AEEP Newsletter

Published Quarterly by the Association of Environmental Engineering Professors.

Vol 11, No. 3 June 1976

THE PRESIDENT'S CORNER

REFLECTIONS ON THE PASSING OF AN ERA

During a recent afternoon, tired from grading too many examinations and somewhat less than cheerful over the performance exhibited by some of our usually outstanding students, I keyed in on a task that perfectly suited my mood--cleaning out some of the inconsequential material that should have been thrown out five years ago but instead has helped clutter up the office file ever since.

In my rather random sorting I came across a file folder labeled "Environmental Activist Publications." Not having seen much of this sort of thing for some time, I was interested to thumb through a few issues of this material so characteristic of the late 1960's and early 1970's. Perhaps I can best describe the nature of these publications by noting a few of the article titles selected at random: "Army Engineers Rape Land with Projects", "Lead Poisons Ghetto Children", "Another Garbage Pile rejects Technology", and my favorite, "Seed Treatment May Harm Brain". My brief summary brought to mind the days of the ecology boom and gave me pause to reflect on its gradual passing. I must confess that it is with joy and sorrow mingling that the rise and fall of widespread environmental concern was recalled.

The weaknesses of the approach of many of the more extreme environmental activists are all too evident to require much in the way of comment. The tendency to overkill, the almost total neglect of economic concerns, and the all-too-frequent blanket condemnation of the establishment did little to enhance the public standing of some of the more extreme proponents of environmental action.

On the other hand it seems to me that we who continue to work in the environmental field, and particularly those of us playing a substanative role in so-called higher education, owe much to activists of the recent past. Their work focused attention, however briefly, on the problems we continually face and led to ultimate enactment of legislation that places the challenge of achieving long-term environmental improvement squarely before us. Although the need to temper ideals with common-sense economics is evident, we must not lose the momentum generated by the ecology movement. On balance, it is good to see the decline in invitations to address Garden Clubs on the subject of water pollution, but it would not be favorable to slip back to some of the attitudes characteristic of the early sixties. If we allow the gains of the ecology movement to slip away we will live to regret it the next time we are so noticeably in the public spotlight.

Paul H. King
Virginia Tech

AEEP ARCHIVES

Material which should be part of the permanent file of AEEP is being maintained by Dave Hendricks, Chairman of Archives Committee. Material such as the articles of the organization, important correspondence, testimony before congressional committees, results of surveys, minutes of meetings of the Board of Directors, etc., etc., are appropriate items. Persons having information which should become a part of the permanent file of AEEP should send them to Dave at the following address: Engineering Research Center, Room B-317, Colorado State University, Fort Collins, Colorado 80523.

AEEP/ENGINEERING-SCIENCE AWARD FOR BEST DOCTORAL THESIS RELEVANT TO PRACTICE

This is to announce that applications are being accepted for the Engineering Science Awards of $1000 for the best doctoral thesis relevant to practice published between July 1, 1975 and June 30, 1976. The award will be $500 for the primary research supervisor and $500 for the Ph.D. candidate, both monies to be spent at the individuals' descretion. Three copies of the candidate thesis must be submitted to Perry L. McCarty, Civil Engineering Department Stanford University, Stanford, CA 94305 to arrive prior to June 30, 1976.

GRADUATE TRAINING SUPPORT

Robert Ruhl, of the EPA, has reported to the membership of AEEP that the $2,000,000 added to the fiscal year 1976 EPA budget will be distributed as follows.

1. $400,000 will be used for developing a model total state education program including operators and professionals.
2. $960,000 will be assigned to the office of water programs, with $300,000 to Water pollution, $350,000 to Safe Drinking Water, and $310,000 to undergraduate operator and technician training.
3. $640,000 will go the Air Resources program.

These funds will be distributed to existing grants in 30 programs in drinking water and water pollution control for the 1976-77 academic year.

