology. The position involves teaching undergraduate and graduate courses, developing a vigorous externally funded research program, and professional service. The successful candidate should be able to teach courses in introductory environmental engineering, biological waste treatment and environmental microbiology, and develop new courses related to his/her specific area of interest. The research specialization may include but is not limited to one or more of the following: bioremediation of pollutants, biochemical waste treatment, molecular biology of transformation reactions, and bacterial transport. The successful candidate

area of interest. The research specialization may include but is not limited to one or more of the following: bioremediation of pollutants, biochemical waste treatment, molecular biology of transformation reactions, and bacterial transport. The successful candidate will have access to the state-of-the-art research facilities of the Water Research Institute at the University of Maine. A Ph.D. in Civil or Environmental Engineering or closely related field is required prior to the time of appointment. Previous teaching experience is preferred. An undergraduate degree from an accredited engineering program is also preferred. Professional registration, or qualifications for eventual registration as a professional engineer is required. Review of applications will begin September 15, 1998, and will continue until a suitable candidate is found. The appointment will begin January 1, 1999. Authorization to work in the United States at the time of appointment is required. Applicants should submit a curriculum vitae, statements of research and teaching interests, a copy of no more than one refereed publication, college transcripts and a list of at least three references to: Dr. Willem Brutsaert, Pro-

fessor and Chair, Department of Civil and Environmental Engineering, University of Maine, 105 Boardman Hall, Orono, Maine 04469-5711. Additional information describing the Department of Civil and Environmental Engineering at the University of Maine and the Water Research Institute is available at <http://www.umeciv.maine.edu/ce/> and <http://www.ume.maine.edu/~wri/>. *The University of Maine is an Equal Opportunity/affirmative action employer and welcomes applications from women and minority groups.*

University of California, Los Angeles

THREE POSITIONS, ENVIRONMENTAL ENGINEERING.

The Civil and Environmental Engineering Department at the University of California, Los Angeles (UCLA) invites applicants for three tenure track or tenured faculty positions in Environmental Engineering beginning in Fall 1999. We are seeking candidates in the following areas, although other areas of environmental engineering will also be considered: physical and chemical processes; biogeochemical fate and transport; aquatic chemistry; environmental microbiology with an emphasis on molecular probing technology. Preference will be given to mid-career applicants (Associate Professor or Professor); however, outstanding early career applicants will also be considered. The successful candidates must hold an earned doctoral degree. Registration as a professional engineer is highly desirable. Preference will be given to candidates with demonstrated excellence in teaching, research, and professional service. The successful candidates will teach graduate and undergraduate courses in Environmental Engineering and will be expected to develop and sustain an extramurally sponsored research program. Applicants should send a detailed curriculum vitae, with the names and addresses of at least four references, to: Professor Michael K. Stenstrom, Chair, Civil and Environmental Engineering Department, 4173 Engineering I, University of California, Los Angeles, CA 90095-1593.

University of North Carolina

CHAIR, DEPARTMENT OF ENVIRONMENTAL SCIENCES AND ENGINEERING (ESE). One of eight departments in the School of Public Health, ESE comprises 43 faculty (37 tenured or tenure track), 215+ students (85% graduate, 15% undergraduate), and has an annual operating budget of \$11 million. The faculty and student body represent a broad range of disciplinary backgrounds, including specialties within biology, chemistry, economics, engineering, mathematics, microbiology, physics, policy, and toxicology. Administratively organized into six academic program areas, ESE currently offers a bachelors degree, four masters degrees and the doctoral degree. Candidates must have an earned doctorate in a discipline closely associated with the fields of environmental sciences or environmental engineering and a record of research, scholarship, and professional activity which demonstrates preeminence at the national and international levels. The position will be filled at the tenured Full Professor level. Qualified applicants should possess a record of constructive leadership; a commitment to excellence in scholarship, teaching, and outreach to the constituencies of the department, the School of Public Health and the University of North Carolina; skills necessary to integrate faculty, students, and staff to enhance productivity, an ability to assist the faculty in developing curricula and programs that respond to current and emerging needs in environmental sciences and engineering; a vision for enhancing the diversity of the faculty and student body; a willingness to promote cross-disciplinary activity within the department and between the department and other units within the School of Public Health or other units on campus; and a commitment to seek and secure prospective resources to accomplish the overall missions of the department in teaching, research, and service. Applications will be reviewed beginning in August 1998 and will continue to be reviewed until the position is filled. Applications consisting of a curriculum vitae and the names and contact information of four references should be sent to: Dr. Lawrence L. Kupper, Chair of the ESE Chair Search Committee, Department of Biostatistics CB #7400, School of Public Health, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-7400; Email: kupper@bios.unc.edu. *The University of North Carolina at Chapel Hill is an equal opportunity, affirmative action employer and encourages women and minorities to apply.*

