

# the news



PHILADELPHIA SECTION

AMERICAN SOCIETY OF CIVIL ENGINEERS

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OUR 68th YEAR

April-May, 1981

## APRIL JOINT MEETING

Philadelphia Post, Society of American Military Engineers  
Philadelphia Section, American Society of Civil Engineers

**WEDNESDAY, APRIL 8, 1981**

The Officers' Club, Philadelphia Naval Base

Cocktails — 5:30 P.M.

Dinner — 6:30 P.M.

Meeting — 7:30 P.M.

### SUBJECT:

**MODIFICATIONS AND REHABILITATION  
OF THE CARRIER USS SARATOGA**

### SPEAKER:

**CAPTAIN RAY E. PIERCE**, United States Navy, Commander, Philadelphia Naval Shipyard

IMPORTANT NOTE: Please call **Mr. Edwin Kucerik**, Secretary of S.A. M.E. immediately and reserve your ticket - (215) 597-0456, 0457.

The overhaul of the Saratoga is part of the Service Life Extension Program (SLEP) for aircraft carriers of the Forrestal-Saratoga class. The Navy plans to have twelve carriers available by the year 2000. Because the normal life expectancy of a carrier is 25 years — and the enormous costs of new carriers — the SLEP objective is to extend the life of the Saratoga 15 - 20 years.

Captain Pierce will describe management challenges and the economic impact in the Phila. area of this \$500 million project, estimated to consume 1.3 million man-days of labor over a period of 28 months. A two-year planning-design program preceded the arrival of the carrier at the Navy Yard. Employment at the Yard has increased to 10,000 today, compared to 6,600 prior to the overhaul contract.

Captain Ray E. Pierce began his Navy career in 1948 as an NROTC midshipman at Dartmouth College and was commissioned upon graduation four years later. At the U.S. Naval Postgraduate School, Monterey, CA, he earned a B.S. in Mechanical Engineering (1956) and an M.S. in Management (1967). Capt. Pierce's extensive Naval service includes Engineering Duty Officer, Operations Officer, Force Material Officer on major Naval military vessels; Design Div., Bureau of Ships; service in Vietnam as the first Repair Officer at the Naval Support Activity, Danang. He was Assistant to Director of Maintenance Policy, Office of Assistant Secretary of Defense in 1972, and held other major Commands until his assignment to the Phila. Naval Shipyard as Production Officer in 1977. Captain Pierce assumed Command there in July, 1978.

Captain Pierce holds the Bronze Star with Combat "V" for service in Vietnam, Meritorious Service Medal with Gold Star, and the Joint Services Commendation Medal.

**STUDENTS — HALF PRICE FOR DINNER.** Please call Mr. Kucerik for reservations as noted above and identify yourself as a student. Phila. Section will pay S.A.M.E. one-half of cost of your dinner.

## READING BRANCH

### April Meeting

Date: **Thursday, April 16, 1981**

6:00 P.M. Social Hour — Green Valley Country Club

Subject: **Deep Foundations**

Speaker: **William S. Gardner**, Woodward-Clyde Consultants

Reservations: Contact Ben Nacar, Program Chairman, at Gilbert Associates, Inc., P.O. Box 1498, Reading, PA 19603 (215) 775-2600, Ext. 3422

**ALL PHILA. SECTION MEMBERS  
ARE CORDIALLY INVITED TO  
ATTEND!**

## TECHNICAL GROUP ACTIVITIES

### GEOTECHNICAL

#### April Meeting

Date: **Tuesday, April 21, 1981**

7 P.M. Engineers Club

Subject: **Geotechnical Monitoring by  
Acoustic Emissions in Energy Pro-  
jects**

Speaker: **Dr. W. Martin McCabe**, Research Associate, Department of Civil Engineering, Drexel University, Philadelphia, PA

Program Host: **Dr. Ziyad I. Husami**,  
Chairman, Geotechnical Group

Refreshments are served

Geologic Materials play an important role in energy production, and the degree to which energy technologies can be safely and economically developed depends substantially on the effective utilization of these materials.

