AEESP Newsletter
Association of Environmental Engineering and Science Professors
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In this issue...

Report on Environmental Engineering Workshop

Last August, AEESP sponsored - with NSF support - a workshop on the evolution of environmental engineering as a professional discipline. The workshop engaged a group of environmental engineers from both the academic and practicing communities in discussions that focused on the lack of a professional society that broadly represents the spectrum of environmental engineers. A report on that workshop is now available as a downloadable pdf file on the AEESP web site (the link is at the top of the home page). A print version of the report is also being developed and will be made available on request (requests can be sent to either of us). Your comments on the report will also be appreciated.

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Workshop Co-organizers

President's Letter

Continually Redefining Environmental Engineering

One year ago, Mike Aitken posed the following question in his President's Letter in the April newsletter: *What is environmental engineering, and why do we need to ask that question?* He listed several reasons for why we need to define environmental engineering, including the fact that as educators it is our responsibility to define environmental engineering in order to best construct curricula. This question was again posed and generated a lot of interesting discussion at a workshop organized by Mike Aitken and John Novak on the evolution of environmental engineering as a professional discipline (Toronto, July 2002). It seems this question is asked more often in environmental engineering circles than amongst my colleagues in other engineering fields. One possible explanation is that the field is actually undefined, or at least ill-defined. Rather, my personal view is that we tend to produce definitions that focus on examples that are concerns at specific periods of time.

Consider a representative web site frequented by the lay public and prospective students: Discover Engineering Online (http://www.discoverengineering.org/). This site posts the following definition of our field. "Environmental engineering is the study of ways to protect the environment. It covers all of the following areas: air pollution, land management, radiation protection, water supply, solid waste, hazardous waste management, toxic materials control, wastewater management, public health." This is a fairly good definition in the sense that it provides a common thread as well as examples of some things environmental engineers work on. Without the examples, however, this definition is uninformative. Compare this with the definition provided for electrical engineering. "Electrical engineering is the application of the laws of physics governing electricity, magnetism, and light to develop products and services for the benefit of humankind." This is a definition that will stand for reasonable periods of time (although in the near future, "quantum physics" will doubtless be claimed in the name of computation). This definition does not need to be continually updated because it does not rely on timely example applications. Make no mistake, examples are important. Abstraction must always be supplemented by examples, but when all you have is a list of examples, the burden is on you to discern the common thread.

There are several disadvantages associated with defining ourselves using a list of examples of problems we work on. Items that are excluded say as much about what we are as items that are included. Since a list of examples can't possibly be comprehensive, problems within our purview are not distinguished from those that are legitimately excluded. Therefore such a definition serves as the basis for short-sightedness by persons in the field, as well as outside the field. This is destructive to the advancement and support of our field. Furthermore, if such a definition is not continually updated, we run the risk of stagnation and obsolescence. As new environmental problems arise, and as old ones are solved, we must be prepared to redirect our focus, and redefine our field. The danger is that we won't recognize important new problems as being within our purview. For example, there are several issues for which environmental engineers are well equipped to make a contribution, such as industrial ecology and carbon management. At the moment, these are not traditionally viewed as environmental engineering activities and, with some notable exceptions, are not typically part of environmental engineering curricula.

The definition I use for myself, and for my students, is this: Environmental engineering is the application of a broad range of sciences (including chemistry, microbiology, mechanics, and geosciences) and engineering principles (including mathematical modeling, systems analysis, and design) aimed at environmental assessment, protection, and remediation. I have found that such a definition is attractive to students. Most young people

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are attracted to environmental engineering because they want to apply their knowledge of science and math to solution of environmental problems. Students don't want to be pigeonholed into the boxes we have created, e.g., "water," "air," "hazardous wastes." They want to learn fundamental principles to be able to solve the problems that will be important in the future, which are guaranteed to be different from the problems that we have tackled in our careers.

These are my views. I am just as interested in your views. I would like for AEESP to collectively articulate and actively promote a single accepted definition for environmental engineering. Don't hesitate to send me your thoughts on this issue. With time, and open discussion, I believe we can come to consensus.

Catherine A. Peters
President, AEESP

AEESP Bylaws amended

Three amendments to Sections 8.1-8.7, 9.03, and 11.2 of the BYLAWS of the AEESP were recently confirmed by a two-thirds vote of a quorum of the Membership. A mail ballot included in the recent membership renewal mailing resulted in passage of each of the amendments. These changes are the first amendments to the Bylaws since the year 2000.

The first amendment, to Articles 8.1 to 8.7, creates the position of President-Elect and eliminates the position of Past President. The President-Elect will serve for one year prior to becoming President. This structure will allow the incoming President more time to plan and execute initiatives and is consistent with the administrative structures of several other professional organizations. The officers of the Association shall now consist of a President, President-Elect, Vice-President, Secretary, and Treasurer. The President-Elect shall automatically ascend to the Presidency following one year of service as the President-Elect.

