



MESSAGE FROM THE PRESIDENT

In 1986, John Andrews guided members of the Executive Committee of AEEP back to Washington to establish stronger ties with NSF and EPA to facilitate exchanges of information, goals, and areas of potential cooperation. On February 1 and 2, 1987, the Executive Committee (Andrews, Lawler, Luthy, Stensel and Baumann) met again in Washington to strengthen our understanding of and participation in the legislative process. On Sunday, we met and considered programs and activities within AEEP, received and discussed progress reports from our committee chairs, and established goals for several years in the future. Some of the activities in support of our membership are described elsewhere, and will not be repeated here.

Last year representatives of EPA requested that AEEP consider including in our Membership Lists a summary of the areas of expertise of each of our members. For example, we could "publish" a list of areas of expertise similar to those developed by EST, AWWA, and the International Association of Water Pollution Research and Control for selecting reviewers for papers in those areas. The list could well include topical areas in Water Supply, Water Pollution Control, Air Pollution, Solid Wastes, etc. with a total topic list containing one to two hundred entries. Each member would be asked to list up to five areas, by number, in which the member had above average expertise. These could then be published in our Member Directory, perhaps computerized, and could be used by AEEP, EPA, NSF, our sustaining members, etc. in recruiting paper reviewers, expertise for selecting consultants within education, members of research grant review panels, etc. (AEEP—through USANC—has helped prepare a reviewers list for each IAWPRC Conference.) I prepared a draft for such a proposal last year in response to a Board request, but no action has been taken. A sustaining AEEP member has recently suggested that we proceed in this direction.

ACTION: Is this a good idea that would serve AEEP and our members? Do you have thoughts as to how to develop the areas of expertise list?

The Executive Committee has been very gratified by the support of our 15 Sustaining Members. In order to clear up any misconceptions, the Executive Committee restated our policy that there be only one sustaining membership, to be considered a corporate membership, for each firm that elects to help support our programs in this way. Some sustaining members with multiple offices who desire to provide even greater support will be encouraged to contribute to our Awards Funding Program or to establish financial support for a specific award.

On February 2, the Executive Committee met with Guillermo H. Davila and Horst Ottersletter of the Pan

American Health Organization (PAHO). Davila is Coordinator of the PAHO Environmental Health Program and Ottersletter is Regional Advisor for the PAHO Program of Environmental Health. Several years ago, I met with both (and others) to determine whether there were mutual interests in environmental engineering/science education programs. The AEEP visit was made to offer our cooperation where and when it would be mutually beneficial. Our reception was very cordial. Basically, PAHO has identified about 46-47 graduate programs in environmental engineering in South and Central America and plans are underway to hold an organization meeting of representatives of these programs in Brazil this summer (perhaps to form a group like AEEP to enhance EE education). Subsequently, the group might be encouraged to schedule a meeting with AEEP interaction about the time of our proposed "Research Needs Conference" in Washington in early 1988.

ACTION: We would welcome your expressions of the pros and cons of such cooperation so we can avoid any pitfalls. We particularly would like to identify one or two Spanish-speaking AEEP members with interest in such a program who might participate in our discussions and perhaps participate in the Brazil meeting. Do you speak Spanish? Portuguese?

On Monday, The Executive Committee visited with Representative Neal Smith, Senator Tom Harkin (w/ Kay Casstevens), and Senator Charles Grassley (and w/ Allen Johnson, his legislative assistant), all from Iowa. One or more of our group also met with Representatives Michael A. Andrews and J.J. Pickle of Texas and Representatives John Martha and Doug Walgren of Pennsylvania. Our pitch was that we wanted their help and were interested in helping them. Specifically, we identified several areas of concern:

(Continued on page 2)

Expanded Distribution of AEEP NEWSLETTER

Once again the NEWSLETTER'S first issue of the new year is being distributed to personnel outside the AEEP who are involved in environmental issues. It is hoped that the expanded distribution of the NEWSLETTER will give AEEP increased visibility and will allow the association to inform a wider audience of our activities and accomplishments. Anyone wishing to submit articles of general Environmental Engineering interest to future issues should send the information to the NEWSLETTER editor.