Clemson University

NEWMAN ENDOWED CHAIR IN NATURAL RESOURCES ENGINEERING. Responsibilities will include organizing and direct-

NEWMAN ENDOWED CHAIR IN NATURAL RESOURCES ENGINEERING. Responsibilities will include organizing and directing multi-disciplinary research programs, and teaching at undergraduate and graduate levels on the environmentally compatible development of natural resources. Further responsibilities will include organizing scientific symposia and seminars, writing textbooks and scientific articles dealing with pertinent topics of local, regional, and national scope in natural resources engineering and management; serving as an advisor and resource person to university faculty and to state and federal agencies; and participating in all activities of the Department of Agricultural and Biological Engineering including student recruiting, faculty mentoring, and fund raising. Required qualifications include a Ph.D. in Agricultural or Biosystems Engineering or a closely related engineering discipline. The person selected to fill the Chair shall have a record of outstanding accomplishments in the application of engineering principles to solving problems in management of natural resources, and shall have demonstrated leadership characteristics, and ability to excel in teaching, research, and public service activities. Appointment will be a tenure track, Associate or Full Professor level, teaching/research/service position. Appointee will be housed in the Department of Agricultural and Biological Engineering. A complete application will include a letter of interest, curriculum vitae, academic transcripts, and names and addresses of three professional references. Applications will be accepted until October 15, 1998, or until a suitable candidate is identified. David E. Brune, Search Committee Chair, Dept. of Agricultural & Biological Engineering, McAdams Hall, Clemson University, Clemson, SC 29634-0357; Voice: (864) 656-4068; FAX: (864) 656-0338. *Clemson University is an affirmative action equal opportunity employer.*

didate is identified. Francis J. Wolak, Secretary, Search Committee Agricultural and Biological Engineering Department, Box 34-0357, McAdams Hall, Clemson University, Clemson, SC 29634-0357. *Clemson University is an affirmative action equal opportunity employer.*

University of Washington

ENVIRONMENTAL ENGINEERING BIOTECHNOLOGY.

The University of Washington's Department of Civil and Environmental Engineering invites applications for a full-time tenure-track faculty position at the rank of assistant professor with a specialization in Environmental Engineering Biotechnology. Although the department is seeking a person at the assistant professor rank, under unusual circumstances and commensurate with the qualifications of the individual, the appointment may be made at the rank of associate professor or professor. The position will begin in September 1999. We seek individuals who will apply modern molecular biology techniques to research on biological processes used to solve environmental engineering problems, which include biological degradation of priority pollutants, industrial and municipal wastewater treatment, and pathogen destruction. The successful applicant will have earned a Ph.D. by date of appointment and will be expected to teach both undergraduate and graduate courses within the Department of Civil and Environmental Engineering. The Department, College of Engineering, and University are committed to outstanding teaching, and the successful applicant will be expected to provide innovative and quality teaching that integrates research with instruction. The successful applicant will be expected to engage in research collaboration with other engineers and scientists within the University. The Department currently has 33 faculty positions, 240 undergraduates at the junior and senior level and 200 graduate students, and currently has more than 12 million dollars in active research contracts. Review of applications will begin on October 15, 1998, and applications will be reviewed until the position is filled. Applications should include curriculum vitae, a list of publications, a statement of interests and goals, and the names and addresses of five references for this position. These should be sent to: Professor H. David Stensel, Environmental Search Committee Chair, Department of Civil and Environmental Engineering, University of Washington, Box 352700, Seattle, WA 98195-2700. The University of Washington is building a culturally diverse faculty and strongly encourages applications from female and minority candidates. *The University of Washington is an Equal Opportunity, Affirmative Action Employer. For additional information, the Department's home page is <<http://www.ce.washington.edu>>*