The second amendment, to Section 9.03, changes the Audit Committee from three to two members to relieve past Treasurers from being burdeneed with longstanding service on this committee.

The final amendment, to Section 11.2 of the Bylaws, includes electronic balloting as a possible means of Membership voting. It should be noted that before AEESP begins to use electronic balloting, the Board will explore methods that will ensure security and confidentiality.

2003 AEESP Lecture Tour

Phil Singer, Professor of Environmental Science & Engineering at University of North Carolina, Chapel Hill, is the AEESP Distinguished Lecturer for 2003. Professor Singer will speak on the following dates:

March 5	University of Cincinnati
March 6	Tennessee Tech/Vanderbilt
March 11	Washington Univ. St. Louis
March 12	University of Wisconsin
March 14	University of Michigan
March 17	Penn State Harrisburg
March 19	Carnegie Mellon/Pitt
March 20	University of Toronto
April 7	University of Washington
April 9	Arizona State
April 10	Texas A&M
April 28	University of Maryland
May 1	Princeton
May 2	Rutgers

AWWA conference

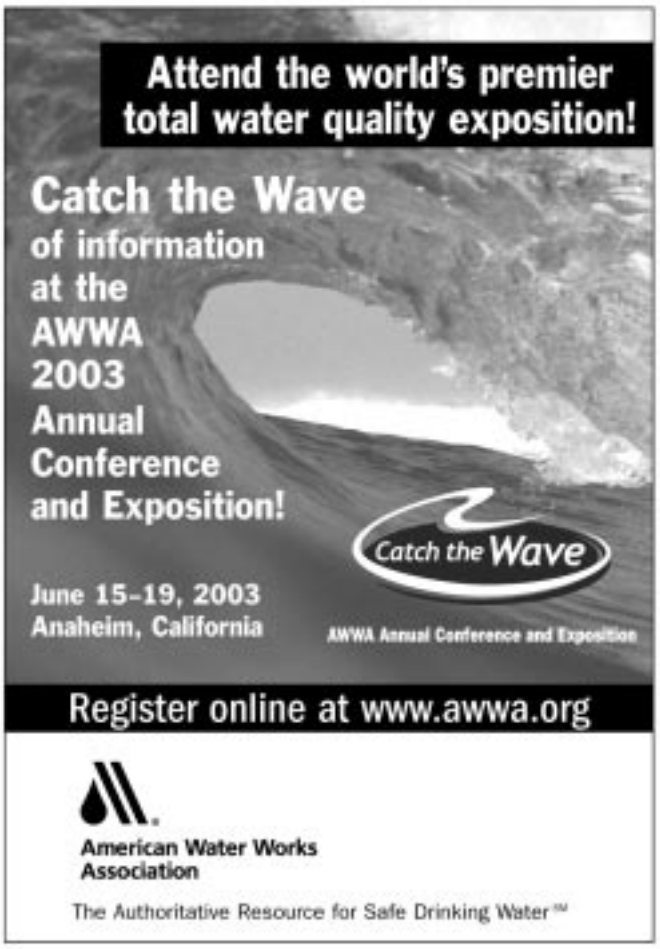
The AEESP Lecture at this year's AWWA Conference in Anaheim will be jointly presented by Professor Peter M. Huck (University of Waterloo) and Bradley M. Coffey (Metropolitan Water District of Southern California) on the topic of "Applying Robustness Concepts to Drinking Water Treatment." Their lecture is sponsored by Black & Veatch, a Sustaining Member of AEESP, and is scheduled to begin at 1:00 p.m. on Monday, June 16th, in Session Room 213 A-B of the Anaheim Convention Center.

U.S.A. National Council of the International Water Association Liaison Report

The U.S.A. National Council (USANC) is the representative group for U.S.A. members of the International Water Association (IWA). IWA was recently created out of a merger of the former International Association for Water Quality and the International Water Supply Association. Because of the merger, USANC also had to be reconstituted. Tom Keinath led the development of the new set of bylaws. This reorganization was completed in February 2002. USANC now represents the approximately 850 U.S.A. individual members of IWA, as well as a large number of professional organizations that are members of IWA and USANC, including AEESP, AMSA, AWWA, EWRI of ASCE, ICWP, WEF, and WWEMA. Current officers are Dr. Timothy Shea, Chair; Dr. Cecil Lue-Hing, Vice-Chair; Dr. Paul L. Bishop, Secretary/Treasurer; and Dr. Mohamed Dahab, USANC Newsletter Editor. A new slate of officers will be inducted in October at the USANC annual meeting in Chicago. These will be Dr. Paul L. Bishop, Chair; Joan Rose, Vice-Chair, and Mike Sweeney, Secretary/Treasurer.