The lecture examines the objectives of programs to monitor the performance of soil and rock masses associated with energy production, with an emphasis on

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# !!The Annual Spring Social!!

SATURDAY, MAY 9, 1981

ENGINEERS' CLUB

1317 Spruce Street, Philadelphia

for your listening and dancing pleasure — the music of  
**MIKE SOLICK AND HIS ORCHESTRA**

COCKTAILS: 6:00 to 7:00 P.M. (Cash Bar)

DINNER: FILET MIGNON 7:00 P.M.

COME JOIN YOUR FRIENDS FOR FUN

Call or Send for your Tickets Today . . . Guests Welcome

— \$16.00 per person —

Please make checks payable to Women's Auxiliary, ASCE and send for tickets to:

MRS. WALLACE A. (Joan) RUTECKI

7112 Pennsylvania Avenue, Bywood, Upper Darby, PA 19082  
(215) 352-3746

Call Mrs. Rutecki for reservations

## THE PRESIDENT'S MESSAGE

It's hard to believe that April is here already and that my term of office is coming to a close. I have enjoyed the past year spent working with other Section members, and I appreciate the cooperation and assistance which I have received from so many of my friends and colleagues. There is far too little space here for me to name and thank each of them. I shall try to do so individually and personally. For now, please accept my collective "thank you".

In reflecting on the past eleven months, I attempted to outline our proposed Section goals and compare them to our accomplishments. I started by listing the expressed goals on the left side of a sheet of paper and the realized goals on the right side. Before long the yellow pad was listing to port. I quickly concluded that this wasn't such a good evaluation technique and tossed the paper into the wastepaper basket. I decided to focus on one or two good points.

Perhaps the two strongest areas were the Program and Student Activities. Every meeting topic was a winner and sincere attempts were made to involve Student Members in Section activities at every level. I believe the benefits realized in these two areas alone spell a successful year.

On behalf of the section, I extend to Fred Roll our heartiest congratulations as our new President and pledge our support and cooperation in the coming year. I hope to see you all at the Spring Social on May 9th.

Sincerely,

Joe

JOSEPH R. SYRNICK, President  
Phila. Section, ASCE

## TECHNICAL GROUP ACTIVITIES

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the acoustic emission (A.E.) monitoring technique, including its application to such fuel extraction processes as hydro-fracturing for more efficient hydro-carbon and geothermal fuel recovery, underground and surface mining of coal and oil shale, the insitu recovery of fuels (gasification, etc.), and fuel storage in subsurface reservoirs. The unrealized potential of A.E. monitoring

and its comparison with other monitoring techniques will be discussed, as well as the problems associated with A.E. equipment and data interpretation.

Dr. McCabe is currently employed as a research associate at Drexel investigating the use of acoustic emission monitoring techniques to determine the stability of tailings dams for the U. S. Bureau of Mines and to predict roof collapse in tunnels for the U.S. Department of Transportation.

## PHILADELPHIA SECTION AMERICAN SOCIETY OF CIVIL ENGINEERS

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#### SEND COPY TO:

Sidney Robin

64 Nancy Drive

Richboro, Pennsylvania 18954

Phone: (215) 322-7484

## HYDRAULICS AND SANITARY

### April Meeting

Date: Wednesday, April 15, 1981 -

12 noon

Subject: Field Trip to the Philadelphia  
Torresdale Water Treatment Plant  
9001 State Road, Phila., PA

Host: Guru Bose, Secretary-Treasurer,  
Hydraulics and Sanitary Group

The Torresdale Plant is a 282 mgd water treatment plant serving the City of Philadelphia. The treatment process consists of pre-sedimentation, chemical coagulation and flocculation, sedimentation and rapid sand filtration. Also included will be a tour of the granular activated carbon pilot treatment facility.

For further information and reservations please contact Secretary-Treasurer Guru Bose at 686-1776, Ext. 47-511.