AEEP BOARD MEETING

The semi-annual meeting of the AEEP Board of Directors was held on May 3, 1976 at the Purdue University in conjunction with the Purdue Industrial Waste Conference. President Paul King conducted the all-day meeting.

The activities of the AEEP Committees were discussed. The **Archives Committee** under the direction of David Hendricks is currently organizing the archives into an operational and useful form. Paul King reported that the **Arrangements Committee** is planning for a AEEP Board meeting at 1:00 PM on October 3, 1976 and an Open Meeting at 8:00 PM on October 5 at the WPCF meeting in Minneapolis. Parry McCarthy, chairman of the **Awards Committee**, is currently accepting Ph.D. thesises for the annual AEEP/Engineering Science award. An audit of the 1975 AEEP Finances have been completed by Professors Yousef and McLellon of the **Audit Committee**. George Hanna reported that the **Education Committee** is developing a Guide for Environmental Engineering visitors on ECPD Accreditation teams.

Bruce Hanes of the **Legislative Analysis and Training Support Committee** reported on an active year of meetings with legislative representatives and committees. Stanley Klemetson, Editor of the AEEP NEWSLETTER, reported that a **Newsletter Committee** has been organized with regional reporters, and that some support of the NEWSLETTER has been obtained from book publishers.

Wes Pipes will present the report of the **Nomination Committee** at the Minneapolis meeting in October. The **Publication Committee**, under the direction of Joe Malina reported that 366 AEEP Publications were sold since October, 1975.

Francis DiGiano of the **Research Committee** reported on the plans for a workshop on Fundamental Research Needs in Water and Waste Water Treatment. The function of the workshop will be to bring EPA, NSF, and the academic community together to explore who supports basic and applied research in Environmental Engineering. Other planned programs include identification of the orginal contributors to fundamental knowledge in Environmental Engineering, study of the present status of graduate student support in universities, and publication annually of Ph.D. and MS thesis titles in the September Newsletter.

Arnie Vesilind of the **Teaching Methodology Committee** has initiated a questionnaire soliciting ideas that the committee should pursue. The Undergraduate Register being prepared by Don Aulenbach and the **Undergraduate Register Committee** will be published by AEEP in the near future and will be sold to AEEP members at cost and to others at double the cost.

Wayne Hall of the **Membership and Eligibility Committee** prepared a new short application form. A copy has been enclosed in this Newsletter. The nation has also been divided into eight districts for the purpose of recruiting new members. A new promotional brochure is being produced by the committee.

Leslie Grady reported for the **Visiting Lecturer Committee** on the 1976 tour of Paul Harrenoes to eight universities in the United States. Richard Dick presented the 1975 Annual Report of the **United States of America National Committee (USANC)**. Tom Keinath, of the **Workshop Committee** is exploring the possibilities of a one-day AEEP Workshop for the Monday preceding the 1977 Purdue Conference.

Among the other items discussed at the AEEP Board meeting were the 1975-76 Graduate Enrollment Survey, which is discussed in detail in this Newsletter; the reprinting of "So You Want to be an Environmental Engineer;" and the Universities Council on Water Resources.

IAWPR CONFERENCES

The Eighth Biennial International Conference on Water Pollution Research will be held in Sydney, Australia on October 17-22, 1976. AEEP members should have received program and travel information.

A call for papers has been issued for an IAWPR Specialized Conference on Advanced Treatment and Reclamation of Wastewater in Johannesburg, South Africa on June 13-17, 1977. Additional information is available from RichardDick at the University of Delaware.

AEEP MEMBERSHIP

A copy of the short form of the application for membership has been enclosed in this NEWSLETTER. Give it to a friend and encourage him or her to join. The chairman of the Membership and Eligibility committee is Wayne Hall, however, most recruiting activity will be handled by the regional representatives of this committee. These include: Donald Anderson, Larry Canter, Dale Carlson, Lames Heaney, Lloyd Ketchum, David Long, Calvin Poon, and Jimmie Quon.