Duke University

FACULTY POSITIONS IN ENVIRONMENTAL ENGINEERING. Duke University's Department of Civil and Environmental Engineering is seeking applications for one or two faculty positions in the broad area of environmental engineering. The successful candidate will join and interact with a vibrant group of faculty specializing in such areas as environmental mechanics and contaminant transport phenomena, surface and subsurface hydrology, and the prediction of complex large-scale systems behavior and mitigation of global hazards. Since these hazards often pose problems that go well beyond the traditional disciplines and understanding within civil engineering based on the mechanics of solids and fluids, a multidisciplinary approach with components from mathematics, computer science, chemistry, microbiology, geophysics, geophysical measurements and environmental science is a focus of research and teaching at Duke. Interdisciplinary collaborations involve faculty in the Nicholas School of the Environment, the Medical Center, and the applied mathematics group in the Department of Mathematics, as well as in other traditional departments inside and outside the School of Engineering.

applied mathematics group in the Department of Mathematics, as well as in other traditional departments inside and outside the School of Engineering.

Although applicants are being sought in the broad area of environmental engineering, special consideration will be given to those with environmental engineering degrees and a demonstrated interest in environmental microbiology, biochemistry, and/or environmental chemistry, especially as they relate to process design. Candidates with the ability to combine laboratory and/or field experiments with a rigorous quantitative analysis and modeling of interactions between transport phenomena and physical, chemical and bio-chemical processes involved, are especially encouraged. This is a unique opportunity to become partners with a dynamic faculty concerned with developing one of the leading programs in environmental engineering. The rank is open, and the appointments will be made according to experience, achievements, and promise of the successful candidates, who will demonstrate the qualities of creativity, leadership, and entrepreneurship that are common to successful academic researchers in the present educational and funding climate.

Duke University, which attracts top students at both undergraduate and graduate levels, is an equal opportunity employer and encourages applications from scholars belonging to historically underrepresented groups. Applications will be accepted until the positions are filled. Applicants should submit a curriculum vitae, a statement of research and teaching accomplishments, a statement outlining research and teaching goals for the next five years, and a list of three references by October 1, 1998 for consideration by the Environmental Engineering Search Committee. Application materials should be sent to: Environmental Engineering Search, Professor Henry Petroski, Chairman, Department of Civil and Environmental Engineering, Duke University, Box 90287, Durham, NC 27708-0287.

Auburn University

The Department of Civil Engineering at Auburn University is accepting applications for a tenure-track faculty position at the assistant professor level. Review of applications will begin in January 1999 with an anticipated starting date of September 16, 1999. Earlier starting dates may be possible. Duties will include teaching at the undergraduate and graduate level, developing a funded research program and engaging in college, university and professional service. Candidates should be able to complete requirements for profes-

Book Reviews by P. Aarne Vesilind

HAZARDOUS WASTES: SOURCES, PATHWAYS, RECEPTORS, Richard J. Watts, John Wiley & Sons, 1996

In a recent article in *The Bridge*, journal of the National Academy of Engineering, William A. Wulf, president of the Academy, calls for immediate engineering education reform, suggesting among other things a greater synergy between the practitioner and the educator, and providing rewards for educators who also practice engineering. While his message is not new, it adds urgency to the issue of reform.