## LIFE MEMBERSHIPS AWARDED

A Special Event at the Phila. Section's March 10, 1981 meeting was the awarding of Certificates of Life Membership in ASCE to Section members. As our distinguished and articulate Past President **Samuel S. Baxter** explained in making the presentations: "... the extraordinary eligibility requirements for this honor consist in the members having achieved the age of at least 65, and that the sum of age and the number of years in good standing in ASCE total at least 95 ..." They also reap the reward of no longer having to pay National or Local Section dues.

A total of fourteen Certificates were awarded. Six new Life Members were in attendance and received their certificates in person from Mr. Baxter, who recited brief biographies of each as he appeared. They were:

**Daniel T. Birdsall**  
**Isadore Caplan**  
**Lawrence J. Osterhoudt**  
**Alfred O. Quinn**  
**Charles E. Roller**  
**Charles C. Zollman**

The following individuals were not at the meeting, and their Certificates were mailed to them:

**Thomas C. Earl**  
**F. Theodore Embich**  
**John J. Logan**  
**Joseph G. Lorenz**  
**Bernard C. Meltzer**  
**Robert C. Riling**  
**Seymour W. Greenberg**  
**Frank A. Tebo (Deceased)**  
**Frank J. Trani**  
**Joseph M. Cowgill**

The Phila. Section congratulates its newly installed Life Members and wishes them good health and continued active participation in National and Local ASCE affairs.

## MARCH MEETING

**March 10, 1981**      **Engineers' Club**  
**The Alaskan Pipeline**

**Editor's Note:** THE NEWS thanks **Dr. Ziyad I. Husami**, Chairman of the Geotechnical Group, for his expeditious and expert assistance in the preparation of the following write-up. Dr. Husami was the capable Moderator at the March 10th meeting.

**Environmental and Geotechnical Considerations of the Alaskan Pipeline** was the subject of the March Section meeting. Featured speaker was **William W. Moore**, Founding Partner, Dames and Moore, an internationally known Consulting Engineering firm, based in San Francisco, CA, from whence Mr. Moore travelled to speak to us.

## University of Pennsylvania Night

The ASCE Student Chapter and Department of Civil and Urban Engineering of the University of Pennsylvania were tendered special recognition at the meeting. Proclaiming that "... the chain of command is alive and well in the Department ..." **Professor John Keenan** explained his surrogate role as spokesman for other officials of the Civil and Urban Engineering Department who were unable to attend. They included **Dr. John Lepore**, Chairman of the Department. Dr. Keenan introduced faculty members (including Section President-elect **Dr. Frederic Roll**), alumni and students — all of whom altruistically sacrificed the excitement of attending the all important League championship basketball game played that same evening: Penn-Princeton, in order to be at the ASCE meeting.

## Enrollment on the Upswing

Dr. Keenan is encouraged by the significant increase in undergraduate enrollment in the College of Engineering, especially Civils. At a total of 1200 students, enrollment has multiplied 3.5 times its size five years ago. He described the diversity of degree programs, including the progress of the relatively new Bachelor of Applied Science in Engineering, which combines the B.S. with B.A. in Environment Management and Business Administration Economics.

Dr. Keenan reviewed the work progress in improving civil engineering laboratories, particularly in structural development research of earthquake effects, offshore structures, and energy conservation.

Penn's ASCE Student Chapter President **Kevin Sullivan** introduced his fellow officers: **Michael Abate**, Sr. Class Rep.; **John Brubaker**, Secretary; **Joseph Miller**, Treasurer; and **Linda Rank**, Student Liaison Representative to faculty. The Student Chapter officers were guests at the Section's Board of Directors meeting earlier. President Sullivan thanked the Section for its recognition, and he requested that Section members volunteer to speak to the Chapter on their experiences and projects of interest. This would greatly enhance the efforts of the Chapter to indoctrinate students with the goings-on in the engineering world and help prepare them for it upon graduation. He described the satisfactions of the cordial and constructive social rapport which exists between faculty and students.