PUBLICATION OF GRADUATE THESIS TITLES

Much of the useful information and data produced by our graduate students remains on the library shelf, or at the very best, is published several years after the work is completed. It is the desire of AEEP and the Research Committee to make this information available in a much shorter time by publishing thesis titles in the August/September issue of the AEEP NEWSLETTER.

Please send the information requested below to Fran DiGiano, Dept. of Civil Engineering, Univ. of Mass., Amherst, MA 01002, (413) 545-0685, prior to August 1. All graduate work, both MS and Ph.D., completed between July 1, 1975 and June 30, 1976 should be included. The desired information includes:

a) Thesis Title
b) Name of Candidate
c) Name of Major Professor
d) University
e) Completion date
f) Location of completed thesis
g) Availability of thesis
h) Number of pages

SO YOU WANT TO BE AN ENVIRONMENTAL ENGINEER

It is that time of the year again when students are reevaluating their educational goals. Do you have enough copies of the AEEP brochure, "So You Want to Be an Environmental Engineer", to give them guidance?

For further information on cost and ordering procedure, contact:

Dr. E.J. Middlebrooks
Dean, College of Engineering
Utah State University
Logan, Utah 84322
801/752-4100, Ex 7801

TRENDS IN ENROLLMENT IN ENVIRONMENTAL ENGINEERING AND RELATED 1975-76 SURVEY

This paper is a summary of the results of the third survey of the graduate student enrollment treands conducted for the Association of Environmental Engineering Professors by William J. Jewell and Michael S. Switzenbaum. More than 130 questionaries were mailed to educational programs known to have graduate students enrolled in pollution control specialities. It is believed that the survey covered more than ninety-five percent of the total number of students enrolled in the 106 responses which were received.

A summary of all responses is shown in Table 1. Of the total number of full time graduate students (1950) only about half are classified as studying water quality from the conventional sanitary engineering viewpoint. One-quarter of the total are new M.S. students. Others were included under the categories of environmental science (434), water resources (266), air pollution (141), environmental design and management (18), etc.

TABLE 1. SUMMARY OF RESPONSES TO 1975-76 SURVEY OF GRADUATE STUDENT ENROLLMENTS IN ENVIRONMENTAL ENGINEERING AND ENVIRONMENTAL SCIENCE PROGRAMS

Program Designation	Figures for Fall 1975* Total Grad. Students	New M.S. Students	EPA Traineeships
1. All full-time graduate students in environmental engineering	1950	862	357.5
a. Sanitary Engineering	1001	448	
b. Air pollution	141	59	
c. Solid Wastes	14	4	
d. Industrial Hygiene	5	1	
e. Radiological Health	7	2	
f. Environmental Control	21	13	
g. Environmental Design and Mgt.	18	6	
h. Other	133	60	
2. All full-time graduate students in environmental science	434	173	61
3. All full-time graduate students in water resources	266	108	24
4. All part-time graduate students in any of the above programs (name program)	1091	301	5

*Data is cumulative from 106 responses out of a total of 122 programs contacted.

If the data that has been received from year to year over the past 2 surveys are assumed to be comparable, the trend in graduate student enrollment can be compared as shown in Figures 1 and 2. The decrease in total student numbers over the past four years is about 64 percent with a drop in water pollution control engineers of about 59 percent since the Fall of 1971. In 1971, about 1275 new M.S. students enrolled in traditional environmental engineering programs, whereas 448 enrolled last Fall. One factor which could offset the decreasing enrollment in full-time programs would be a comparable increase in part-time students or an increase in related programs or even possibly an increased emphasis on such areas as air pollution. The decline for enrollment reflected in Figure 1 is reflected for all of the areas (Figure 2). Thus, the decreasing trend in student enrollment would appear to be a characteristic shared by most subdivisions of the data. The number of students enrolled as part-time or as classified as "other" categories are shown in Tables 2 and 3, respectively.