It also asks, in a back-door manner, who is responsible for designing the engineering curriculum, and what kind of products do we expect to produce. Are we really the farm system for the major leagues of industry, or are we trying to replicate ourselves as experts in engineering science research? A recent argument (discussion) with a colleague who teaches fluid mechanics brought home the point. I asked him how much he did on pumps.

"Pumps?" he asked incredulously.

"Pumps" I repeated.

"What do pumps have to do with fluid mechanics?" He was genuinely puzzled.

"But how do the students learn how to move water from A to B?"

"They have to move water? That's not fluid mechanics." And he was serious. It turned out that what he was teaching was the *the-*

book, stuffed together using old EPA documents (Who were those guys at NJIT years ago who wrote a book a week by re-printing EPA research reports?) This is a solid book that provides more information than could possibly be covered in a semester, but is sufficiently complete to allow the instructor to personalize a course using various sections.

The problems at the conclusion of the chapters are good, and a problems solutions manual is available from the publisher.

I believe Rick has struck a good balance in this book between the practical and theoretical, and he deserves our thanks for a fine contribution to the field.

Rick Watts is with the Department of Civil and Environmental Engineering at Washington State University.

BRIEFLY NOTED:

EPA ENVIRONMENTAL ENGINEERING SOURCEBOOK, J. Russell Boulding (Ed.), Ann Arbor Press, Chelsea MI, 1996

This book is a compilation of three types of documents written for the EPA, some by EPA personnel and some by contractors. The three types of documents are: a) *Ground Water Issue Papers* (5 of the book chapters), b) *Engineering Issue Papers* (2 chapters), and c) *Engineering Bulletins* (21 chapters). The book is divided into two parts: 1. Containment, Pump-and-Treat, and

They have to move water! That's not hard mechanics. Rannie was serious. It turned out that what he was teaching was the theory of fluid flow, inculcating in the students the information that he himself found useful in his research work. It never occurred to him that students might want to make practical use of their education.

There obviously is a balance between science and practicality, and it is our job to find that balance. We need not only to help our students learn the theory, but also to provide them with enough engineering know-how to make them useful.

This balance is what is so well exemplified by the fine book by Rick Watts. He spends considerable effort in presenting the science of hazardous waste, but also recognizes that students expect to learn some practical and contemporary material that can be immediately useful.

After an introduction, a chapter on common hazardous wastes discusses nomenclature, industrial uses and disposal histories. I found the section on classification of organic compounds most useful and can see how this bit of science can be of immense practical use to engineers. Chapter three covers the properties and classification of common hazardous wastes. Next is source analysis including waste audits and site assessments. Chapter five is on sorption and exchange at surfaces, including sorption theory, properties of soils, retardation and partitioning. Volatilization is next, followed by abiotic and biotic transformations. Chapter eight is on contaminant release and transport from the source. The next two chapters cover concepts of toxicology and risk assessment, followed by several chapters on management and design applications.

What impresses me most about this book is the effort and obvious care that has gone into its writing. This is not a "quickie"

chapter, and 6) *Engineering Solutions* (21 chapters). The book is divided into two parts: 1. Containment, Pump-and-Treat, and In Situ Treatment; and 2. Ex-Situ Treatment Methods for Contaminated Soils, Ground Water, and Hazardous Waste.

According to the editor, some of these papers have attained the status of classics and are therefore difficult to find. One reason they may be hard to find is that some of the papers are over eight years old. It is understandably convenient, however, to have them all together in one book.

My greatest concern is with the title of the book. The only thing "EPA" about these papers is that they were all written for the Agency. This is not an official publication of the EPA nor is it a source of information on how to work with the EPA. There should be truth in packaging here. But I guess a book entitled "*A Reprinting of Some Old EPA Documents on Site Remediation*" would not have been a big seller.

Russell Boulding is a senior environmental scientist with the Eastern Research Group in Lexington MA.

