

# Division newsletter



American Society for Engineering Education

**DIVISION:** CIVIL ENGINEERING

**DATE:** MAY, 1983

**EDITOR:** FRED BEAUFIT  
DEPARTMENT OF CIVIL ENGINEERING  
WEST VIRGINIA UNIVERSITY

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## CHAIRMAN'S REMARKS

As I mentioned in the last column, I have a major concern that Civil Engineering is not drawing its share of highly qualified high school seniors into the Civil Engineering programs. If the University of Cincinnati is any example (and I think we may be fairly typical), of every 100 applicants with SAT Math scores of over 700, about 70 are applying for Mechanical and Chemical and the other disciplines are forced to scramble for the few that are left. Why?

I don't think that the student is as aware of the relative salaries as many claim, and there is just not that large a difference to justify the huge gap. It is my feeling that Electrical, Mechanical and Chemical have strong drawing cards in computers, robots, and the energy crisis, while Civil is without such glamour unless you want to use the "deteriorating infrastructure".

Do you agree that we have a problem? Can you provide me with any hard facts? Do you agree that we have an image problem? Do you have any ideas as to how to solve the problem? If you can answer yes to any of these questions please drop me a supporting note. I would like to produce an article along the lines of "Perhaps the Crisis in CE is our entering student". If you would like to share in the project - Welcome.

Don't forget to come to the CE program in Rochester this June. Ron Eck has done a great job in putting together the program, and it should be one of our best ever.

James F. McDonough  
University of Cincinnati  
Chairman, CE Division

## GUEST EDITORIAL

Engineering firms competing in today's environment find the going very rough. More firms are competing for fewer projects, and pricing resembles a small-scale war. Those surviving the battle are seeking out special niches in the marketplace, and one of those very special niches is high technology in the broad markets served by the firms. In civil engineering--the oldest and perhaps the broadest of all the engineering disciplines--unlimited opportunities exist for high technology applications. The challenge lies in combining rapid application of the technology with early payback on invested capital and long-term benefits.

While the design profession is facing its challenges, colleges and universities are facing theirs, especially in engineering education. Enrollments in institutions of higher learning have increased in the high technology areas,

particularly engineering. One large university that I know of has 40 percent of its total undergraduate class registered in engineering.

The pressure of sheer numbers on the already thin line of engineering education, I predict, will diminish the quality of education in this area. This, in turn, will result in poorly prepared engineers taking their places among professionals in the field at a time when clients are demanding state-of-the-art technology.

Furthermore, recent studies have shown that a faculty shortage exists, particularly in electrical and computer engineering. Colleges have not been able to retain faculty members chiefly because of the higher salaries offered by industry.

How to solve the problem? On the one hand we have design professionals needing almost instant updates about the latest technology; on the other hand, we have diminishing faculties and increasing enrollments in the high technology area. The solution lies in a mutual sharing of the worlds of the design professional and academe. I believe that there are a large number of highly qualified educators who desire an opportunity for exchanging ideas and experiences with those in the design profession. We in the design profession could provide educators with a platform to present their ideas, while the educators are exposed to the competitive environment of the design professional.

Revolutionary? No. New? No. Others in industry have been doing this for quite a while, but the design profession has been lagging behind in this area. I'm merely propounding a wider application of a plan that industry started a number of years ago: An exchange through on-site, hands-on experience, of knowledge between the design profession and professors in the classrooms and laboratories--to the benefit of both parties.

Educators need to better understand

our environment. And as quality educators, they are not proselyted by industry, but, rather, are encouraged to educate their students at higher levels.

Through such a mutual sharing, the design profession receives significant exposure to technologies that heretofore existed only in the classroom. This exposure translates immediately into bottom line figures through improving competitive advantage.

The exchange involves the educator's spending several weeks or months at a design firm. During this time, he works with and sometimes conducts informal seminars for departmental employees. The design professionals also spend time, when requested, as guest lecturers for university classes. Taking this one step further, we in the design profession could lend, and should lend, our people to colleges and universities for a semester as visiting instructors. I believe in this particular solution to such a degree that we at Baker are in the process of creating a portion of this type of situation. Later this year, a professor from an engineering school in Pittsburgh, Pennsylvania, will be working part-time for two months in our Hazardous Waste Department.