1. The Small Business Innovative Research Program has apparently been reauthorized for another 5 years setting aside 1½% of R & D budgets for such grants. However, the law limits subcontracting of funds to universities to only 30% of the grants. We suggested raising that limitation to take advantage of newly developing university-industry cooperation programs for "jobs" development.
2. Years ago, AEEP worked hard to get authorizing legislation in EPA R & D funding requiring that 15% of such funds be used for unsolicited research grant funding. Unfortunately, an apparent wording change has slipped in and less than 4% is available for such grants now. We will look into what can and must be done to get this program back to more adequate funding.
3. Environmental Engineering Programs (E. H. Bryan) in NSF are located in the Division of Fundamental Research in Emerging and Critical Engineering Areas. This year, Civil Engineering areas got budget increases of 14%, but the Environmental Engineering increase was only about 1%. We are exploring the possibility of creating a separate Division in NSF for Environmental Engineering.
4. The new Superfund Program involving hazardous wastes contains authorization for five years of research at \$5 million per year, yet no dollar appropriations have yet

been made. We emphasized our concern toward research centers and the need for research in this area.

Our discussions also indicated that there is a prevalent attitude in Congress that academic research has not produced any significant results in creating new high technology processes, a high return on the research bucks spent, or made much of an impact on environmental quality control practice. How wrong can you be? I pointed to direct and declining-rate and deep-bed, high-rate filtration as water treatment processes that have saved Los Angeles alone hundreds of millions in plant construction and the technology is recognized as "the high tech" approach in plants being built worldwide. The research that generated the technology was predominantly academic research. The congressmen we visited asked for documentation—a story of success—for such accomplishments to point to for the purpose of dispelling wrong impressions.

ACTION: Am I wrong? What are some accomplishments of academic research that you would suggest we (or you) document so we can tell a proper story "on the Hill"?

Obviously, I could go on and on. However, I hope that I have justified an input from you in these **action** areas. Let us hear from you!

AEEP NEWS AND ANNOUNCEMENTS

AEEP Workshop at Purdue

The annual AEEP Workshop before the Purdue Industrial Waste Conference will be held on Monday, May 11, 1987 from 8:30 am to 5:00 (with a break for lunch). The general topic of the workshop is "Metals Control and Recovery". The speakers selected to give the presentations are: J. W. Patterson (IIT), D. A. Clifford (Houston), M. R. Hoffman (Caltech), and T. L. Theis (Clarkson). Registration fees for the workshop will be \$30 for AEEP members, \$90 for nonmembers, and \$10 for students. For more information and registration forms, contact:

James E. Alleman
Environmental Engineering
Purdue University
West Lafayette, IN 47907
(317) 494-7705

A brief outline of the workshop follows:

- A. Introduction to Metals Control & Recovery - *Patterson*
- B. Chemical Principles Governing Metals Control and Recovery - *Hoffman*
 - Chemical Speciation-Soluble and Solid Phases
 - Equilibria and Kinetics of Chemical Processes
- C. Conventional Control & Recovery Processes - *Patterson*
 - Precipitation, Coprecipitation, and Sludge Management
 - Electrolytic and Electrochemical Conversions and Separations
- D. Advanced Control & Recovery Processes
 - Sorptive Technologies - *Theis*
 - Ion Exchange - Theory and Applications - *Clifford*
 - Other Advanced and Emerging Technologies - *Patterson*

1986-87 AEEP Distinguished Lecturer Tour

Mr. Francois Fiessinger, Director of Research of the Societe Lyonnaise des Eaux, is the AEEP 1986-87 Distinguished Lecturer. His itinerary (and the lectures presented) will be:

- | | |
|---------|--|
| Feb. 16 | Michigan State University (ozone) |
| 18 | University of Cincinnati (membranes) |
| 19 | Drexel University (membranes) |
| 23 | University of Illinois (membranes) |
| 25 | Johns Hopkins University (membranes) |
| 26 | Rensselaer Polytechnic Institute (ozone) |
| Mar. 2 | University of Houston (ozone) |
| 4 | Washington State University (coagulation) |
| 6 | University of California, Berkeley (ozone) |
| 9 | Clemson University (ozone) |
| 11 | Tennessee Technological University (ozone) |

For further information contact

Makram T. Suidan, Chairman
AEEP Distinguished Lecturer Committee
3230D Newmark Civil Engineering Laboratory
208 North Romine Street
Urbana, Illinois 61801
(217) 333-9017

AEEP Annual Membership Meeting at Purdue

The annual AEEP Luncheon at the Purdue Industrial Waste Conference will be held in room 84C, across the hall from the cafeteria in the Purdue Union Building Tuesday, May 12, 1986 from 12:00 to 1:00 pm. The luncheon will be a cash buffet - no advance reservations will be taken. A short business meeting chaired by AEEP President Bob Baumann will follow the luncheon.