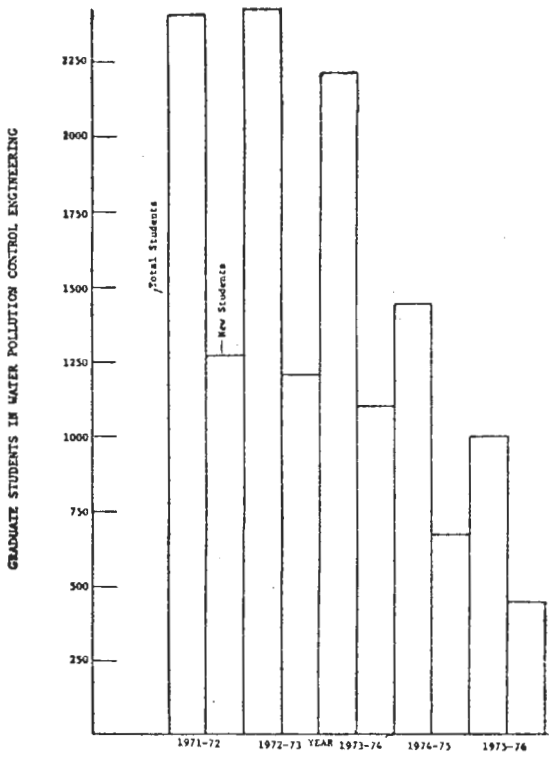

FIGURE 1. SUMMARY OF THE FIVE YEAR CHANGE IN GRADUATE STUDENT ENROLLMENT IN WATER POLLUTION CONTROL STUDIES

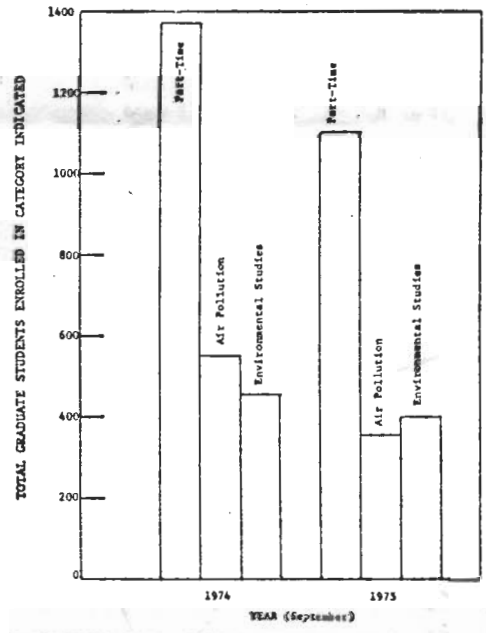

FIGURE 2. COMPARISON OF NUMBERS OF STUDENTS ENROLLED IN 3 SUBCATEGORIES OF POLLUTION CONTROL STUDIES IN 1974 AND 1975.

The results of this survey indicate that the rapid decrease in enrollment begun in 1972 has continued at an increasing rate. Judgements that must be made as to whether adequate numbers of professionals are being educated must be made in relation to the major activities for which they are responsible. Since the traditional environmental engineer has been primarily responsible for planning and design of waste management facilities, it would appear that the amount of money allocated for this activity would be related to the number of opportunities for new professionals in this area. Figure 3 shows a comparison of the enrollment of new M.S. students to the allocation of sewage treatment plant construction funds. This data emphasizes the incompatibility of these two parameters. If, in fact, the numbers of students

TABLE 2. SUBCLASSIFICATION OF STUDENT ORIENTATION AS SHOWN IN THE "PART-TIME" STUDENT CATEGORY SHOWN IN TABLE 1.

