

the news



PHILADELPHIA SECTION
AMERICAN SOCIETY OF CIVIL ENGINEERS
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OUR 68th YEAR

March, 1981

MARCH DINNER MEETING

Philadelphia Section, American Society of Civil Engineers

TUESDAY, MARCH 10, 1981

Engineers' Club, 1317 Spruce Street

Cocktails — 5:30 P.M. Dinner — 6:30 P.M. Meeting — 7:30 P.M.

(Cocktails 2 for 1 — Downstairs Bar 4 - 6 P.M.)

SUBJECT:

ENVIRONMENTAL AND GEOTECHNICAL CONSIDERATIONS OF THE ALASKAN PIPELINE

SPEAKER:

WILLIAM W. MOORE, Founding Partner, Dames and Moore Consulting Engineers, San Francisco, California

ZIYAD HUSAMI, Chairman, Geotechnical Group

The Alaskan Pipeline is clearly one of the most challenging engineering projects ever attempted. While the technical requirements were significant in themselves, the environmental criteria greatly magnified the scope of the engineering task.

Mr. Moore will discuss many of the design and construction problems encountered on this project and the innovative solutions developed to deal with them.

Mr. Moore is a founding partner of Dames and Moore, an internationally known consulting engineer firm. His major fields of expertise are foundation engineering, soil dynamics and seismology.

Mr. Moore received his B.S. and M.S. degrees in civil engineering from the California Institute of Technology. During his early career he was employed by the U. S. Corps of Engineers and the U. S. Coast and Geodetic Survey.

Mr. Moore has authored numerous papers on a variety of geotechnical topics and has been the recipient of several prestigious awards, among them the Beavers Engineering Award (1977), the San Francisco Building Industry Conference Board Achievement Award (1966) and the American Consulting Engineers Council's Special American Bicentennial Amicus Award (1976).

Mr. Moore has long been active in technical and professional societies. He has served as President of the American Consulting Engineers Council, Chairman of the Building Seismic Safety Council and as Vice-President of ASCE.

SPECIAL EVENT:

PRESENTATION OF LIFE MEMBERSHIP CERTIFICATES

SPECIAL FEATURE:

UNIVERSITY OF PENNSYLVANIA NIGHT

The ASCE Student Chapter, Faculty and Alumni of the Civil and Urban Engineering Department of the University of Pennsylvania will be honored at this meeting. All students, faculty and alumni are cordially invited to attend.



NEXT MONTH'S MEETING

MARK YOUR CALENDAR

JOINT DINNER MEETING

PHILA. SECTION, ASCE

PHILA. POST, SAME

Date: **WEDNESDAY, April 8, 1981**

Officers' Club, U.S. Naval Base, Phila.

Cocktails: 5:30 Dinner: 6:30

Meeting: 7:30

"See List of Meetings — page 2"

TECHNICAL GROUP ACTIVITIES

Hydraulics and Sanitary

March Meeting

Date: **March 11, 1981**

Luncheon 12:00 Noon, Engineers' Club

Subject: **Control System Engineering in the Water and Wastewater Industries**

Speaker: **Joe Mendelsohn**, Clinton Bogart Associates

Program Host: **Clyde S. Younkin**

Chairman, Hydraulics and Sanitary

Mr. Mendelsohn is an instrumentation engineer with many years of experience in the water and wastewater field. He will be discussing various aspects of control system design including defining the role of the sanitary and instrumentation engineers in design, and the need for incorporating all disciplines in the design. Mr. Mendelsohn will also describe the special role of the instrumentation engineer in water and wastewater treatment plant design.

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

No Dinner Reservation Mailing Cards will be sent until further notice. Please call Mr. deKovacs at the Engineers' Club immediately. (215) 735-5234.

STUDENTS — Plan to attend for Dinner (Half Price) or meeting after Dinner.