***PESTICIDES IN GROUND WATER: DISTRIBUTION, TRENDS AND GOVERNING FACTORS*, Jack E. Barbash and Elizabeth A. Resek, Ann Arbor Press, Chelsea MI, 1996**

Originally written for the United States Geological Survey, this book is the edited version for commercial publication. This is Volume 2 in the three-volume series on Pesticides in the Hydrologic System. Chapter 1 introduces the problem and prevalence of pesticides in the environment; Chapter 2 discusses the characteristics of the studies reviewed in the book; and Chapter 3 is an overview of the occurrence and distribution of pesticides. Subsequent chapters cover the processes that govern pesticide concentration in ground water, the influence of climate and agricul-

tural practices on pesticides in the environment, the influence of pesticide properties, environmental setting, and pesticide detection, occurrence of pesticides in non-agricultural settings, contamination from point sources, models predicting pesticide prevalence, and finally, environmental significance.

The book is chock full of data. Anyone doing research on pesticides *must* have this book.

Jack Barbash is with the U.S. Geological Survey and Elizabeth Resek is with the U.S. Environmental Protection Agency.

***PESTICIDES IN SURFACE WATERS: DISTRIBUTION, TRENDS, AND GOVERNING FACTORS*, Steven J. Larson, Paul D. Capel, and Michael S. Majewski, Ann Arbor Press, Chelsea MI, 1997**

This is Volume 3 in the series, Pesticides in the Hydrologic System. As with the second volume discussed above, this book is a valuable compilation of data on pesticides, this time in surface waters. The authors are all with the U.S. Geological Survey.

***METAL CONTAMINATED AQUATIC SEDIMENTS*, Herbert E. Allen (Ed.) Ann Arbor Press, Chelsea MI, 1995**

This book is the fourth of a series of compilations of papers presented at a workshop on metal speciation in the environment. This workshop, entitled Metal Speciation and Contamination in Aquatic Sediments, was held in June of 1993. The topics include: metals in sediments, metal cycling in surface sediments, trace metal chemistry in porewaters, metal adsorption onto and desorption from sediments, metal and silicate sorption, redox in sediments, changes in speciation following changes in sediment redox status, dynamics of trace metal interactions with authigenic sulfide minerals, the effects of bioturbation on solute particle transport, and finally the requisite EPA policy statement.

As compilations go, this is a very nicely put together proceedings. The papers are all of high quality and the editing is faultless.

Herb Allen is with the Department of Civil and Environmental Engineering at the University of Delaware.

***DESIGN OF REMEDIATION SYSTEMS*, Jimmy H. C. Wong, Chin Hong Lim, and Greg Nolen, CRC Lewis Publishers, 1997**

A good consulting friend of mine once got me to co-author a book. His sole purpose was to have the book available for his clients so he could say "and we wrote the book on this topic." I suspect this is the same motivation for the present book.

Basically, the book contains descriptions of existing technology and little of substance for academicians. The book does, however, have great examples—descriptions of real-life remediation problems that could become useful for lectures or for projects. Anyone teaching a hazardous waste course might want to look at this book as a source of practical and applied teaching material.

Jimmy Wong is president of International Environmental Services, Chin Hong Lim is with the HWS Consulting Group, and Greg Nolen is manager of construction activities for EM-CON.

P. Aarne Vesilind

TRANSPORT MODELING FOR ENVIRONMENTAL ENGI-

BOOK REVIEW BY JEAN-FRANCOIS GAILLARD:

***NEERS AND SCIENTISTS*, Mark M. Clark, Wiley Environmental Science and Technology Series, New York, 1996, 559 pp., ISBN 0-471-12348-X**