USANC is actively involved with IWA in recruiting new members from the U.S.A. and in planning new IWA conferences to be held in the U.S.A. Among these are a biofilm conference to be held in Bozeman, MT in 2003 and a conference on fate and effects of pulp and paper mill effluents to be held in Seattle, WA in 2003. In addition, planning is beginning for a Leading Edge conference to be held somewhere in the U.S., probably in 2005.

Last year, we reinstituted a program of providing free IWA memberships for a limited number of Ph.D. students in American universities. Twenty-one awards were made. We will be doing this again this year.



Engineering Education Reform: A Trilogy

Something that will surely be of interest to many AEESP members is a trilogy of papers by Dr. Frank G. Splitt, Northwestern University. In Part I, *Environmentally Smart Engineering Education: A Paradigm in Progress*, Splitt states that sustainable development has become the dominant economic, environmental, and social issue of the 21st century, yet its broad infusion within engineering education programs remains a challenge. He goes on to discuss the importance of environment and sustainable development considerations, the need for their widespread inclusion in engineering education, and the impediments to change. Splitt believes that it is through the ABET engineering criteria that broad adoption of environment-related considerations in engineering education will most likely occur. An effort to close the environmental literacy gap that exists in most of our nation's engineering programs is discussed.

In the Foreword to the Trilogy, Dr. Irene Peden, Professor Emerita, University of Washington, states: "In a true missionary spirit, [Dr. Splitt] draws on extensive industrial experience, his participation in the early development of ABET EC 2000, and a substantial immersion in academe to provide his own noteworthy insights and a number of provocative ideas."

A renewed campaign for systemic engineering education reform is developed in Part II of the trilogy, *The Challenge to Change: On Realizing the New Paradigm in Engineering Education.* In Part III, *Engineering Education Reform: A Path Forward*, the author lays out some of the core problems impeding systemic engineering education reform. The Trilogy can be viewed on the Web at URL: www.ece.northwestern .edu/EXTERNAL/Splitt/.

Member News

AEESP members may submit 'Member News' items to Amy E. Childress, AEESP Newsletter Editor, amyec@unr.edu.

University of Texas

Dr. Jeffrey Siegel has joined the Department of Civil Engineering at The University of Texas at Austin. Dr. Siegel's research focuses on particle transport and deposition in indoor environments, indoor air quality control measures, and the connections between energy conservation and indoor air quality. He earned a B.S. (1995) in Engineering at Swarthmore College and his M.S. (1999) and Ph.D. (2002) in Mechanical Engineering from U.C. Berkeley. Dr. Siegel will teach courses related to indoor environmental quality, specifically dealing with building environmental systems, indoor air quality, and energy efficient and healthy buildings.

In memoriam Dave Long

Dave Long, Emeritus Professor of Environmental Engineering, Penn State, and long time member of AEESP, died November 17, 2001. He was nearly 68 years old. His colleagues and many people in Pennsylvania who are involved in water and wastewater operations miss Dave. He came to Penn State in 1965 from the Midwest. Dave's interests were closely tied to continuing education and he retired from Penn State as the Director of the College of Engineering's Continuing Education Program. Dave was a member of the Pennsylvania State Board for Certification of Sewage and Water Works Operators for a number of years and helped shape the training and certification of many

Dave Long

operators. He was involved with many training projects, including a large EPA wastewater training project, "Working for Clean Water," in the late 1970's and was an active consultant for much of his career. Dave was recently instrumental in establishing the EPA Small Public Water Systems Technology Assistance Center and the Pennsylvania Department of Environmental Protection Environmental Training Center at Penn State. At the time of his death, he was helping to develop a math-training module for operators. Dave was an individual who was highly respected by anyone who had the pleasure of working with him.

Charles Cole, Penn State Harrisburg
Bruce Logan, Penn State (University Park campus)

AEESP Newsletter policies

Submissions deadline

The deadline for Newsletter submissions is one month prior to the publication date.

Please keep in mind when submitting items with deadline dates that members receive issues four to six weeks after the submissions deadline.

Advertising policy

Any advertisement, including faculty, post-doc or student ads, or other types of announcements submitted by an AEESP member, will be free for the first 250 words (approximately 1/4 page) and then charged at $1 per word for additional content, if formatted to fit in a column.

Non-members will be charged at the per word rate for any size column-formatted ad. Full page formatted advertisements will be charged at $500 for members and $1,000 for non-members. All formatted full page ads will be accompanied by a free web ad.

Photo submissions

Photo submissions to the AEESP Newsletter are encouraged. Please submit your photos electronically (to amyec@unr.edu) in jpeg format at the highest dimension for downsizing to print resolution (preferably less than 750 KB). Also, please include captions with names, locations and dates.