AEEP-AWWA Seminar Program

The AEEP Seminar at the Annual AWWA Conference in Kansas City is scheduled for 5:10 to 7:00 pm (note the new time - just before the start of AWWA's Fun Night) on Monday June 15th. The location will be announced in the AWWA Conference Program. The seminar is entitled CHEMISTRY AND APPLICATION OF ALTERNATIVE OXIDANTS AND DISINFECTANTS IN DRINKING WATER TREATMENT. The featured speakers will be Phil Singer, who will speak on the use of ozone, permanganate, and chlorine dioxide, and Don Johnson, who will speak on free and combined chlorine. For more information contact the session moderator:

Brian A. Dempsey
Department of Civil Engineering
Pennsylvania State University
University Park, PA 16802
(814) 865-9362

Engineering Science, Inc./AEEP Award for the Best Doctoral Thesis Relevant to Environmental Engineering Practice

AEEP members are invited to submit Ph.D. theses completed under their supervision during the 1986-1987 academic year (dated June 1, 1986-May 31, 1987) for competition for the above award. The award is a certificate and a \$1,000 prize for the Ph.D. Candidate and a certificate and a \$1,000 prize for the faculty research advisor. For a thesis to be eligible three copies must be received by Nicholas L. Presecan, Sr. Vice President, Engineering Science, Inc., 75 North Fair Oaks Ave., P.O. Box 7107, Pasadena, CA 91109, prior to June 15, 1987. Each thesis is judged on the basis of 100 points allocated as follows:

Scientific and Technological Validity of Research	25
Originality of Research	25
Contribution to Advancement of Environmental Engineering and Science	40
Clarity of Presentation (Organization)	10

The award will be presented at the AEEP Meeting to be held during the WPCF 59th Annual Conference in Philadelphia, October, 1987.

Nominations for AEEP 1987 Outstanding Publication Requested

Nominations are requested for the AEEP 1987 Outstanding Publication Award. This award is given annually to a landmark paper that has had a lasting influence on the environmental engineering field. Each nomination should be accompanied by a statement indicating how the paper has influenced the field and why the nominator thinks the paper is in the landmark category. Authors need not be members of AEEP. (Note that nominations submitted to the committee are not carried over from year to year.)

Send all nominations and accompanying statements to: Dr. James M. Symons, Chairman, Awards Committee, Department of Civil Engineering, University of Houston, Houston, Texas 77004. The deadline for nominations is April 1, 1987. The award will be presented at the 1987 WPCF Conference.

AAEE Certification

The Association of Environmental Engineering Professors is a sponsoring organization of the American Academy of Environmental Engineers (AAEE). Each sponsoring organization of the Academy may submit a list of not more than five (5) of its qualified members for consideration by the AAEE Board for certification.

The candidates must meet the following AAEE criteria:

1. BS in engineering or a related field
2. Professional engineer's license.
3. Professionally engaged on a full-time basis.
4. Must have at least fifteen (15) years of environmental engineering experience in one or more of the specialty fields. Eleven (11) of the fifteen (15) years shall be in responsible charge, which work must include active participation with responsibility primarily in one or more fields of environmental engineering.

The candidate applications will be reviewed to see that all criteria are met and then presented to the AEEP Board for approval. The Board approved applications will be submitted with a letter of transmittal to AAEE for consideration by the Academy Review Committee and Board.

Any active AEEP member in good standing who meets the above criteria is eligible for nomination. All applications should include letters of endorsement from three AEEP members who are familiar with the candidate's achievements. Consideration shall be given to the record of service to AEEP.