REMAINING PHILA. SECTION MEETINGS

THE NEWS is now being mailed at Non-Profit Organization Bulk Rate. While this promises postage savings to the Section, it also runs the risk of much longer delivery time from your local post office to your mail box. Therefore, please refer to your 1980-1981 Section Meeting Program Schedule and mark your calendar for all meetings and social functions. Listed below is a summary of remaining meeting dates.

WEDNESDAY, April 8, 1981 — Joint Dinner Meeting with Philadelphia Post, Society of Military Engineers (SAME), at the PHILADELPHIA NAVAL BASE.

Subject: **Modifications and Rehabilitation of the Carrier U. S. S. Saratoga**
Speaker: To be announced

For reservations, please call **Edwin A. Kucerik**, U.S. Army Corps of Engineers, 2nd & Chestnut Sts., Phila., PA 19106, (215) 597-0456, 0457 — by **April 6, 1981**.

Saturday, May 9, 1981 — Annual Spring Social at the Engineers' Club.

Note: This is a change from your Program Card.
This Year's Social is NOT at Bala Golf Club.

READING BRANCH

March Meeting — Joint with ACI

Date: **Thursday, March 19, 1981,**
7:00 P. M. Exeter Diner

Subject: **Congestion and Reinforcement Problems**

Speaker: **Leighton Westlake**, of the Reinforcing Institute of A.I.S.C.

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

SOUTH JERSEY BRANCH

March Meeting

Date: **Tuesday, March 17, 1981**

Subject: **Seminar on Concrete Slab and Paving Design and Construction**

For full details and reservations, please call **Allen W. Osterling**, President, c/o McFarland - Johnson Engineers, Inc., Woodbury, NJ, (609) 845-0529.

WILSON RECEIVES A.I.S.C. AWARD

A highlight of the February 10, 1981 Phila. Section meeting was the presentation by the American Institute of Steel Construction (A.I.S.C.) of its 1980 Prize Bridge Award to Section member **Nathan D. Wilson**, Partner, Yule, Jordan & Associates, for his design of the **Caddell Bridge** over Cheat River, Kingwood, West Virginia.

Also awarded the Prize for the Bridge was **W. P. Dickerson & Son, Inc.**, Youngwood, PA, General Contractor. **Harold Critchfield**, General Superintendent, accepted the award for his company.

The presentation was made by ASCE member **Orley Vaughan**, Executive Assistant to the President of A.I.S.C.; **Frank W. Stockwell, Jr.**, Northeastern Regional Manager; and **Charles J. Murphy**, Regional Engineer.

The Phila. Section is proud that its member **Mr. Wilson** has been so highly honored by A.I.S.C. We appreciate also that **Mr. Vaughan** travelled from Pittsburgh, and **Mr. Critchfield** flew in from Chicago to participate in the Award ceremonies. The Phila. Section congratulates **Mr. Wilson**, his firm, and the Contractor for achieving this high recognition.

WOMEN'S AUXILIARY

The Phila. Section's Women's Auxiliary resumes its 1980 - 1981 season with a Luncheon-Meeting on **Wednesday, March 18, 1981**, at the Engineers' Club, 12:00 noon. Principal speaker will be **Prof. Bernard Brenner** of the Department of Humanities and Communications, Drexel University, on the topic: "New Materials in Sculpture".

Wives of Section Members are cordially invited to attend all Auxiliary meetings, to join the organization and to bring guests. For full information about joining, please call Membership Secretary **Marie (Mrs. Kenneth J.) Zitomer**, (215) 548-5324.

PHILADELPHIA SECTION AMERICAN SOCIETY OF CIVIL ENGINEERS OFFICERS 1980 - 1981

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**COPY DEADLINE FOR
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STUDENT CHAPTER NEWS

Villanova's Ambitious 1981 Season

Villanova University's ASCE Student Chapter is looking forward to a busy and exciting 1981. New officers were elected for this coming Spring and Fall Terms: **John Del Ferro**, President; **Margaret Keenan**, Vice President; **Janine Tobin**, Secretary and **Nancy Sinnott**, Treasurer.