Michigan Tech

ENVIRONMENTAL ENGINEERING VISITING SCHOLAR AT MICHIGAN TECH. The Department of Civil & Environmental Engineering at Michigan Technological University seeks a visiting scholar or scholars for the 2003-2004 academic year. Responsibilities will include instruction in one undergraduate environmental engineering course each semester, topically selected to be consistent with the applicant's interests and qualifications and scholarly work related to a current research focus of the program. We are especially interested in faculty who could contribute to work in the areas of sustainable engineering, surface water quality, atmospheric sciences, physical and chemical treatment, or ground- and surface water resources. Faculty at other institutions, those involved in research or professional practice, and recent recipients of the doctorate in environmental engineering or allied fields are encouraged to apply. The position will include a competitive stipend, office space in the new Dow Environmental Science & Engineering Building, and access to computing and library facilities. The CEE Department at Michigan Tech includes 26 faculty, 26 staff, over 80 full-time graduate students, and 500 undergraduates. Michigan Tech, located along the south shore of Lake Superior, has one of the Nation's premier undergraduate programs in Environmental Engineering and is third nationally in the number of baccalaureate degrees awarded. For more information on the position please contact Professor Richard Honrath (reh@mtu.edu). Applications should be mailed to: Ms. R.D. Sandell, Michigan Technological University, Department of Civil and Environmental Engineering, 1400 Townsend Drive, Houghton, Michigan 49931, Attn. Visiting Scholar Program. Inquiries will be reviewed as they are received and will be accepted until the position is filled.

Cranfield University

ASSISTANT PROFESSOR IN INTEGRATED WASTE MANAGEMENT. $34,360 - $54,600 per annum. We are seeking to appoint a tenure-track assistant professor to support the development of the Integrated Waste Management Centre in the School of Industrial and Manufacturing Science at Cranfield University. The appointment will strengthen our expertise in waste research and play a key role in our taught MS, short course and research programmes. With a demonstrable background in waste science and/or technology, you will build our activity in alternative and pre-treatment options for wastes and contribute to the Centre's growth as a leading national and international centre of expertise. Further details on Cranfield University, which is unique in its almost entirely postgraduate focus, can be found at www.cranfield.ac.uk. Applicants currently in industry or those seeking their first tenure-track appointment are encouraged to apply.

For an informal discussion, please contact Professor Simon Pollard by Tel: +44 (0)1234 754101, or by email at s.pollard@cranfield.ac.uk. Application forms and further details are available from the Personnel Department, Cranfield University, Cranfield, Beds., MK43 0AL. Email: personnel@cranfield.ac.uk. Alternatively, telephone our 24 hour Recruitment Line at (01234) 750111 extension 2000, www.cranfield.ac.uk/personnel, quoting reference number C/3040A.

University of Nevada, Reno

ENVIRONMENTAL ENGINEERING RESEARCH ASSISTANTSHIPS. The Environmental Engineering program in the Department of Civil Engineering at the University of Nevada, Reno has M.S. and Ph.D. assistantships available for qualified students to conduct research in areas of water and wastewater treatment, membrane technology, colloidal and interfacial processes, natural systems, biological processes, sensitized photooxidation, biosolids treatment, source water protection, and sediment transport. Our environmental engineering program currently consists of four faculty members. Collaborative opportunities also exist with faculty in hydrology, chemical engineering, chemistry, and environmental science. Applicants must have excellent communication skills and apply for admission through the Graduate School. Candidates with outstanding academic records and a strong desire to pursue an M.S. or Ph.D. degree in Environmental Engineering are encouraged to apply. Contact Prof. Dean Adams (vdadams@unr.nevada.edu), Prof. Amy Childress (amyec@unr.edu), Prof. Keith Dennett (dennett@unr.nevada.edu), or Prof. Eric Marchand (marchand@unr.edu) for more information. The University of Nevada is an Equal Opportunity Affirmative Action Employer.

Penn State Capital College

BERG PROFESSOR OF SUSTAINABLE ENGINEERING: We are seeking to fill a tenure-track, senior level position in the School of Science, Engineering & Technology. We are looking for a scholar with an outstanding record in interdisciplinary environmental practice, teaching and research to fill the endowed "Quentin Berg University Chair in Engineering" at Capital College. The Penn State Institutes of the Environment also support the position. Candidate must have expertise in one or more areas of sustainable systems engineering, green engineering, pollution prevention and/or industrial ecology. He/she is expected to lead the Capital College environmental initiatives and provide coordination for green engineering research and teaching activities for the entire University. Teaching responsibilities may include: green engineering at the undergraduate level, courses in his/her specialty area at the graduate level, and related engineering and environmental courses as required. The successful candidate is expected to have an outstanding track record of leadership in green engineering, develop an externally funded research program, and supervise a diverse group of majors, including engineering, science, and business students. A Ph.D. with at least one degree in an engineering discipline is required. Potential backgrounds may include environmental, civil, architectural, mechanical, chemical engineering, or electrical engineering with sustainable engineering as the primary research and teaching focus. Additional information for the College, Centers, and Faculty may be found at the Penn State Harrisburg web page and links at www.hbg.psu.edu/epc. Applicants should submit curriculum vitae, names of three references, and a research and teaching statement immediately to: Berg Professor Faculty Search Committee, c/o Mrs. Dorothy J. Guy, Office of Human Resources, Penn State Capital College, 777 W. Harrisburg Pike, Box AEESP, Middletown, PA 17057-4898. Nominations of individuals are welcome. Applicant review will begin on May 1, 2003 and continue until the position is filled. Penn State is committed to affirmative action, equal opportunity, and the diversity of its workforce.