Note that any AEEP members meeting the criteria may apply directly to the Academy for membership, and acceptance is conditional on an oral examination. In addition, any members that do not have the experience noted above but have 8 or more years experience in this field can apply directly to the Academy, and acceptance is conditional on a written and an oral examination. The Academy address and telephone number is:

American Academy of Environmental Engineers
132 Holiday Court, Suite 206
Annapolis, MD 21404
(301) 266-3311

Qualified AEEP members wishing to be sponsored as a nominee of AEEP or desiring more information should apply directly to the AEEP-AAEE Trustee, Frederick G. Pohland, School of Civil Engineering, Georgia Institute of Technology, Atlanta, GA 30332.

AAEE considers applications only once a year. Application deadlines are:

- | | |
|---------|---|
| April 1 | AEEP nominee applications received by Trustee |
| April 8 | Reviewed by AEEP Committee |
| May 8 | Received by AEEP Board |
| May 22 | Received by AAEE |

News of AEEP Members

Dr. Earnest F. Gloyna, Dean of the College of Engineering at the University of Texas at Austin and long-time member of AEEP was recently elected to the grade of Honorary Member of the American Society of Civil Engineers. Dr. Gloyna was cited for his distinguished career as an engineer, educator, administrator, and scholar of national and international status and his numerous contributions to and leadership of the civil engineering profession.

Dr. N. Bruce Hanes, Professor of Civil Engineering at Tufts University, has been elected Vice President of the American Academy of Environmental Engineers.

AEEP Research Fact Sheet

The Legislative Analysis Committee completed its work on the FACT SHEET to accompany "Protecting our Environment: The Need for Exploratory Research." These are being sent to key members of various Senate and House Committees. You may obtain additional copies of both from Francis A. DiGiano, University of North Carolina, (919) 966-2480. (The FACT SHEET is reprinted in its entirety below, Ed.)

Protecting Our Environment: The Cost of Exploratory Research

The Problem

The responsibility for financial support of research to assist Congress and EPA in making policies is falling between the cracks. The congressional mandate for more regulations of air, land and water pollution is clear. The number of pollution-related laws and regulations continue to increase as do the toxic and hazardous compounds that must be regulated and monitored. Yet EPA's mission orientation argues against expansion of research to meet these increasing demands and responsibilities. At the same time, NSF and other federal agencies have not increased their research budgets to accommodate the demand for fundamental knowledge on which to base regulations. The accompanying document gives an agenda for exploratory research, which covers:

- Treatment of Drinking Water
- Pollution Control Technology
- Fate of Pollutants
- Groundwater Contamination
- Acidic Deposition
- Human Health Impacts and Their Mitigation
- Impact of the Biotechnology Industry
- Hazardous Wastes

These are today's problems. Unfortunately, if we continue to use the "band aid" approach to solving them, they will also be with us in the year 2000 and beyond. Finding the answers requires a serious commitment to research on the part of Congress to see that the budgets of appropriate funding agencies within government are sufficient and that the pipeline of well trained, environmental researchers does not run dry. This FACT SHEET sets out estimates of the funding level needed to achieve long lasting solutions to environmental problems.

The Manpower and Research Support Needs

AEEP offers the following data:

- Most of the well trained environmental scientists and engineers engaged in exploratory research are found in universities and their expertise is under-utilized;

- Approximately 100 universities have research programs in the environmental area;
- The total number of university faculty members engaged in environmental research is about 600.
- Only about 80 doctorates are awarded in environmental engineering annually as compared with 1200 in the combined fields of chemical, electrical and computer engineering; the total number of doctoral candidates in environmental research is only about 400;
- The number of doctoral candidates should be increased from 400 to 1000 to meet the nation's needs;
- The cost of basic research is on the order of \$90,000 per year per doctoral candidate which means that the current faculty and associated students could be funded to the level of \$90 mil per year.

Available Support for Basic Research

- The total EPA budget for short-term and long-term, basic research is about \$300 mil and declining; of this, the basic research done by universities is about \$25 mil (\$14 mil in the Exploratory Program plus some from EPA laboratories);
- NSF provides about \$27.9 mil, of which only \$4.4 mil is dedicated to environmental engineering and there is no indication of NSF's budget increasing to pick up the slack left by EPA;
- Other federal agencies support basic research but these are far less significant than EPA or NSF.

Additional Support Needed

- About \$60 mil of additional research support is needed considering the existing capacity of universities to lead the research effort and the demand for more, doctoral level professionals in the field;
- EPA's Exploratory Research Program should be bolstered, not reduced;
- Other federal agencies, especially NSF, should increase their support for environmental research.

