

PHILADELPHIA SECTION

AMERICAN SOCIETY OF CIVIL ENGINEERS

1317 Spruce Street, Philadelphia, Pa. 19107

VOL. 51 - 6

Our 66th Year

March, 1979

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MARCH MEETING

Philadelphia Section, American Society of Civil Engineers

TUESDAY, MARCH 13, 1979

Engineers' Club, 1317 Spruce Street, Philadelphia

Cocktails — 5:30 P.M.

Dinner — 6:30 P.M.

Meeting — 7:30 P.M.

SUBJECT:

ATLANTIC CITY MASTER PLAN

SPEAKER:

ANGELOS C. DEMETRIOU, A.I.A., Architect-Urban Planner Office of Angelos C. Demetriou, A.I.A.

PROGRAM HOST:

ERNEST G. BRIZELL, III

Chairman, Transportation and Urban Development Group

HONORED GUEST:

JOSEPH S. WARD, President-Elect, American Society of Civil Engineers



With the advent of casino gambling, Atlantic City embarked on the development of a Resort Master Plan beginning in early 1977. An urban planning team, headed by Mr. Demetrious, was hired to perform a five-stage study, encompassing economic, engineering, environmental, transportation, social, zoning and land use planning concerns for the resort city. In Nov. 1978, the draft final plan was presented to Atlantic City. Various city agencies are currently reviewing the plan.

Mr. Demetriou's presentation will utilize two slide projectors to graphically portray the elements of the Master Plan.

Angelos C. Demetriou was born in Cyprus and studied architecture in Greece. He began practicing architecture at age 23 in Cyprus and, prior to beginning his own firm, oversaw the United States projects of the Greek firm Doxiadis.

He has won numerous awards, and also completed urban design studies for American cities; as well as projects overseas, including the master plan for the resort city of Famagusta, Cyprus.

SPECIAL EVENT:

LIFE MEMBERSHIP AWARDS

WIDENER COLLEGE NIGHT

The ASCE Student Chapter members, faculty and alumni of the Civil Engineering Department of Widener College will be honored at this meeting. All students, faculty and alumni are cordially invited to attend.

Mail Reservation Cards Immediately or call Mr. deKovacs at the Engineers' Club — 735-5234 Win a FREE DINNER!

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

TECHNICAL GROUP ACTIVITIES

Geotechnical

Date: Tuesday, March 20, 1979 7:00 p.m. — Engineers' Club Subject:

Rock Drilling Methods and Equipment Speaker: Joseph Ofalt

Sprague and Henwood

Program Host: Scott A. Fritzinger

Chairman, Geotechnical Group

The speaker will discuss current drilling and sampling procedures in various rock types. Types of coring methods, bits and barrels shall be explained and illustrated.

Refreshments are served.

Hydraulies and Sanitary

Date: Wednesday, April 4, 1979

Luncheon Meeting — 12:00 Noon

Engineers' Club

Subject: Dual Water Supply Systems Speaker: Dr. Arun K. Deb

Roy F. Weston, Inc.

Program Host: Dr. Edward F. Gilardi Chairman, Hydraulics and Sanitary

The speaker will discuss the technical and practical aspects of dual water supply in order to meet projected water quality criteria.

For details and reservations, contact Clyde S. Younkin, Greeley and Hansen, (215) 563-3460.

Structural

Date: Wednesday, March 21, 1979 Luncheon Meeting — 12:00 Noon Engineers' Club

Subject: Precast Concrete High-Rise Construction in Saudi Arabia

Speaker: John J. Cryan, Partner, Severud-Perrone-Sturm-Bandel, Consulting Engineers, New York, N.Y. Program Host: Dr. Ish Aneja,

Chairman, Structural Group

(continued on page 4)

STUDENT CHAPTER NEWS

Villanova University

by Mark Zimpelman

Under the direction of newly elected officers, the Villanova University Student Chapter of the ASCE has begun the 1979 year with a full program of meetings, field-trips, social activities, and special projects.

At the January monthly meeting the new executive officers were introduced to the student members. The 1979 Villanova ASCE Officers are:

Mark Zimpelman - President Patricia O'Loughlin - Vice President Maryanne Ricca -- Secretary Steve Casper - Treasurer

Calendar of Events

At this time the ASCE Calendar of Events was planned for the upcoming semester.

First on the schedule was the participation in a charity basketball game for the Montgomery County Association for Retarded Children. A fine array of Villanova ASCE basketball talent paraded the court for a very worthy cause. Engineers' Week Participation

Students were involved in a wide variety of programs during Engineers' Week in the Delaware Valley. Some of the highlights were Villanova's Engineering Convocation, Open House, and ASCE Demonstrations. The February Monthly Meeting was also held during this busy week. The guest speaker was Mr. Albert Depman who discussed current topics in Geotechnical Engineering. On the social side, the student chapter attended the Big Five basketball game between Villanova and the University of Pennsylvania. A proposed clash on the hardwood between the school's ASCE Chapter was delayed by Penn's night at the Engineers' Club, however, a change of month and sport will bring the Chapters together in a volleyball game.