Book Reviews

The Science of Water: Concepts and Applications

Frank R. Spellman, Technomic Publishing Co., Lancaster, PA, 1998

This book covers a variety of topics related to water, e.g., the water cycle, water mathematics, hydraulics, chemistry, biology, water quality, pollution, etc. The author states that it may be used by the water practitioner, the policy maker, students, lay persons, regulators, and attorneys. Unfortunately, the book would not be helpful to any of these groups, nor is it likely to be useful or of interest to members of AEESP.

The book has some serious problems. First, the water mathematics chapter is probably fourth grade math. The hydraulics chapter explains such terms as "pressure head, velocity head, and static head" in a way that a lay person would have no idea what is going on. A diagram would have helped. As it is, the reader will be more confused than enlightened.

The water chemistry section is sketchy, but water biology is 22 pages in concise form and could be useful to one who wishes some basic orientation in this field. This is also true for water ecology (14 pages) and the remainder of the chapters on water quality, water/wastewater treatment, water use, water pollution, and water reuse.

Each chapter has italicized prologues, but unfortunately these don't seem to fit with the chapter topics. For example, is a description of the primordial earth meaningful when the goal is to help the reader understand some of the practical aspects of biology? Even though the latter chapters have some redeeming value, the fist chapters give the impression that the book lacks basic substantive content.

I do not recommend that you buy this book.

Frank Stillman is the former safety director of the Hampton Roads Sanitary District in Virginia Beach.

— David W. Hendricks, Colorado State University

Open Channel Hydraulics

Terry W. Sturm, McGraw-Hill, 2001

One of the shortest books in the world might be entitled *Famous Engineers in History*. If an otherwise intelligent person is asked to name some of the famous engineers in history, it is unlikely that he or she will be able to name many. Some may know about the Robelings (father and son, John Roebling, 1806-1869 and Washington Roebling, 1837-1926) who built the Brooklyn Bridge, or of Marc Isambard Brunel (1769-1859), a French-born British engineer who designed the first subway tunnel under the Thames River in London. Within the past year of so, we have gotten to know Les Robertson, the designer of the twin-towers World Trade Center. But that would be about it. A very short book indeed. Engineers simply do not become famous for the works they do.

But we assume that fame requires that the general public recognize a person, and we call such people "celebrities." What we have to celebrate in knowing such people as O. J. Simpson, Michael Jackson, and Jesse Helms is beyond me. But I digress.

Fame can be also defined in terms of a smaller group, such as a professional organization, such as environmental engineers and scientists. And within such a group there clearly are heroes. I will not embarrass those who I consider my own heroes, but I will name one person, now passed away, who has been a steadfast hero to me for over 40 years. Ven Te Chow. Now **there** is a hero. His claim to fame is that he wrote the very best open channel hydraulics book ever written, and arguably, the very best civil engineering textbook ever written. His *Open Channel Hydraulics* was the most beautifully organized and presented text I will ever hope to see, and I used it for many years in teaching and practice.

Now along comes Terry Sturm who sez, "I think I can write a better open channel book than Ven Te Chow's book." I admire Terry's chutzpah.

Actually, Terry Sturm has a lot to be proud of. This completely updated and modern version of the classic text is a highly readable and well organized book. It begins with a chapter on basic principles (historical background, basic equations, and dimensional analysis). Chapter 2 is on specific energy and Chapter 3 is on momentum. Subsequent chapters are on uniform flow, gradually varied flow, hydraulic structures, unsteady flow, and (and this is where it differs so much from Ven Te Chow) numerical solutions of the unsteady flow equations using finite difference methods. The last chapters are on flow routing and flow in alluvial channels. There are some great pictures of streams showing the variation in Manning's n value.

Terry Strum got his undergraduate and M.S. degrees at the University of Illinois, with his PhD at the University of Iowa. Illinois was, of course, the long-time home of Ven Te Chow. If that gentleman could read Sturm's book, I am sure he would be proud of the job Terry Sturm has done.

Terry W. Sturm is with the School of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta GA.