In addition, we are still seeking from a local university a professor skilled in computer graphics and its application in the design profession. We believe this individual can gain important experience in the successful application and solution of unique design problems.

The program as we envision it will expose our professional and technical employees to a level of technology not existent in the work place, presenting a different vantage point for them. Thus, their technical excellence is enhanced through the relationship. At the same time, the educators see first-hand application of their knowledge toward solving problems in an environment where profit is a key motivator. Essentially, both benefit from the experience: The professional by gaining an increased level

of knowledge; the professor by increased awareness of the design industry's problems and immediate use of classroom principles.

We intend to closely monitor the impact of this program on our firm, and I am sure the educators and their universities involved in this experiment will monitor it just as closely.

With the design professionals' need for being catapulted into high technology as a matter of survival and with the educators' need for improving the quality of engineering education, I see this type of activity becoming widespread and working to the benefit of all involved.

Michael Baker, III, P.E.

Editor's Note: Mr. Baker is Chairman of the Board and Chief Executive Officer of Michael Baker, Jr., Inc., one of this country's leading consulting engineering firms. The Company was founded in 1940; presently there are 10 branch offices within the United States. Mr. Baker has been with the firm for 27 years serving in most every capacity. He is a graduate of Pennsylvania State University, registered in 48 states as a Professional Engineer and in 11 or 12 states as a Surveyor, and is a member in numerous professional organizations which include NCEE, ASCE, Pennsylvania SPE, and NSPE.

### **FIRST CALL FOR EDUCATION RESEARCH PROPOSALS**

ASCE announces the 1985 Conference on Civil Engineering Education to be held at Ohio State University, Columbus, Ohio, from April 11-13, 1985. The objective of the Conference is to bring together concerned engineering practitioners and educators to discuss current issues, factual data and new developments relating to the education and continuing professional development of civil engineers, technologists and technicians. Strong participation by civil engineers in all fields of practice, as well as education, is a goal of this 1985

Conference. The Conference theme is "Challenges to Civil Engineering Educators and Practitioners - Where Should We Be Going?"

Hard data, facts and figures are needed about civil engineering; students, faculty, educational institutions, the work force, job opportunities; engineers in practice (in consulting, government, industry, business), their present and projected future needs and for planning and shaping the future of our profession. Socio-economic factors and profile of CE's, relevancy of our profession, etc. are factors to be considered. For the 1985 CE Education Conference to be meaningful, these data are needed and most are not readily available.

A call for proposals is extended to practicing engineers, engineering educators, representatives from government, industry, other engineering societies and to others concerned with civil engineering education, civil engineering practice and national priorities. Proposals are invited on a broad range of topics including: the present and recent statistics of our educational institutions including faculty, physical facilities, curricula and other requirements, etc.; student body, undergraduate and graduate; national needs, manpower predictions, educational requirements, rewards (salary, status, power), employment patterns, productivity, etc.

A total of 10 research grants of up to \$1,500 each can be awarded. A minimum matching amount of \$1,500 must be provided by the researcher. The proposal should include but not necessarily be limited to the following sections: background; objectives and scope of project; work plan; brief resume of researcher(s); and budget showing matching funds.

All researchers are expected to submit a paper summarizing the results of their project for publication in the proceedings of the Conference. This will require the submission of the paper abstract before May 15, 1984, and

submission of the final paper before September 30, 1984. Researchers may also be asked to serve on Conference Panels.

Five copies of the proposal should be submitted by July 15, 1983, to Dr. George K. Wadlin, Head, Education Services Department, ASCE, 345 East 47th Street, New York, NY 10017. For further information, phone (212) 705-7669. Notification of the awards will be made on or before August 31, 1983. It is expected that the research work will be conducted during a 12-month period beginning in September 1983.

### CIVIL ENGINEERING EDUCATION SURVEY RETURNS

Whenever an organization embarks on a new venture such as introducing a new publication there is always the nagging question about its value and if the publication is serving its intended function. CIVIL ENGINEERING EDUCATION was first published in the Spring of 1979, and there have been two issues each year since. Needless to say, Dr. Peter G. Hoadley has done an outstanding job in organizing and nurturing the growth of this publication. He has raised the question recently about a review of the publication to determine if it is achieving what the Division intended.