Many plans have been set for the next few months. February 19, 1981 **Patrick Cairo**, from the Research Division of the Philadelphia Water Department, addresses our chapter on the drought situation in the Delaware Valley. There is a volleyball game scheduled against Drexel ASCE on February 22.

Villanova's Annual Career Conference takes place on February 24. The purpose of the conference is to enlighten students of engineering to the many employment paths a student might take. This year's panel included **Chuck Pennoni**, **Dave Ryan** and **Jim Gilliland**.

As always we are looking forward to events later in the Spring, including the Student Paper Competition and Concrete Canoe Race.

NOMINATIONS FOR OFFICE 1981 — 1982

In accordance with the Constitution and By-Laws of the Philadelphia Section, ASCE, the Nominating Committee appointed by President Joseph R. Syrnick has submitted the following slate of nominees for elective office for 1981-1982.

- President —
Frederic Roll (one year)
- 1st Vice President —
Bernard M. McNamee (one year)
- 2nd Vice President —
William M. Malarkey (one year)
- Assistant Secretary —
Judy Y. Longfield (two years)
- Membership Secretary —
David M. Barr, III (two years)
- Assistant Treasurer —
Charles J. Denny (one year appt.)
- Director —
Thomas J. Lauer (two years)
- Director —
Frank Depman (two years)
- Director —
Charlene O'Connor (two years)
- Director —
Reading Branch representative appointee to be announced.
- Offices in which incumbents have one more year to serve are:
- Secretary —
Albert M. Tantala
- Treasurer —
Theodore Davis
- Directors —
Ish K. Aneja
Harold G. Byers
John E. Durrant
- Past Presidents to serve on the Board of Directors are:
Joseph R. Syrnick
Kenneth J. Zitomer
Celestino R. Pennoni

If no additional nominations have been submitted to the President in accordance with the Section's Constitution and By-Laws and filed with the Secretary by April 1, 1981, the above slate of nominees shall be declared elected at that time and will be installed at the Annual Spring Social at The Engineers' Club May 9, 1981.

The Nominating Committee included: Kenneth J. Zitomer, Chairman; Dennis Mohan, Charles Roller, Frederic Roll, John E. Durrant.

FEBRUARY MEETING

February 10, 1981 Engineers' Club
COGNAC Rises from the Gulf

Editor's Note: THE NEWS is indebted to **David M. Barr, III**, Section Director and Vice Chairman of the Structural Group, for his excellent assistance in the preparation of the following article.

The COGNAC Project, an off-shore oil platform located in the Gulf of Mexico 15 miles from the mouth of the Mississippi River, was the subject of the February meeting of the Phila. Section, ASCE. Principal speaker was **Dan G. Godfrey**, Manager of Off-Shore Engineering and Construction, Shell Development Company.

Temple University Night

The meeting honored the ASCE Student Club and the Civil Engineering Department of Temple University College of Engineering Technology.

Dr. Robert J. Stone, distinguished Phila. Section member, Chairman of the Department of Civil Engineering Technology, reviewed the growth (200 students this year) and happenings in the two principal Divisions of the Department: Construction Management; and Structural Design and Architecture. Dr. Stone described the ambitious course programs current and planned at the three campuses: Broad and Norris Sts., Center City and Ambler — covering all areas and specialties of civil engineering technology.

Dr. Stone introduced **Dr. Robert M. Haythornwaite**, Dean of the Temple University College of Engineering Technology; and **Frank Gerace**, President of the ASCE Student Club. Mr. Gerace presented his fellow officers: **Thomas Vine**, Vice President; **Gary Mueller**, Secretary; and **David Iacona**, Treasurer. Frank expressed the Club's appreciation of the honor accorded it by the Phila. Section, and he promised to maintain liaison with the Section. The Student Club's membership has grown to an impressive 64 this year.