## Mr. Moore and the Pipeline

Mr. Moore described his firm's involvement with the construction of the Trans Alaska Pipeline, focusing on the unique

geotechnical and environmental aspects of the project. The 800 mile long 48" diameter steel pipeline, constructed from 1974 to 1976, provides about 15% of U.S. demand for oil. On its route from the supply point at Prudhoe Bay south to the year-round ice free port of Valdez, it passes through the 5000 ft. Brooks Range. More than half of its northern route is over continuous permafrost, but the southern 150 miles has no permafrost. The Pipeline project includes hundreds of bridge crossings of various types. The project was originally estimated to cost \$1 billion dollars but ended up costing about \$10 billion dollars, making it the largest privately financed construction project in history.

## The Absence of Precedents

The design effort and the construction were complicated by the lack of similar construction and performance experience in remote cold regions. The environment along the pipeline route was very fragile, representing what many considered the last of a disappearing wilderness. With the 1964 Great Alaska earthquake still fresh in everyone's memory, seismic design was extended to the limits of the state-of-the-art for pipelines at that time. Predicted earthquake-induced liquefaction and possible slope instability of soils along the alignment became major constraints during pipeline routing and construction studies.

## The Challenges of Permafrost

Construction on permafrost presented relatively new problems in pipeline design and construction. Geotechnically, questions such as thaw settlement, thaw plug instability, frozen-soil cut slopes, and pile design in frozen soils had to be studied and answered. Environmentally, thermal/hydraulic erosion, flooding of wetlands due to blockage of surface water flow, with subsequent subsidence, disturbance of stream-side vegetation and bank morphology presented problems to the designers. Biological habitat had to be considered, and construction operations had to allow for uninterrupted migration of animals, avoid areas of nesting birds, and avoid disturbance of delicate fish-life over wintering areas.

Mr. Moore's talk was profusely illustrated with excellent slides, depicting difficult construction operations, the rugged mountain terrain and heavy snowdrifts; the proliferation of roadway and pipeline bridges; spectacular scenery, including lakes and even hot springs; herds of caribou, isolated bear, moose and other animals registering fascinating reactions to the construction.

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## STUDENT CHAPTER NEWS

### 1981 Convention Plans

Two important events will be held at the 1981 ASCE Student Chapter Convention in Philadelphia this Spring. They are:

The 43rd Annual Pa.-Delaware Student Paper Competition Conference, Friday morning, April 24, 1981. Drexel University will host the Conference at its Activities Center.

The 9th Annual Student Chapter Concrete Canoe Race, on Saturday morning, April 25, 1981 - 8:30 A.M. to 1:00 P.M., on the Schuylkill River quarter-mile rowing course near Peter's Island along the East River Drive. The event will be sponsored by the Phila. Section's Associate Member Forum for the fourth consecutive year.

All Phila. Section members are cordially invited to attend both functions, and to root for their favorite schools. Several out-of-town colleges are expected to join the local Philadelphia Section regional Student Chapters in the excitement of the Canoe Races.

For further information on the Student Paper Competition, please call Student Chapters Committee Chairman John Durrant at (215) 686-1776, Ext. 23-246. For details on the Concrete Canoe Race, call Thomas Lauer, President of the Associate Member Forum, at (215) 365-5166.

### MARCH MEETING

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A Question and Answer period followed Mr. Moore's formal talk, in which interesting elements of the design and construction of this unique, gigantic project were discussed. It was an awe-inspiring subject and Mr. Moore's presentation illustrated his well-known authority and knowledge of major works projects of massive scale. The Phila. Section is exceedingly grateful to Mr. Moore for his generosity and consideration in coming from so far away in order to speak to us.

Phila. Section President Joseph R. Syrnick, presiding at the last meeting of his tenure (the April 8, 1981 meeting will be hosted by S.A.M.E.) presented our distinguished speaker the Section's Certificate of Appreciation and a copy of the 1976 Bicentennial ASCE Annual ASCE Convention Commemorative Book published by the Phila. Section: "The History of Civil Engineering and Construction in the Delaware Valley."