Dr. Colby Ardis, Chairman of Civil Engineering at the University of Toledo, surveyed department chairmen attending the recent meeting of the North Central Region Department Heads. The following is a summary of that survey concerning the Division's publication CIVIL ENGINEERING EDUCATION:

- \* Rate overall quality of CIVIL ENGINEERING EDUCATION:  
5% Very good, 64% Good, 23% Fair,  
0% Poor, 9% No opinion

Do you read the articles appearing in CIVIL ENGINEERING EDUCATION?  
78% Yes 22% No

If not, why not? (most common reply:

### Do not receive publication)

If yes, how many of the articles do you read in an issue?

39% one-fourth, 28% one-half,  
17% three-fourths, 17% all

- \* Should the publication have general or specialized (theme) issues?  
35% General, 5% Specialized,  
60% Some of each
- \* What types of articles would you like to see published?  
65% Education, 19% Technical,  
12% Management, 4% Planning
- \* Should letters to the editor which deal specifically with previously published articles be published in CIVIL ENGINEERING EDUCATION?  
100% Yes 0% No
- \* Should a page or two in CIVIL ENGINEERING EDUCATION be devoted to computer usage?  
96% Yes, 0% No, 4% No opinion
- \* Do you consider publication in CIVIL ENGINEERING EDUCATION a refereed publication?  
27% Yes, 59% No, 14% No opinion
- \* Have you published in this publication?  
11% Yes, 74% No, 16% No response
- \* Who should the audience of CIVIL ENGINEERING EDUCATION be?  
29% Undergraduate faculty,  
24% Graduate Faculty, 7% Deans,  
17% Chairmen, 24% All
- \* Should the CE Division continue to publish CIVIL ENGINEERING EDUCATION?  
87% Yes, 0% No, 13% No opinion

What are your feelings about CIVIL ENGINEERING EDUCATION? The division officers and Dr. Hoadley would appreciate hearing from you on this.

**NATIONAL EFFECTIVE TEACHING INSTITUTE**  
**ASEE ANNUAL MEETING**

Sunday, June 19, 1983

**THE FEEDBACK LECTURE METHOD:**  
**Personalizing the Lecture and Bridging the**  
**Gap in Large Lecture Classes**

This workshop will be presented using the feedback lecture method to identify the benefits and components of this method of instruction. The feedback lecture utilizes a study guide and lecture outline with daily discussion questions, but an instructor may choose to use only parts of this method or adopt it gradually.

Betty Coffey is an assistant professor of computer science who has used this method successfully for four years in classes of up to 160 students. She presented a highly successful workshop in this method at the 1981 Frontiers in Education Conference. In addition, she has worked with Dean Osterman, the originator of the feedback lecture, in presenting workshops about the feedback lecture method.

The feedback lecture method allows more communication between the class and the instructor, and the study guide and lecture outline inform students of material to be covered in class. Most importantly, the daily use of the discussion questions helps students to review the material and identify what parts of the material they do not understand. The instructor can also identify what the students are having difficulty with. The feedback lecture method has also proved to be very effective for persons presenting workshops or presentations where much material is being offered in a short time. The workshop will illustrate an effective way of organizing course material and will demonstrate good class management skills. It is particularly appropriate for new engineering educators, who are generally concerned with being effective teachers, but who are not in a position to make major changes in course structure or timetables.

Participants may wish to have a particular unit of material in mind that they could begin incorporating into a feedback lecture when attending the workshop. This will be an active workshop with participants given an opportunity to begin developing their own study guide. A study guide will be utilized for the workshop and each participant will receive a copy of Dean Osterman's handbook for developing the feedback lecture.

This half-day workshop is scheduled to allow individuals to attend the Research Proposal Writing Workshop in the afternoon, presented by the New Engineering Educator Affairs Committee.