Specialization	Total Grad Student	New M.S.	EPA Traineeships
Sanitary Eng.	406	104	4
Environmental Eng..	136	124	
Environmental Sci.	195	38	1
Air Pollution	12	2	
Water Resources	44	5	
Water and Wastewater	18	4	
Environmental Control	8	6	
Environmental Design	10	5	
Public Works	6	4	
Environmental Mgmt.	9	5	
Not Specified	247	-	
TOTAL	1091	301	5

TABLE 3. SUBCLASSIFICATION OF STUDENT ORIENTATION AS SHOWN IN THE "OTHER" STUDENT CATEGORY SHOWN IN TABLE 1.

Specialization	Total Grad Students	New M.S.	EPA Traineeships
Noise	3	1	
Urban Systems Eng.	12	8	
Diploma DEC	12	2	
Ind. Waste Control and Abatement	6	1	5
Fuel Science	1	1	
Water and Wastewater	18	17	
Water Pollution Control	7	1	5
Environmental Sci. and Eng.	5	2	
Planning - Envir.	14	5	
Envir. Health Eng.	17	6	4
Public Works Eng.	1	0	
Envir. Systems Eng.	7	5	
Agricultural Waste Management	18	3	5
Undecided	5	5	
Not Specified	7	3	
TOTAL	129	60	19

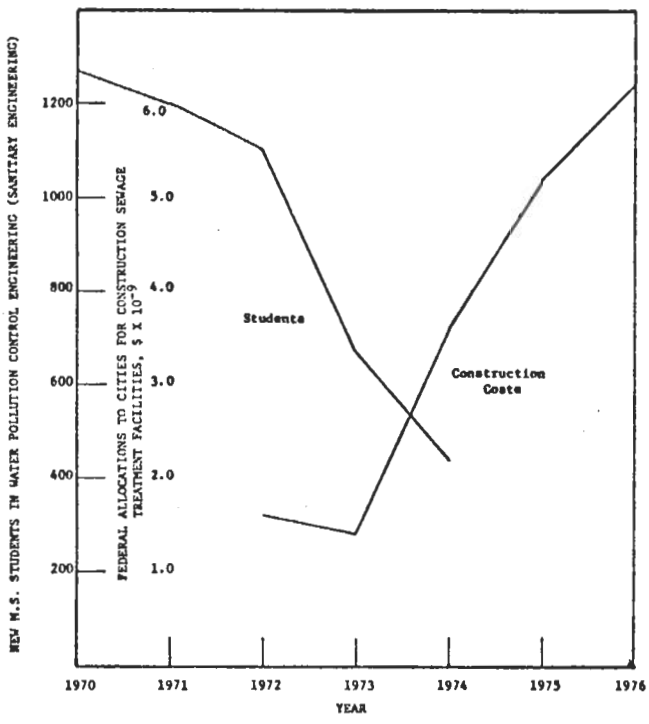

FIGURE 3. COMPARISON OF THE DECLINE IN GRADUATE STUDENT ENROLLMENT TO INCREASED SPENDING ON SEWAGE TREATMENT FACILITIES.

being produced are inadequate there may be some lag time before a shortage seriously affects the ability of the nation to respond to pollution control legislation.

The question of greatest importance, is what is the necessary (and therefore desirable) rate of enrollment of new students in university educational programs to meet the future needs of pollution control? A summary of the existing and projected manpower needs is shown in Table 4. As shown in this data, it was estimated that the total number of people involved in water pollution control activities would double to about 46,000 by 1976. At the previous rate of enrollment of new M.S. students, the acceptable loss of professionals from this pool of talent which can be replaced by new professionals would be about 0.5 percent per year. It is difficult to see how the existing collective capability in pollution control can be maintained, much less respond to new responsibilities such as have been imposed by the Clean Air Act and the Federal Drinking Water Law.

TABLE 4. A SUMMARY OF THE ENGINEERING AND SCIENTIFIC MANPOWER EMPLOYED BY ALL SECTORS IN WATER POLLUTION CONTROL.