— P. Aarne Vesilind, Bucknell University

Biological Phosphorus Removal: Manual for design and operation

P.M. J. Janssen, K. Meinema, and H. F. van der Roest, International Water Association, London, 2002

I once met an engineer who worked for Sandia Labs, the primary research facility in the United States for armament development. He was an older engineer who had had a successful career. His greatest achievement, it turned out, was the development of a sonic triggering device for bombs. Older-style bombs had a piston that when it came in contact with a solid surface, forced the rod in and caused the bomb to explode. Sometimes the piston stuck, or was bent, and the bomb never exploded. The sonic device had no moving parts, and the vibrations of the bomb hitting something were adequate to cause it to detonate. He explained this with such enthusiasm and such pride that I did not have the courage (not to say manners) to ask him how he felt about an entire career in engineering spent on finding better ways to kill people.

Is it ethical for engineers to work on things that are designed to kill people? Of course, most of the buildings and gadgets engineers design can and often do kill people. But we are talking here about things that are *designed* to do that – things like bombs, guns, land mines, poisonous chemicals for warfare, and so on.

None of the engineering Codes of Ethics are explicit about working on projects that are designed to kill people. The closest we come to is the first fundamental canon of many engineering codes:

> "The engineer shall hold paramount the health, safety, and welfare of the public."

The "public" in that statement might mean the public for whom the engineer is responsible. Consider an engineer who conceived and designed the dum-dum bullet, the so-called "cop killer" because it can penetrate protective vests. The development of this bullet was a response to market forces. That is, if it was manufactured, people would buy it. It had no conceivable use other than to kill people wearing "bullet-proof" vests, which is almost always law enforcement officers (although they could be terrorists as well). The "public" was the people who thought they needed protection from the cops and were ready to kill them if necessary. Can we argue that the engineers who worked on this project were acting immorally?

One of the benefits of being a professor of environmental engineering for me personally is that I can honestly say that I am part of the solution and not the problem. I carry with me the hope that when I die, people will say that I did good — that I not only helped make the world a better place, but that I was instrumental in educating others to work toward the same end.

This ideal had to be the driving force for this wonderful book on phosphorus removal, published by the International Water Association. The authors recognize at the start of the book that phosphorus, essential to our farms, is a non-renewable resource, and should be reused. But we all recognize that the first step is to remove it from the wastewater. This "how to" book will tell you how biological phosphorus removal is done.

Starting with an introductory chapter on the need for phosphorus removal and an interesting historical discussion, the basic principles of biological phosphorus removal are laid out. The next chapter is on design methods, including static and dynamic models. The configuration of phosphorus removal processes requires a lengthy chapter, with a very good discussion of phosphorus removal and sludge settling. Chapter 5 is a description of twelve Dutch wastewater treatment plants that incorporate biological phosphorus removal, a really neat chapter for any practitioner, or any researcher interested in real-world operations. Each plant is described by laying out the process, discussing how the design was done, including the dimensions of all the units, and finally the results of operations. It is a wealth of information and makes for fascinating reading. The next chapter describes some of the models used for biological phosphorus removal and includes a good discussion on the problems with sludge treatment of phosphorus-laden sludge. The last chapter covers the optimization of phosphorus removal.

This is not a textbook, nor does it pretend to be, but if you are working in phosphorus removal technology, or if you want to strengthen your lectures on this topic, this is a book to buy. A very competent job by three people who are doing well by doing good.

P. M. J. Janssen, K. Meinema, and H. F. van der Roest are all with DHV Water BV, Amersfoort, the Netherlands.

— P. Aarne Vesilind, Bucknell University

The submissions deadline for the September 2003 AEESP News is

August 1, 2003

Aquatic Chemistry

James M. Jensen, John Wiley & Sons, 2003

The human animal has little going for it in a Darwinian sense. Humans are not particularly fast a-foot, they are not particularly strong, or agile, or even clever (I am not proud to report that I am now oh-for-eleven in my battle with the squirrels over the birdfeeder. I am tempted to just call it a "bird-and-squirrel feeder" and give up, but I have my pride). So why have we as a species survived? One suggestion is that we taste bad and that nobody wants to eat humans. I don't know this for a fact, but it seems plausible.

Another reason we have survived, I suspect, is that we can communicate better than most animals. Communication is not unique to humans of course. There is a wonderful video entitled *Killing Coyote* that shows coyotes clearly greeting each other, laughing together, and communicating in other ways. The film, incidentally, is very troubling to anyone who has one ounce of sympathy or sensitivity. I use it when I teach environmental ethics, and it either makes students ill, or it has no effect on them. Those who see nothing wrong with killing coyotes wonder why I even show the video. It's just a bunch of dead coyotes, they say. You cannot teach sympathy.

But humans are quite good, most of the time, at conversation. The problem is that some humans are better at it than others, and one often has to adjust in order to communicate. For example, I once had a colleague who could not, or would not, listen to the person or persons he talked to. He had one train of thought, and was not to be interrupted. At an informal gathering of the faculty, for example, the topics of conversation would be fluid, with new issues being brought up. In his case, however, he would start thinking about one topic, and when he had gathered enough material in his mind to speak, he would say something about that topic, totally oblivious as to what had been said in the meantime by his colleagues. It would be a conversation stopper, since we did not know how to respond. Finally, we just learned to ignore him and let him wander around in his own little world.