The registration fee is \$30 per participant (\$10 for New Engineering Educator Delegates). Pre-registration before June 1, 1983, is urged. Make checks payable to ERM-NETI and send to:

Professor Dwight G. Scott  
Mechanical Engineering Department  
University of New Brunswick  
P. O. Box 4400  
Fredericton, NB  
E3B 5A3 Canada  
Phone: (506) 453-4514

**MID-LIFE TRANSITION: How to Re-Light your**  
**own Fires**

An exciting session on this theme was presented at the 1982 ASEE Annual Conference. Unfortunately, in less than two hours, only a descriptive overview of the actual process could be discussed. This one-day workshop is therefore presented for those persons who really want to participate in such a workshop, rather than just hear about it.

Mid-life transition is a developmental period faced by most members of middle and upper class Western society. This life phase generally occurs for most individuals at some time between the ages of 35 and 50, although its onset and duration may be accelerated or delayed dependent upon individual and environmental factors. The transition is

characterized by physical, psychological, and occupational stress and change. The popular phenomenon, the "middle-age crazies," is the first stage of the transition. So if you fit the age range and your hair is turning gray or departing entirely, muscles are sagging, work is burning you out, and you are feeling bored, unappreciated, and a general sense of confusion, it is likely that you are experiencing the mid-life transition.

Faculty and staff at colleges and universities are particularly susceptible to the middle-age crazies due to the nature of their work; lack of a concrete product, undervaluation relative to their level of education and stature, and a lack of collegial collaboration and support.

Based on the above, the Mid-Life Transition Workshop was developed and presented to faculty and staff at the University of Texas at Austin. The purposes of the Workshop are three: (1) To have participants recognize, clearly define, and understand the nature of their personal experience of mid-life (you can't solve a problem unless you first know what it is), (2) Once the participants understand their current experiences, for them to then focus on what they would like to change to make their life more satisfying and probably productive, and (3) to develop specific plans of action for making such changes.

The format of the workshop is characterized by the following:

1. It is one day, seven hours in duration.
2. It is composed of a series of self-evaluation activities, small group discussions, mini-lectures, and planning activities.
3. It places a premium upon sharing and talking through personal issues involved in mid-life transition, a premium upon collegial support, and a minimum upon scholarly discussion of mid-life.
4. A workbook is provided that charts the way through the Workshop for each participant.
5. Participants are actively involved

in self-evaluation and planning, or small group discussions for 80% of the Workshop time.

6. Small group discussion leaders are trained and provided as part of the format.

At the conclusion of the Workshop, participants will not have resolved their mid-life crisis, but if the feedback and evaluations of previous participants hold true, they will certainly have learned a methodology for effectively confronting, coping with, and working their way through this phase of their life.

The developer and leader of the Mid-Life Transition Workshop, Dr. Jim Clack, is Associate Director of Counseling, Learning, and Career Services at the University of Texas at Austin. He is a licensed psychologist in the State of Texas and a Diplomate in Counseling, Psychology, American Board of Professional Psychology.

But more importantly for these purposes, he is 45 years old, drives a '73 yellow Mustang convertible, has gray hair, and has tried and failed to ward off the signs of aging via exercise and jogging. He is currently fighting a successful battle against boredom and burn-out, is working to enhance and maintain a 22 year-old marriage, and to accept the fact that he is not a "kid" anymore, but probably has at least 25 more years to live and enjoy.

The registration fee is \$45 per participant. Pre-registration before June 1, 1983, is encouraged. Please make checks payable to ERM-NETI and send to Professor Dwight G. Scott at the address listed previously.

**PROFESSIONAL EDUCATION FOR THE FUTURE**  
**ASEE ANNUAL MEETING**

Monday, June 20, 1983

This session at the Rochester Institute of Technology meeting will be a panel presentation on "Professional

Education for the Future." A variety of speakers representing different types of employers of Civil Engineers will present their viewpoints on the educational needs of Civil Engineers for the future in their respective areas of practice. Following their presentations the panel will answer questions from the audience. Panel members will be: M. Dean Parsons, CH2M-HILL, Corvallis, Oregon (consulting engineers); James N. Glenn, retired from DuPont, Wilmington, Delaware (manufacturing industry); and Wendell P. Holmes, III, Gilbane Building Company, Washington, D.C. (construction industry). The session moderator will be Donn E. Hancher, Associate Professor of Construction Engineering and Management, Purdue University.