Until two years ago, there existed a narrow choice of reference texts for teaching transport processes in environmental systems. Within a year, Wiley, published a series of new and revised monographs that filled this gap. Mark Clark's textbook presents, in a clear and rigorous manner, the fundamentals of mass and momentum transport in fluids, particle-particle interaction, adsorption, and mass transfer as they can be applied to various media; e.g., air, water, and soils. In addition, it provides an introduction to chemical kinetics and reactor design. The text focuses on concepts and the mathematical derivation of the physical and chemical laws that every environmental engineer/scientist, interested in the fate of contaminants and their treatment, needs to master. Theoretical developments are illustrated by worked examples of their application in environmental situations. At the end of each chapter, the reader will find a rich collection of valuable problems and exercises. A solutions manual is available from the author. This book is composed of ten chapters. The first chapter provides us with a systemic overview of the various topics that the text addresses; it presents the principle of conservation under its various forms, either using a control volume or a differential approach, stresses the concept of continuum, and introduces box models. The second chapter details the interactions of particles with fluids to establish the classical expressions used in sedimentation and centrifugation. It is followed by the third chapter that deals with the treatment of particle-particle interaction in water and air environment. Here the focus is placed on electrostatic interactions of small charged particles. The stability of colloids is explained using the Debye-Huckel model of the double-layer in combination with the van der Waals force to lead that the DLVO theory. Finally, coagulation is described using the general dynamic equation, relating particles of different class sizes, to emphasize the role of the collision efficiency. Chapter four uses a thermodynamic equilibrium viewpoint to address the partitioning of chemicals at interfaces and discusses adsorption isotherms. Chapter five describes the motion of fluids centered around the Navier-Stokes equation. From the tone of the text, it is clear that fluid mechanics is one of the author's loves. It is an excellent section that provides good insights into various applications of this equation and introduces well turbulence. On the critique side, I regret that the Navier-Stokes equation is not derived from the principles denounced at the beginning of the text. Thus, it retains a sort of magic that can scare some students off, especially because of the sudden use of tensors. In Chapter six, the laws of molecular diffusion are established and the effects of porous media on diffusive transport are briefly described. Chapter seven looks at the combined effects of fluid motion and diffusion, either in laminar or turbulent flows. With 100 pages, it is the largest section of this book. It does a nice job at introducing non-dimensional numbers and analyses that allows one to assess the relative importance of the different modes of transport. Chapter eight is a more thorough investigation of transport processes in porous media. In particular, it deals with particle capture and chromatographic effects. The next two, and final, chapters provide an introduction to chemical kinetics and reactor design. Chapter

nine deals with basic kinetic rate laws, enzyme catalysis, reversible reactions, and reactions in series and in parallel. There is a timid excursion in perturbation methods to introduce the notion of relaxation time and their application to the determination of rate constants. Finally, Chapter 10 focuses on residence time distributions in various reactors and the determination of reaction rates using reactor data. Three appendices list physical constants and present reviews of vector analysis and differential geometry applied to fluid mechanics. In conclusion, this is an excellent book for first-year graduate students that need to review, and in many instances re-discover/learn, the fundamentals of transport and reactions in environmental systems. The presentation of the topics is clear and rigorous, and the author has done an excellent job at collecting various exercises that illustrate very well the application of these fundamentals to environmental

science/engineering. I recommend it.

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Publications

New from Lakeshore Press

Report Writing for Environmental Engineers and Scientists,
by James G. Smith and P. Arne Vesilind. \$10.00 for AEEP
members. Used for many years as a supplemental text in an en-
gineering design course at Duke University. For information,
contact Lakeshore Press, P.O. Box 92, Woodsville, NH 03785;
(919) 967-0601.

New software from Haestad

Haestad Methods, Inc., has announced the release of FlowMas-
ter PE, Version 6.0 for Windows, a civil engineering hydraulics
software package. Haestad Methods has water distribution sys-
tem software and other materials available as well. For informa-
tion, contact Haestad Methods, Inc., 37 Brookside Road,
Waterbury, CT 06708; (800) 727-6555. You also may email
them at info@haestad.com or visit their web site at <http://www.haestad.com>.