The human resources exist to solve our environmental problems so that the health of our citizens and our precious environment are protected. Moreover, we are convinced that each new environmental insult will increase the public outcry for action. But we need the help of Congress to provide the right action, not just the illusion that today's problem has been solved when, for example, contaminated soil is scraped away from a hazardous waste site and put somewhere else. The investment of an additional \$60 mil annually in exploratory environmental research is small when one considers the potential benefits to 240 million Americans who must live on the land, breathe the air and drink the water.

Emeritus Members

The AEEP Board of Directors has elected Professor Ben B. Ewing, of the University of Illinois, and Professor Vinton W. Bacon to Emeritus Member status in the Association in recognition of their distinguished service as professors of environmental engineering.

AEEP Computer Software Committee

The AEEP Computer Manual was prepared by the AEEP Computer Software Committee under the chairmanship of John Crittenden. The current chairman of the committee is J. B. Neethling of UCLA. Inquiries and offers to contribute software to the manual should be directed to Professor Neethling.

AEEP Outstanding Publication Award

The 4th annual AEEP OUTSTANDING PUBLICATION AWARD to a paper which demonstrates significant education contributions and research accomplishment that have "stood the test of time" was presented to Dr. Richard I. Dick for his paper entitled "Role of Activated Sludge Final Settling Tanks" which appeared in the *Journal of the Sanitary Engineering Div., ASCE* in 1970. The award was presented at the AEEP luncheon meeting at the October, 1986 WPCF Conference in Los Angeles.

Welcome to New AEEP Newsletter Editor

Dr. Greg Boardman, of the Department of Civil Engineering at Virginia Polytechnic Institute and State University, assumes the editorship of the AEEP Newsletter effective with the September 1987 issue. Items for future issues of the AEEP Newsletter should be sent to him at:

Dr. Greg Boardman
Department of Civil Engineering
VPI & SU
Blacksburg, VA 24061
(701) 961-6020

As outgoing editor of the AEEP Newsletter, I wish to thank the AEEP membership for their assistance in submitting articles for the Newsletter. It has been a pleasure to work with the Board Members and Committee Chairman, and especially with the Presidents under whom I have served:

Vernon L. Snoeyink
F. Michael Saunders
John F. Andrews
E. Robert Baumann

Respectfully,
R. Noss

CONFERENCES

Fifth International Symposium on Anaerobic Digestion (AD-5)

Bologna, Italy
May 23-30, 1988

After successful biennial meetings in Cardiff, UK; Travemunde, FRG; Boston, USA and Guangzhou, PRC since 1979, the fifth conference is scheduled to again provide a forum for exchange of information on anaerobic digestion research and developments throughout the world. This session will be organized principally by the IAWPRC Specialist Group on Anaerobic Digestion, the Italian National Committee to IAWPRC and the Commission of European Communities. Invited lectures, short communications, and poster presentations, as well as an exhibition and excursions, will be included in the week-long program of events. Technical presentations will emphasize anaerobic digestion fundamentals, applications to agro-industrial wastes and domestic sewage, process control and resource recovery and reuse.

For further information concerning AD-5, contact:

Secretariat
Fifth International Symposium on Anaerobic Digestion
SOGEPACO S.p.A.
Piazza della Costituzione 4
40128 Bologna
ITALY

If interested in working with the IAWPRC Specialist Group on Anaerobic Digestion, contact:

Dr. Frederick G. Pohland, Chairman
School of Civil Engineering
Georgia Institute of Technology
Atlanta, GA 30332, USA

IWEM Conferences

The Institution of Water and Environmental Management (IWEM) has announced the following programme of annual conferences:

14-17 September 1987: Blackpool

26-29 September 1988: Eastbourne

(NOTE: IWEM is a new Institution formed following the unification agreement between The Institute of Water Pollution Control, The Institution of Public Health Engineers and the Institution of Water Engineers and Scientists.)

For more information, contact:

Howard Evans, IWEM,
53 London Road,
Maidstone
Kent ME16 8JH, Great Britain

The 6th Annual Joint Utah Conference on Industrial Hygiene and Safety

Salt Lake City, Utah - September 9-11, 1987

Session Topics include Industrial Toxicology, Radiation (UV/RF), Hazard Recognition/Evaluation, Asbestos, Public Relations/Communication, Hazardous Materials, Safety Management, Ergonomics, IH Chemistry/General IH.