	Manpower Engaged	
Employer	1971	1976
Non-Government	14,000	27,000
Local	4,300	5,600
State	2,100	5,500
Federal Non-EPA	4,600	5,900
EPA	1,200	1,800
TOTAL	26,200	45,800

There is little doubt that recent passage of the Water Pollution Control Act Amendments (1972, PL 92-500), the Clean Air Act, and the recent Drinking Water Laws (PL 93-523) reflect the continuing high level of concern of the citizens in protecting and preserving the quality of the environment. Without a sufficient supply of adequately trained and educated professionals we are bound to fall short of accomplishing the lofty goals which have been established for preserving a high quality environment. Obviously, the two extremes which may occur in developing comprehensive efforts for environmental protection in the absence of an adequate supply of professionals are 1) the job will not be accomplished, or what is more likely, 2) the job will be completed by people inadequately prepared to provide optimum solutions. The implications of these two possibilities need to be incorporated into all environmental quality policy decisions.

CONTINUING EDUCATION

Nebraska Water Resources Research Institute SUMMER INSTITUTE PLANNED

August 9 - 13, 1976

The Nebraska Water Resources Research Institute is sponsoring a one-week Summer Institute August 9-13, 1976. This year's theme is "Futures Planning With Special Emphasis on Water, Land and Related Natural Resources." This short course is designed to acquaint planners, decision makers, educators and water resources technicians with state-of-the-art technology for "futures" planning in water and related resources. Various techniques for determining and evaluating alternatives, objectives and goals in "futures" planning (including trend impact analysis, delphi technique, cross-impact analysis, scenario generation, simulation and

optimization) will be reviewed and their application illustrated through case studies and workshops. Strengths and weaknesses of each technique will be highlighted and their most effective use in the planning context presented.

The fee will be $350 before July 15 and $400 thereafter. Special rates will be available for a limited number of academic personnel on a first-come, first-served basis. Staff will include Dr. Warren Viessman, Jr., Senior Specialist in Engineering and Public Works, Library of Congress; Dr. Warren A. Hall, Elwood Mead Professor of Engineering at Colorado State University; Jared L. Cohon, Assistant Professor of Geography and Environmental Engineering at Johns Hopkins University; and Lewis D. Walker, Deputy Assistant Director for Planning, Water Resources Council.

For additional information contact:

Millard W. Hall, Director
Water Resources Research Institute
310 Agricultural Hall
University of Nebraska
Lincoln, Nebraska 68583
Telephone: (402) 472-3305

Center for Continuing Education
University of Chicago

APPLICATIONS OF STORMWATER MANAGEMENT MODELS

July 19-23, 1976

Sponsored By
THE U. S. ENVIRONMENTAL PROTECTION AGENCY
Storm and Combined Sewer Section
Advanced Waste Treatment Laboratory
Cincinnati, Ohio

In Cooperation with the
Department of Civil Engineering
Environmental Engineering Program
University of Massachusetts/Amherst

Implementation of Section 208 of PL 92-500 requires planners and engineers to examine the stormwater pollution problems. Highly successful Short Courses have been offered on this subject at the University of Massachusetts. Because of the need to reach more planners and engineers, this Short Course will be repeated in the Midwest at the Center for Continuing Education on the University of Chicago campus. The Short Course format provides for lecture and workshop sessions on the development and use of computer assisted models (with special emphasis on the EPA Stormwater Management Model-SWMM) for the prediction and control of urban stormwater quantity and quality. The Short Course will also include discussion of techniques for field data gathering and application of simplified models for master planning.