Mr. Godfrey and COGNAC

Dan Godfrey made an impressive presentation on COGNAC, the world's tallest offshore oil platform. Mr. Godfrey graduated from Washington State University and currently works in New Orleans. A well groomed gentleman with a neatly trimmed beard, he displayed a relaxed yet enthusiastic style of delivery.

The COGNAC platform was the winner of the Outstanding Civil Engineering Achievement Award for 1980. The plat-

form stands in 1,025 feet of water in the Gulf of Mexico, 12 miles offshore from the mouth of the Mississippi River. The total cost of the platform was \$295 million and the total for this project is over \$800 million. The name COGNAC was actually a code name for the particular leased tract on which the platform was to be built. The platform function is to provide all services for two drill rigs which pump both oil and natural gas through a 12" pipeline to shore for processing. The pipeline's capacity is currently 12,000 barrels per day.

Complex Problems

The structural problems posed by this undertaking were considerable. For example, the loads included a design wave of 70 feet in height with an 11.5 second period and a 4.5 feet per second surface current. Wind loads were 125 mph for the platform and 150 mph for deck equipment. The structure was designed and analyzed for static, dynamic, and fatigue loads. Two impressive figures are the lateral loads of 14,500 kips and axial pile loads of 8,600 kips.

The foundation soil was a soft under-consolidated clay into which piles were driven to a depth of 450 feet at a penetration of 20 blows per ft.

The platform was built in three sections which were connected remotely undersea because there was no equipment available to haul the fully assembled platform and because of the risk of hurricanes. The platforms dimensions and statistics are staggering. The base is 380' x 400' with 7' diameter legs. The connector and cross brace members are 36" and 48" pipes. The platform is over 70,000 square feet and certain pinned joints are 2½" to 3" thick due to fatigue loads. The platform weighs 59,000 tons.

The method of erection involved three sections of tower erected over two summers. Initially the base was brought to the site in a barge and lowered onto piles. Other piles were stabbed through the base and driven by an underwater hammer. This operation was controlled from the surface via umbilical cords. During the second summer, the mid section and top section were barged to the site, lowered, and installed. Six foot diameter pins were inserted through the legs to insure integrity. Then the platform was erected in six main sections.

Exotic Mechanical, Electrical Systems

Several special systems were developed by Shell to facilitate the underwater installations. A unique system to control flooding the submerged tower sections (continued on page 4)

FEBRUARY MEETING

(continued from page 3)

was controlled through an umbilical cord. The hammer handling system with power packs and hose reels was necessary to perform the underwater pile driving. Pile grouting was controlled through remote systems as was the alignment and docking. Special shock absorbers were needed to aid in joining the tower sections and motion compensators were devised for each crane handling submerged members. Considerable diving was necessary to handle hoses, grouting operations, observe alignment, etc. and this was accomplished using saturation diving techniques in which divers stayed below for up to 30 days. A total of 634 hours of diving was accumulated at a cost of about \$4 million.

Instrumentation used in the erection process played an important role in monitoring the alignment, gathering data from the pile driving and grouting operation, monitoring weather and currents, communicating among teams and training personnel via simulators.

The platform design began shortly after the Shell Oil Company bought the leases to the offshore tracts in 1974. By late 1977, the base section was complete and by the end of 1978 the entire platform was erected. Production commenced in 1979 when the pipeline was complete. Full production should be reached by 1982.

Mr. Godfrey's splendid slides revealed spectacular feats of fabricating technology on the ground, pre-assembly of sections, barging to the site, and lowering in place, with not a single devastating miscalculation or catastrophe in which assemblies misaligned or sank uncontrolled or out of balance.

There was a stimulating Question and Answer discussion between Mr. Godfrey and the audience on this monumental engineering achievement, superbly described by our distinguished speaker.

An astonishing statistic Mr. Godfrey mentioned in an informal group discussion following his formal presentation is that the **total production of this platform in its anticipated 30-year life would satisfy the petroleum energy needs of the United States for but four days — maybe five!**

President Synchron presented Mr. Godfrey 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."