## A MESSAGE FROM NEVILLE COURTNEY

The Phila. Section, ASCE has received a communication from Past President Neville C. Courtney (1949-1950), through his friend and professional associate Joel B. Justin, distinguished Section member. Mr. Justin and Mr. Courtney were partners in the Consulting firm of Justin & Courtney for many years prior to its merger into O'Brien & Gere, Inc., in 1974.

With deep sorrow we report that Mr. Courtney's beloved wife, Effie — long an active member of the Section's Women's Auxiliary — died recently in Florida, where the Courtneys have lived since his retirement.

Neville extends his greetings and remembrances to his many Phila. Section member friends and professional colleagues throughout the long years of his affiliation with ASCE.

The Phila. Section extends its heartfelt sympathy to Mr. Courtney on the devastating loss of his dear wife. Our prayers are with him for strength to bear the grief. Mr. Courtney would be pleased to hear from his friends. His address is: Neville C. Courtney, 6152 N. Verdi Trail (BOACA VERD), Apt. H-209, Boca Raton, Florida 33433.

## MEMBERS IN THE NEWS

David W. Connell, Ernest Knight II, and Raymond P. Schiwall announce the formation of OKS Engineers, Inc., a consulting engineering firm specializing in civil and sanitary engineering for municipal, industrial and land development projects. 978 Easton Road, Warrington, PA 18976 (215) 343-5220.

## AEROSPACE COMMITTEE MEMBER SOUGHT

The ASCE National Aerospace Div. Programs Committee is seeking Philadelphia Section representation for the 1981-82 year. The local member would serve as the Aerospace Division's program coordinator for the 1983 National ASCE Convention being held in Philadelphia. A candidate for this position should be associated with and interested in the aerospace field.

Anyone interested in being considered for this position should contact Section President Joe Syrnick at 686-5538. This is a good opportunity to get involved in the big event coming to Philadelphia in 1983.

## WOMEN'S AUXILIARY

### April Meeting

The regular monthly Luncheon-Meeting of the Auxiliary will be held at the Engineers' Club on Wednesday, April 15, 1981, 12:00 noon. Featured speaker will be Mrs. Joan Michel, of "The Michels", musical entertainers. Mrs. Michel's subject is: "A Musical History of America."

### May Meeting at Whitemarsh

The final Auxiliary function of this season is the popular Luncheon-Meeting at the Whitemarsh Country Club, Lafayette Hill, PA, on Wednesday, May 20, 1981, 12:00 noon. New officers for 1981-1982 will be installed. The principal speaker is none other than the 1981 Engineer-of-the-Year, husband of the President of the Women's Auxiliary, Past President of the Phila. Section. Have you guessed who? Yes, it's Bob Koerner, who will explore the treacherously thin-ice topic of: "Why Civil Engineers Make Poor Spouses . . . Or Do They?" This is something you gals simply cannot miss hearing!

Guests are welcome to all Auxiliary events. For reservations to both the April and May Luncheon-Meetings, please call Mary Ellen (Mrs. Warren R.) Van DeVort - (215) 483-0714.

## ASFE SEMINAR

The Association of Soil and Foundation Engineers (ASFE) will conduct its semi-annual Loss Prevention Seminar at the Philadelphia Marriott, City Line Ave. and Monument Road, April 13 - 16, 1981. The Monday meeting of April 13, from 9:00 to 4:00 will be open to all engineering firms interested in learning more about ASFE.

On Wednesday evening, April 15, a "Case History" Seminar is being planned. This will be a panel discussion by four nationally prominent geotechnical consultants moderated by Mr. Don Roberts of Dames & Moore, Los Angeles. These case histories will discuss liability and the practice of geotechnical engineering. We are also planning a special evening seminar principally for the local engineering societies to attend and become familiar with some of the liability issues associated with geotechnical engineering. Tentative arrangements for this Wednesday evening meeting include a cash bar followed by a dinner and then the program, which will be held at the Marriott Hotel. If you plan to attend or have any questions concerning the proposed program, please contact Duffield Associates, Consulting Geotechnical Engineers, Newark, Delaware, Area Code (302) 738-0703.