FEE - $200

FOR FURTHER DETAILS, WRITE OR PHONE:
Dr. Francis A. DiGiano
Department of Civil Engineering
University of Massachusetts
Amherst, Massachusetts 01002
(413-545-0685)

WELCOME TO NEW AEEP MEMBERS

Robert B. Grieves
Dept of Civil Engineering
University of Kentucky
Lexington, Kentucky 40506

John T. Quigley
The University of Wisconsin Extension
432 North Lake Street
Madison, Wisconsin 53706

AEEP NEWSLETTER PUBLICATION SCHEDULE

A publication schedule for the AEEP Newsletter has been approved by the Board of Directors. Direct all correspondence to the Editor one month before the mailing date.

ISSUE	COPY DATE	MAILING DATE
January	December 10	January 10
April	March 1	April 1
June	May 10	June 10
September	August 1	September 1

AEEP NEWSLETTER SUBSCRIPTION RATE

The Board of Directors in its meeting at the Water Pollution Control Federation Conference approved a new policy for Newsletter subscriptions for non-AEEP members. The rate is set at $5 per year for 4 issues. All communications concerning subscription rates should be with the Editor of the Newsletter.

ADVERTISEMENT POLICY

Advertisements for academic positions will be published at no cost as a service to the profession. Please prepare your announcement in a form consistent with past newsletters.

Advertisements for books and non-academic vacant positions will also be published in the Newsletter for a fee. The price for book advertisements is set at $75 for a full page, $50 for a half page and $35 for a quarter page (minimum). This fee applys to copy-ready ads. An additional charge will be made for typesetting or art work.

Advertisements for non-academic positions available is set at a rate of $10 per column-inch. Announcements of Short Courses will be published in the Newsletter at $10 per column-inch (minimum). All communications must be directed to the editor and must be received a minimum of one month prior to publication.

Application for Membership

in the

ASSOCIATION OF ENVIRONMENTAL ENGINEERING PROFESSORS

NAME _____

OFFICIAL TITLE _____ DEPARTMENT _____

BUSINESS ADDRESS _____ TEL. _____

HOME ADDRESS _____ TEL. _____

Applying for: Membership Status ☐ (indicate rank), Affiliate Status ☐

PLEASE ATTACH RESUME

Dues are payable in the Association on a calendar year basis. The AEEP annual dues payment, prorated according to the date of application, is shown below:

INITIAL DUES PAYMENT REQUIRED BASED ON RANK AND DATE OF APPLICATION

RANK	1 Jan. 31 Mar.	1 April 30 June	1 July 30 Sept.	1 Oct. 31 Dec.
Professors	$50.00	$37.50	$25.00	$12.50
Associate Professors	25.00	18.75	12.50	6.25
Assistant Professors	25.00	18.75	12.50	6.25
Affiliate Member	10.00	7.50	5.00	2.50

Please return this form, along with your dues to:

N. Bruce Hanes
Dept. of Civil Engr.
Tufts University
Medford, Massachusetts 02155

Enclosed are my AEEP dues in the amount of: $_____.

_____ _____

Signature Date

ACADEMIC MARKETPLACE

POSITIONS AVAILABLE

University of Kansas

The Civil Engineering Department at the University of Kansas has an opening beginning August 15, 1976, at the Assistant Professor level for a person qualified in the water resources and water quality area. Applicants should possess the following qualifications:

1. Applicant should hold the Ph.D. or the Sc.D. degree in the area of civil engineering or an appropriate allied field of engineering.
2. The applicant should be qualified to present course offerings at both the graduate and undergraduate level in the area of water quality management and in at least one of the areas of engineering hydrology, fluid mechanics or water resources systems analysis.
3. The applicant should posses some degree of familiarity with both physical and mathematical modeling techniques.
4. The applicant should have primary research interests which are directed toward the application of fluid mechanics and hydrologic principles in the solution of various water quality management problems, such as the management of urban runoff quality or the analysis of the fluid mechanics aspects of water and wastewater treatment facilities.

This is a full-time budgeted position that can lead to tenure within 7 years. The University of Kansas is an Equal Opportunity Employer and qualified women and men of all races are encouraged to apply.