For further information contact:

RMCOEH/C.E.
Ms. C. Crandall
University of Utah, Bldg. 512
Salt Lake City, Utah 84112
(801) 581-5710

GENERAL NEWS

Free IAWPRC Memberships For Graduate Students

The U.S.A. National Committee of the International Association on Water Pollution Research and Control (IAWPRC) has set up an endowment fund. Through the revenue generated by the fund, USANC will award a total of 16 gratis one-year student memberships in IAWPRC which include a subscription to *Water Research*. Awards will be made on a first-come basis subject to the condition that not more than one graduate student from any one university be granted an award unless fewer than 16 applications are received by the application deadline (1 April 1987). Graduate students wishing to be considered for such an award should have their faculty advisor nominate them in a letter directed to:

Dr. T. M. Keinath
USANC Secretary-Treasurer
Environmental Systems Engineering
Clemson University
Clemson, SC 29634-0919

PUBLICATIONS

Environmental Technology Letters

Environmental Technology Letters is intended to provide rapid publication of new developments in the field of pollution and environmental technology. Research papers in all areas of air, water and soil pollution from engineers and scientists in industry, academia and government are published. Manuscripts can be submitted to:

F. M. Saunders,
School of Civil Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0512 or to

J. H. Weber
Department of Chemistry,
University of New Hampshire, Parsons Hall
Durham, NH 03824.

All manuscripts are subject to peer review by the Editorial Board, assisted by a panel of referees. Editorial Board members in North America include: J. J. Alberts; R. I. Dick; W. W. Eckenfelder, Jr.; S. E. Hrudey; B. E. Jank; D. S. Mavinic; R. Minear; J. A. Oleszkiewicz; B. H. Olson; J. W. Patterson; P. V. Roberts; D. W. Smith; and R. Zepp.

Appropriate Wastewater Management Technologies for Rural Areas Under Adverse Conditions

This book contains the proceedings of a Workshop held in October of 1986. Specialists from across Canada and from the United States contributed papers and discussions related to innovative and appropriate technologies for utilities deliveries/collection systems, small community treatment systems, on-site treatment and disposal, and wastewater management districts. (Edited by D. H. Waller and A. R. Townshend, Tech Press. Available from CWRS, P.O. Box 1000, Halifax, N. S. Canada B3J 2X4, 1986. 425 Pages. Paper. \$20.00 Cdn. ISBN: 0-920692-25-7.)

WELCOME TO NEW AEEP MEMBERS

FULL MEMBERS

Robin L. Autenreich	Texas A & M University
Victor J. Bierman, Jr.	University of Notre Dame
M. Brett Borup	Tennessee Technological University
Kenneth M. Brannan	The Citadel
Allen Chao	North Carolina State University
Gordon L. Dugan	University of Hawaii at Manila
Dennis B. George	Tennessee Technological University
Don A. Gordon	Tennessee Technological University
George B. Griswold	New Mexico Tech
Frederick L. Hart	Worcester Polytechnic Institute
James H. Johnson, Jr.	Howard University
Mark R. Matsumoto	SUNY Buffalo
David K. Stevens	Utah State University

AFFILIATE MEMBERS

L. Carlos Diez	University of Pennsylvania at Johnstown
Kuo-Shuh Fan	National Chung Shing University-Taiwan
Masakatsu Hiraoka	Kyoto University
Ashok N. Shahane	Florida Department of Agriculture
Jeppee Sondergaard Nielson	New South Wales Institute of Technology

AEEP SUSTAINING MEMBERS

AEEP thanks the following organizations for their support of our activities.

AWARE, INC.

AMOCO OIL CO.

BROWN & CALDWELL

CAMP DRESSER MCKEE

CENTURY ENGINEERING, INC.

CH2M HILL, INC.

CULP-WESNER-CULP

EASTMAN KODAK CO.

ENGINEERING SCIENCE, INC.

LEWIS PUBLISHERS, INC.

JAMES M. MONTGOMERY CONSULTING ENGINEERS, INC.

NATIONAL SANITATION FOUNDATION

PROCTOR AND GAMBLE COMPANY

PSC ENVIRONMENTAL SERVICES

D.W. RYCKMAN & ASSOC.