SID SHORE, SCULPTOR

Editor's Note: The April, 1974 issue of THE NEWS published a "Section Profiles Special" which revealed insight to the superior talents and character of **Dr. Sidney Shore**, prominent Phila. Section member and former Head of the Dept. of Civil and Urban Engineering at the University of Pennsylvania.

The following article, authored by Past President **William Padlasky**, a close friend of Dr. Shore's, unveils yet another extraordinary gift with which our distinguished colleague is endowed.

It never fails to amaze us when we learn that one of our fellow engineers is interested and talented in fields other than engineering. Somehow, we classify ourselves in fields which have little to do with art. We know that many of our engineer friends enjoy the pleasures of listening to music and some even play musical instruments, but painting or even the enjoyment of painting, usually is not our "long suit".

One of our own engineers who has found enrichment and satisfaction in his artistic talents is **Dr. Sidney Shore**. Yes, the same Sid Shore who holds a Ph.D. from Harvard and with a Fulbright Grant in Sweden, served as Head of the Department of Civil and Urban Engineering at Penn. Sid actively exhibits an interest and an ability in the art of sculpting.

We recently attended a showing of sculptured works by Sid Shore. Five of his works were on display at the Faculty Club of the University of Pennsylvania. The exhibit ran from January 13 to February 20, 1981. The subjects were varied and they displayed Sid's wide-range knowledge, from reality to abstract. We normally expect an engineer to show his talent in his attention to reality and to detail, and we are surprised by his understanding of the less concrete forms of artistic expression. Three of the five works on display definitely showed this knowledge. These works he calls "The Urban Face", "Callipygian Woman" and "8th Version of Brancusi's - The Kiss".

We were particularly interested in his very realistic busts of Albert Einstein and of Benjamin Franklin. He has captured an amazing likeness of these two giants of scientific accomplishments. Sid proudly boasts of serv-

ing on the faculty at Princeton University during Einstein's residency there. He had several conversations with Dr. Einstein and prominently displays an autographed photograph of the master scientist. Sid used this as a model for the sculptured work. The work itself is truly an inspired piece of art.

It was a fulfilling experience for those of us who were privileged to see and enjoy this outstanding exhibit.

We congratulate Sid on this fine display of artistic talent. We urge Phila. Section, ASCE members to make every effort to see these fine works when they may be exhibited at a later date.

COMPUTER SEMINAR

Boeing Computer Services Company is pleased to announce that it will host 2 free seminars at the Engineers' Club on **March 31** and **April 1, 1981**.

Conducting the Seminars for BCS will be **Dr. Michael A. Stoner, P.E.**, of Stoner Associates, Inc.

At the first seminar on **March 31**, Dr. Stoner will discuss the LIQSS* and LIQT* simulation techniques that assist many engineers to:

1. Model a network system that is in the design stage.
2. Perform corrective design changes to systems which have been operational and have experienced flow problems.

The LIQSS* analysis is acknowledged as the most versatile and proven tool for steady-state piping network simulation in the industry.

Dr. Stoner, President of Stoner Associates, Inc. is an internationally prominent consultant in fluid flow studies, and served as Chairman of the Fluid Transients Committee of the Fluid Engineering of ASME.

The second seminar on **April 1**, also to be conducted by Dr. Stoner, will discuss the GASSS* and GASUS* techniques that assist many engineers involved in gas pipeline considerations and modeling.

Reservations and agendas for either or both of these seminars can be made or obtained by contacting: Peter G. Tolenti, Engineering Services Specialist, Boeing Computer Services Co., 2000 Market St., Phila., PA 19103, (215) 567-3956.

* Note: LIQSS, LIQT, GASSS and GASUS are proprietary services of Stoner Associates, Inc.

PLAN NOW TO ATTEND THE ANNUAL SPRING SOCIAL — SATURDAY, MAY 9, 1981 AT THE ENGINEERS' CLUB — FUN, MUSIC, DANCING! FULL DETAILS IN THE APRIL - MAY ISSUE OF THE NEWS.