Qualified applicants should send a complete resume, along with the names and addresses of at least three references to:

Dr. Stanley T. Rolfe
Department of Civil Engineering
THE UNIVERSITY OF KANSAS
Lawrence, Kansas 66045

Texas A & M University

One faculty position in Environmental Engineering at the Assistant Professor level is available at Texas A & M University commencing September, 1976. Responsibilities include teaching, both undergraduate and graduate courses and research. A B.S. degree in Civil Engineering and Ph.D. with qualification for professional registration is required. Several years of experience is also preferred. Applicant should submit a resume and a brief summary of current research to Dr. Harold W. Woll, Head Environmental Engineering Division, Civil Engineering Department, Texas A & M University, College Station, Texas 77843. Texas A & M University is an Equal Opportunity Empoyer with an Affirmative Action Program.

AEEP PUBLICATIONS

The publications listed below are available from AEEP. Prepayment must accompany all orders; therefore, please forward a check or money order made payable to AEEP to:
Ms. Susan Heussner, AEEP
8.612 Cockrell Hall
The University of Texas
Austin, Texas 78712
NOTE: The Order Form below must be completed and returned with your order. If your are a bookstore, please include a Certificate of Resale with your order. If you are a governmental agency or a library, please include an Exemption Certificate with your order.

Environmental Engineering Unit Operations and Unit Processes Manual	$12.00
Water Chemistry Laboratory Manual	$ 3.00
Register of Environmental Engineering Graduate Programs*	$ 3.00
Environmental Impact and Linkages, Workshop	$20.00
Mathematical Modeling in Environmental Engineering, Workshop	$21.00
Interdisciplinary Education Programmes for Environmental Engineers, Workshop	$10.00
Fundamentals of Chromatography, Workshop (limited supply)	$10.00
Trends and Professional Manpower Production Capabilities in USA Educational Institutions (limited supply)	$ 3.00

*Due to the high cost of printing the Register, we are requesting $3.00 to cover the expenses incurred in the publication of this material.

ORDER FORM

I would like to receive _____ copy(ies) of the publication(s) listed below. Enclosed is a check in the amount of $ _____ **. This material should be mailed to:

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**Texas residents add 5% sales tax.

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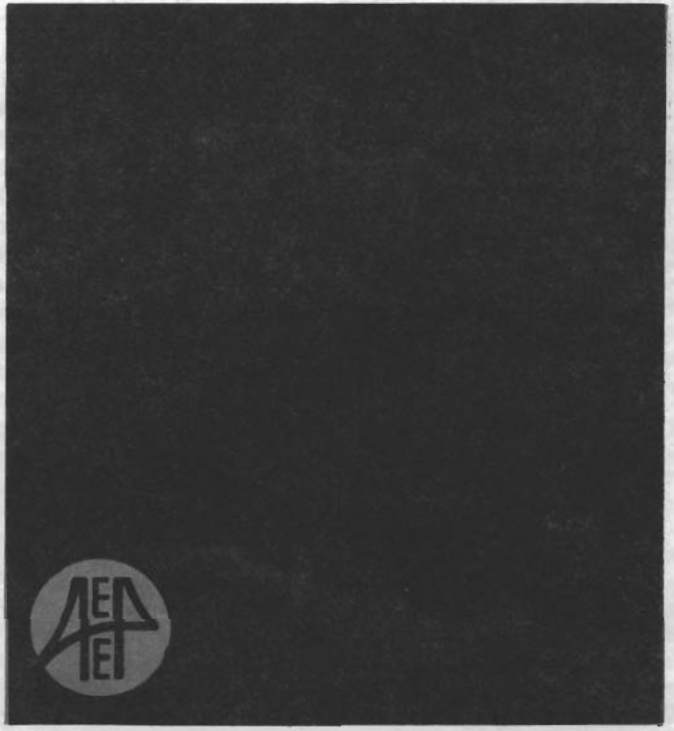

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