Some conversations are pleasant, some are not. It is very unpleasant talking to persons who always think you are wrong. If you say "This is a beautiful flower," some people who disagree with you might say "You are wrong. This is not a beautiful flower," while others might say "I believe it is not a beautiful flower." The first response makes you feel stupid and bad, the second leads to a conversation as to why you believe it is a beautiful flower. The same idea works in a classroom. If a student says "I think this author wanted to say X," and you respond with "No, you are wrong. The author wanted to say Y," that will be the last time the student will volunteer to speak up in your class. But you could have responded with "Why do you think X? Why not Y?," and thereby created a teachable moment and generated a good discussion.

Effective conversations also take place between the author of a book and the reader. Some books speak to the reader (in our case our students) with condescension, others with intentional bamboozlement, and some books overwhelm the student with trivia. An effective conversation takes place if the author understands the student, anticipates problems the students might have, and carefully and systematically helps the learning process. Such is the book by Jim Jensen.

The book begins with a chapter on fundamental concepts such as concentration and the thermodynamic basis of equilibrium. Subsequent chapters are on solving chemical equilibrium problems, acid-base equilibria in homogeneous aqueous systems, heterogeneous systems, and finally the effect of other variables such as temperature, pressure, and ionic strength.

Each chapter has a "road map" for the student, laying out what is going to happen and where the chapter will take the student. Case studies are used effectively to bring some of the concepts together. [For example, can methyl mercury be chemically made from methane and mercury?]

The book is a classic teaching text. Jensen speaks to the student on terms that are both friendly and helpful, using the technique of "thoughtful pauses" scattered throughout to make the student think a little about what has just been learned. The best part of the book, in my opinion, is the section on pC-pH diagrams. It is carefully laid out and the construction of the diagrams is patiently explained. The book also has a CD attached that allows for the calculation of chemical equilibria, and a very good chapter on the use of spreadsheets for solving chemical equilibrium problems. Key concepts are identified throughout the book, saving a lot of yellow marker for the students.

If you are teaching a course on aquatic chemistry, I urge you to consider this text. It is wonderfully presented and very student-friendly, without being simplistic and trivial. I believe students would find the text very much to their liking, and would enjoy the conversation they would have with Jim Jensen.

James Jensen is with the Department of Civil, Structural, and Environmental Engineering, University at Buffalo, SUNY, Buffalo NY.

— P. Aarne Vesilind, Bucknell University

Call for Papers

Physicochemical Processes in Environmental Systems

A Symposium in Honor of Professor Walter J. Weber, Jr.
Division of Environmental Chemistry
226th American Chemical Society (ACS) National Meeting

September 7-11, 2003
New York, NY

Papers are solicited for a special ACS session to honor Professor Walter J. Weber, Jr. for his four-decade education, research and engineering practice in the area of physicochemical processes of environmental engineering systems. The theme of the symposium focuses on recent progress on characterization, modeling and design of physicochemical processes in complex environmental systems. Subjects of interests include sorption and ion exchange processes; interphase mass transfer processes; reduction-oxidation and disinfection processes; membrane separation and particle-particle interactions; and pollutant transport processes.

Both oral and poster presentations are solicited for this special session in broad areas of physicochemical process characterization, modeling, and design. The presenters are required to submit a short abstract to the ACS by **10 May 2003**, using the ACS online system (OASYS) at http://oasys.acs.org/. This division also requires an extended abstract of two or more pages that must be submitted by **20 May 2003** using the instructions posted on the web at http:/www.envirofacs.org. The extended abstract can be emailed as an attachment in MS Word format to Dr. Weilin Huang of Drexel University, or any of the symposium organizers listed below. Please label the extended abstract file with the first author's last name.

Organizers:

Thomas M. Keinath, Dean, College of Engineering and Science, 109 Riggs Hall, Clemson University, Clemson, SC 29634-0901. Phone: 864-656-3202; Email: keinath@clemson.edu.

Mitchell J. Small, Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA 15213-3890. Phone: 412-268-8782; E-mail: ms35@andrew.cmu.edu.

Thomas M. Young, Civil and Environmental Engineering, University of California, One Shields Ave., Davis, CA 95616. Phone: 530-754-9399; Email: tyoung@ucdavis.edu.

Weilin Huang, Civil, Architectural and Environmental Engineering, Drexel University, 32nd and Chestnut Streets, Philadelphia, PA 19104. Phone: 215-895-4911; Email: weilin.huang@drexel.edu.