**COMMUNICATION EDUCATION FOR THE ENGINEER**  
**ASSE ANNUAL MEETING**

Tuesday, June 21, 1983

Engineers have always had the need to be able to communicate effectively; however, the need has become more acute as technology has developed and engineering work has become more specialized. An engineer may be several steps removed from the final end product, yet his or her ideas must be communicated through the subsequent steps without error or misunderstanding if the final product is to be successfully completed. Communications undertaken by the engineers may be oral, written, or graphical. Communication may be with other members of the design/production team, with other design/production teams, or with interested third parties, such as citizens groups or regulatory agencies.

Some engineers are natural communicators, others have great difficulty getting their ideas across, and still others could be effective communicators but have not taken the time to develop their skills. It is the responsibility of engineering educators to motivate the latter group to develop their latent skills, to help the middle group to progress to an acceptable level, and to

inspire the first group to become even more proficient.

However, employers on the whole have been unsatisfied with the communication skills of new graduates. This session will deal with several programs that are designed to remedy this skills deficit.

Frank Griggs and Tom Jewell will describe an innovative communication program that integrates communication training throughout the Civil Engineering curriculum at Union College. David VanHorn will present the Accrediting Board for Engineering and Technology (ABET) view of effective communications training. Irwin Wecker and Paulette Pellani's paper described a corporate program for communication training. They supervise a program for Ebasco Services Incorporated which includes writing programs and workshops, oral presentation programs, an effective reading program, and a cooperative effort with Pace University to meet the communications needs of employees who speak English as a second language. William McMahill will report on his work with participation training as a method of teaching communications skills to engineers. Communication of ethical concepts of engineering professionalism from engineering educators to students is the subject to be explored by Heinrich Luegenbiehl.

**THE CANDIDATES**

The report of the Nominating Committee was published in the fall issue of the CE Division Newsletter. The ballot for voting is found on the last page of this issue; you are urged to cast your vote and return your ballot today. It is most important that you vote since there are two candidates for Vice Chairman (1983 Annual Meeting Program Coordinator) and Director.

A short resume of each candidate follows:

**RON ECK** - Associate Professor of Civil Engineering at West Virginia

University. He received B.S.C.E. and Ph.D. degrees from Clemson University and is a Professional Engineer in West Virginia. He joined the faculty at WVU in 1975 and has been a member of ASEE since that time. His background and experience are in transportation engineering, specifically traffic engineering and highway safety. Ron has presented papers at ASEE Annual Conferences and has organized and moderated CE Division sessions at the 1979, 1980, 1981 and 1982 Annual Conferences. He is a past chairman of ASEE Civil Engineering Division Committee #3, Teaching Methods and Technical Areas and served as a member of the Board of Directors of the CE Division in 1981 and 1982. He served as WVU's Campus Activity Coordinator from 1977-82 and received the 1980 North Central Section ASEE Dow Outstanding Young Faculty Award. Ron is active in other professional society activities. He serves on several Transportation Research Board (TRB), Institute of Transportation Engineers (ITE), and ASCE technical committees, and has published papers on a variety of transportation and education topics.

**COLBY ARDIS** - Professor and Chairman of Civil Engineering at the University of Toledo. Colby is a member of the executive board of the North Central Region of ASEE, and a director of the CE division of ASEE. He has chaired a session at each of the last three national ASEE meetings, presented papers at ASEE meetings, and has published in our Civil Engineering Education.

**ROGER SEALS** - Chairman and Professor of Civil Engineering at Louisiana State University since July 1980. He previously held the position of Professor of Civil Engineering at West Virginia University where he had served since 1965. His service to the Civil Engineering Division of ASEE includes past membership on the Board of Directors and past chairmanship of the Teaching Methods Committee. He is the current chairman of the Educational Policy Committee. He is also currently serving as a member of the ASCE Committees on Curriculum and Accreditation and

Research in Civil Engineering Education. In addition, for the past two years he has served as a member of the Professional Engineers in Education (PEE) Board of Governors of the National Society of Professional Engineers.

**DONALD LEITCH** - Chairman of Civil Engineering at the University of Lowell. Dr. Leitch has been very active in the Civil Engineering Division for a number of years.