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Conferences/Call for Papers

"Fundamentals, Modeling and Applications of Nitrification and Denitrification" March 28-31, 1999 The Hotel Roanoke and Conference Center Roanoke, Virginia

Sponsored by: Virginia Tech's Environmental Engineering Program, CH2M-Hill, the Division of Continuing Education and Center for Organizational and Technological Advancement (COTA).

About the Symposium

The goal of this symposium is to provide participants with the current state of knowledge about biologically mediated nitrification and denitrification. The symposium begins on Sunday evening with a historical perspective provided by Dr. James Alleman. On Monday, you will hear about fundamental principles to help you understand how nitrifiers and denitrifiers process nitrogen and the factors that can inhibit the microbes. You will then listen to lectures pertaining to applications, process design and case studies. The symposium concludes on Wednesday with presentations concerning how to model the processes. Many of the world's foremost experts have been assembled for this timely symposium.

Exhibits

Exhibition space is available. If your company is interested in setting up a booth or display please contact Ms. Jane Todd at phone - (540) 231-2014, e-mail janetodd@vt.edu, fax - (540) 231-9886 to reserve a space. The \$680.00 exhibitor fee includes the space rental plus full participation in the symposium for one person.

Who Should Attend

about registration, contact the Division of Continuing Education's Conference Registrar at (540) 231-5182.

Registration

The fee is \$610 and includes a symposium notebook with materials authored by the presenters, three lunches, continuous refreshment breaks, two receptions, and a certificate awarding 2.4 CEUs (Continuing Education Units). Full time students may register at a reduced rate of \$250. A one day registration fee is \$250, which includes daily events and materials. One day participants may purchase the Sunday reception for \$40 and the Monday reception for \$15. You may register electronically by accessing our web site at <http://www.conted.vt.edu/nitrification/>.

Location and Lodging

The symposium will be held at The Hotel Roanoke and Conference Center (HRCC), conveniently located at 110 Shenandoah Avenue within walking distance of the downtown shopping and dining market district of Roanoke. The HRCC is a complex consisting of a luxurious historic hotel and a state-of-the-art conference center. An enclosed skywalk connects the HRCC with downtown Roanoke.

Air Travel Information

The Roanoke Valley Regional Airport is only ten minutes from The Hotel Roanoke and Conference Center. A shuttle bus will take you directly from the airport to the hotel and conference center at no charge. The airport supports four main airlines: US Air, Delta Connection (ASA and COMAIR), Northwest AirlinK, Continental Express and United Express.

Water Environment Federation 1999 Conference

Call for papers: Urban Ecosystems. A session at WEFTEC 99 will be devoted to urban ecosystems. Of particular interest are

Who Should Attend

- + Engineering Consultants
- + Municipal and Industrial Engineers
- + Utility and Public Works Directors
- + Environmental Engineers
- + Operators/Supervisors of Treatment Plants
- + Academicians
- + Graduate Students.
- + Regulatory Agency Personnel

For More Information

Please contact the chair, Dr. Greg Boardman, Department of Civil and Environmental Engineering, Virginia Tech (540/231-2013 or gboard@vt.edu). For more information

Call for papers: Urban Ecosystems. A session at WEFTEC 99 will be devoted to urban ecosystems. Of particular interest are interconnections between humans and their ecosystems; biogeochemical cycling of nutrients and toxics, particularly "whole system" studies; ecological impacts of urban ecosystems on downstream environments, and efforts to incorporate ecological concepts into designing urban ecosystems. Contact Larry Baker, Department of Civil and Environmental Engineering, Arizona State University, Tempe (LBaker@asu.edu) for further information. This is session G9 in the WEFTEC Preliminary Conference Announcement.

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Ordinarily, dues are payable to the Association on January 1. When you join AEEP, dues paid before October 1 will be credited to the current year. You will receive that year's *AEEP Directory* and back issues of the *Newsletter*. New member dues paid after October 1 will be credited to the following year. After joining, you will receive a copy of the *Newsletter* and a current *AEEP Directory* if extra copies are still available. Otherwise, you will receive a new *Directory* the following year.

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