Call for Papers

Development of Adsorbents for Air and Water Treatment

Division of Environmental Chemistry
226th American Chemical Society (ACS) National Meeting

September 7-11, 2003
New York, NY

This symposium seeks to present recent research on development of new materials and/or modification of surfaces in an effort to concentrate or remove contaminants from the environment or waste streams. Papers will describe basic research on development of new (solid) surfaces for adsorption, absorption, or sequestration of gaseous and aqueous pollutants. We are particularly interested in research dealing with removal or concentration of trace contaminants, CO_2, arsenic, heavy metals, and natural organic matter. Surfaces can include (but are not limited to) polymers, carbon, metal oxides/hydroxides, and clays. Studies focusing mainly on pilot studies using traditional materials are not included in this session.

To be considered for a presentation, potential presenters are required to submit a short abstract to the ACS by 10 May 2003, using the ACS online system (OASYS) at http://oasys.acs.org/. This division also requires an extended abstract of 2 or more pages that must be submitted to one of the symposium organizers (below) by 20 May 2003 using the instructions posted on the web at http://www.envirofacs.org. The organizers prefer to receive extended abstracts as attachments to email in MS Word file formats. Please label the abstract file with the ACS abstract number and the first author's last name.

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Preliminary Announcement and Call for Papers

Frontiers in Assessment Methods for the Environment FAME

A symposium on recent advances in environmental measurement and assessment technologies, modeling, and data processing tools to promote a cleaner environment

August 10-13, 2003
Coffman Union
University of Minnesota
Minneapolis, Minnesota

Sponsored by:

Association of Environmental Engineering and Science Professors (AEESP) with financial support from the National Science Foundation

in collaboration with the

American Academy of Environmental Engineers, American Institute of Chemical Engineers, American Society of Mechanical Engineers, American Society of Limnology and Oceanography, American Water Resources Association, Ecological Society of America, International Society for Exposure Assessment and the National Oceanographic and Atmospheric Administration, U.S. Environmental Protection Agency, and U.S. Geological Survey

This symposium will bring together scientists and engineers from many disciplines responsible for the groundbreaking technological advances being made in environmental measurement systems and assessment methods. These advances promise to revolutionize the ways scientists and engineers study and solve complicated environmental pollution problems over a range of scales. They include an impressive array of new *in-situ* instruments and profilers; chemical and biological sensors; new modeling techniques to simulate physical, chemical, and biological processes in complex systems; and continuing advances in the computer systems and informatics needed to take advantage of the large databases (terabytes) generated by the new technologies. Symposium participants will have an opportunity to learn about several proposed NSF funding initiatives for highly instrumented and networked environmental field research facilities, such as C*LEAN*ER*, that build on and are a natural outgrowth of these technological advances.

Abstract Deadline: May 15, 2003

For details on symposium arrangements and the call for papers see http://www.aeesp.org or http://wrc.coafes.umn.edu/FAME/. It is anticipated that some travel grants will be available for faculty members who are near the start of their career.

_____

*C*L*EAN*ER, **C**ollaborative **L**arge-scale **E**ngineering **A**ssessment **N**etwork for **E**nvironmental **R**esearch, is an initiative within the Environmental Engineering Program of the NSF. Other large-scale field facilities are being proposed in oceanography (Ocean Observatories Initiative), ecology (National Ecological Observatories Network, NEON), and hydrology (Hydrologic Observatories).

Short Course in Drinking Water Treatment

August 11-13, 2003
Hotel Northampton
Northampton, MA

Sponsors: The Environmental Institute and Environmental Engineering Program, UMass Amherst

Dr. David Reckhow and several colleagues will be offering a short course, "The Institute in Drinking Water Treatment," on August 11-13, 2003 at the Hotel Northampton in Northampton, MA. The course should be of interest to those dealing with water supply and treatment. It is intended for consulting engineers and scientists, water utility personnel including superintendents, managers, and operators from moderate size and larger utilities, engineers, and scientists from state and federal water regulatory agencies, and various industries. Topics to be covered include: regulations, turbidity and particles in water, natural organic matter, coagulation, clarification, filtration, ozonation, DBPs in distribution systems, UV disinfection, chemical and physical measurements, conceptual design, and case studies. For more information, contact Jane Wrisley at The Environmental Institute, University of Massachusetts Amherst at 413-545-0686 or jwrisley@tei.umass.edu or view the brochure online at http://www.umass.edu/tei/TEInews.html.

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

Membership in AEESP is on a calendar-year basis. When you join the Association, you will be sent the current AEESP Membership Directory and previous Newsletters and other materials which have been sent to members during the year, if your application is received prior to October 1. If you join after October 1, your membership will begin the following calendar year, but the current AEESP Membership Directory will be sent to you immediately upon approval of your membership by the Association's Secretary. Upon retirement, members may apply to the AEESP Board for Emeritus membership if they have been AEESP members for at least 20 years, or have been a member for fewer years but have contributed substantially to AEESP through service on committees or as an officer.

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