**GREGORY MAGEE** - LCDR Gregory H. Magee received a B.S. from the Coast Guard Academy in 1969 and an M.S. in Civil Engineering from the University of Illinois in 1974. As an active duty Coast Guard officer, he served as Assistant Chief, Civil Engineering Branch, Seattle, Washington, from 1974 to 1978. From 1978 to 1982, he was assigned as Assistant Professor of Civil Engineering at the Coast Guard Academy. He currently is the Facilities Engineer at the Coast Guard Training Center, Cape May, New Jersey, supervising design and construction of civil engineering projects totaling \$7 million annually. Mr. Magee has been an active member of ASEE since 1978, and is presently serving his second year as Secretary, Treasurer, and Newsletter Editor for the ASEE Construction Engineering Constituent Committee. He has presented papers at the 1981 and 1982 ASEE National Conference. In 1982 he received the Society of American Military Engineers Oren Medal as the outstanding Coast Guard civil engineer. LCDR Magee is a registered engineer in the State of Connecticut.



**1983 ASEE ANNUAL MEETING**  
**ROCHESTER INSTITUTE OF TECHNOLOGY**  
**JUNE 19 - 23**  
**CE DIVISION EVENTS**

Once again the program of the Civil Engineering Division is a full one and it is hoped that these events will be well attended by the CE Division membership. You should certainly make plans to attend the planning session for next year's meeting on Wednesday morning; and do not miss the Division Banquet scheduled for Tuesday evening. The Program Committee has worked hard to organize our program; the session should be very interesting and informative. Come prepared to participate.

Monday June 20, 1983

- 8:00 - 9:45 "Professional Education for the Future"  
Donn Hancher - Session Chairman
- 3:45 - 5:30 "Microcomputers in Civil Engineering"  
James McDonough - Session Chairman
- 8:00 - 10:00 "Civil Engineering Rap Session"  
including poster session on microcomputer software  
James McDonough - Moderator

Tuesday June 21, 1983

- 8:00 - 9:45 "Influence on the Accreditation Process"  
Fred Beaufait - Session Chairman
- 1:45 - 3:30 "Communications Education for the Engineer"  
Tom Jewell - Session Chairman
- 3:45 - 5:30 "The Educational Team - Building for the Future"  
Roger Seals - Session Chairman
- 6:30 - 9:30 "Civil Engineering Division Banquet"  
Arranged by Ron W. Eck

Wednesday June 22, 1983

- 7:00 - 9:45 "Civil Engineering Division Planning Session"  
Moderated by new Program Chairman
- 12:00 - 1:30 "Chi Epsilon Luncheon"  
Speaker: Ed Misiaszek  
Moderator: Dexter Jameson
- 1:45 - 3:30 "External Support for Civil Engineering Education"  
Steven Abt - Session Chairman

**MINI-PLENARIES CO-SPONSORED**  
**BY CE DIVISION**

Monday - "Preparation in Math & Science in Secondary Schools and Prescription for Change"

"The State of the Engineering and Scientific Community in Quality Math and Science Education in High Schools"  
Dr. Robert Larson (President IEEE)

"In Practice Methods to Improve Instruction and Student Quality in High School Math & Science"  
Billy Reagan (Supt. Houston, Texas School District)

"NSF Plans and Actions to Support Improvements and Role of Commission on Pre-College Education in Math and Science"  
Raymond Hannapel (NSF)

Wednesday - "The Quest for Quality in Engineering Education"

"Does It Make Any Difference?"  
E. Gordon Gee, President - West Virginia University

"What are the Hallmarks of Excellence?"  
Russell O'Neill, Dean of Engineering - UCLA

"How do You Measure Quality?"  
George Burnet, Former President of ASEE - Iowa State

**ASSE BALLOT - CE DIVISION**

Officers for 1983-84

Place an **X** in the appropriate ( ).

CHAIRMAN: Ron Eck ( )

**VOTE FOR ONE**

VICE CHAIRMAN: Colby Ardis ( )

Roger Seals ( )

**VOTE FOR ONE**

DIRECTOR 1983-86: Donald Leitch ( )

Gregory Magee ( )

RETURN BALLOT BY **JUNE 1, 1983**, TO:

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