March Programs

As we arrive back from a "well deserved" semester break, the month of March again brings numerous programs. The annual Engineering Career Conference (March 14th) will invite various professionals in civil engineering to discuss the employment outlook for undergraduate engineers. The March Monthly Meeting is tentatively scheduled for March 21 with the topic of discussion to be the Alaskan Pipeline. This month will also see the construction of our entry in the "renown" Philadelphia Section ASCE Concrete Canoe Race. Other Chapter activities planned are a local field trip and invovlement in volunteer programs on campus.

NOMINATIONS FOR OFFICE

1979 - 1980

In accordance with the Constitution and By-laws of the Philadelphia Section, ASCE, the Nominating Committee appointed by President Chuck Pennoni has submitted the following slate of nominees for elective office for 1979-1980: President -

Kenneth J. Zitomer (one year) 1st Vice President -

Joseph R. Syrnick (one year) 2nd Vice President -

Frederic Roll (one year)

Assistant Secretary -

William M. Malarkey (two years) Assistant Treasurer -

Charles J. Denny (one year appt.) Membership Secretary

John W. Schumann (two years) Director —

John W. Carroll (two years)

Director -James D. Leasure (two years)

Director ---

David M. Barr, III (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 — George N. Bathish Bernard M. McNamee William J. Parente

Past Presidents to serve on the Board of Directors are:

Will M. Heiser

Brian J. Lewis

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, 1979, the above slate of nominees shall be declared elected at that time, and will be installed at the Annual Spring Social at Bala Golf Club May 5, 1979.

The Nominating Committee included: Brian J. Lewis, Chairman; Theodore Davis, Sidney Robin, Norman G. Weintraub, Kenneth J. Zitomer.

Praise to Past Officers

In closing, everyone involved with the Villanova ASCE would like to commend and thank the officers of the past year for such a fine job done, and the present officers look forward to an exciting and satisfying year. We would like to invite all interested to attend our monthly meetings and encourage student chapters to contact us concerning intercollegiate activities

AMERICAN CONCRETE INSTITUTE

Delaware Valley Chapter

March Meeting

Joint Dinner Meeting with Reading Branch, Phila, Section, ASCE

Date: Thursday, March 15, 1979

Green Valley Country Club, Reading

Subject: Legal Responsibilities of the Field Engineer

Speaker: Raymond Drozdowski, Esq. Attornev-At-Law

For reservations and further information, call or write, Michael Boyle, c/o Valley Forge Laboratories, 6 Berkeley Road, Devon, Pa. 19333, (215) 688-8517.

PHILADELPHIA SECTION AMERICAN SOCIETY OF CIVIL ENGINEERS

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Robert M. Koerner

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Joseph R. Syrnick

Assistant Chairman and Associate Editor Staff Writer

John E. Spitko, Jr.

Associate Member Forum News Editor William J. Parente

> Publications Coordinator Albert M. Tantala

SEND COPY TO:

Sidney Robin 64 Nancy Drive Richboro, Pennsylvania 18954

Phone: (215) 322-7464

COPY DEADLINE FOR APRIL-MAY 1979 ISSUE MARCH 13, 1979

1979



Philadelphia Section ASCE SALARY AND BENEFITS SURVEY

In order to aid our members and their employers to determine, intelligently, satisfactory salaries and benefits, the Philadelphia Section of the American Society of Civil Engineers is making a bi-annual survey of its members. Please complete this questionnaire, fold so that the Engineers' Club address is on the outside, staple, and return as soon as possible so that the results will be timely and useful.

A	PERSONAL DATA	2. Primary Responsibility	8. Accident Insurance			
	1. Age	(Check one)	yes no			
	Years of full-time employment Years since first degree	Technical Sales	mbana.			
		Supervisory	9. Disability Insurance			
		Administrative	yes no			
		Other (explain)				
	4. Education (Check highest level)					
	No Degree	2 Number of different applications	If yes: % of salary			
	Bachelor's Degree	3. Number of different employers since graduation	% comp. paid			
	B. S. Degree $+$ 15 hours		ve comp. para			
	Master's Degree	4. Years with current employer	10. Pension Plan			
	Doctorate Degree		yes no			
	5. ASCE Membership Grade					
	Associate C	BENEFITS	If yes:			
		1. Salary (incl. normal overtime)	% comp. paid			
	Fellow	based on	Employee contrib.			
	Life	per yr.	(% of salary)			
	6. Registration		yrs. to fully vest			
		2. If bonus or commissions are	min. age to receive			
	yes no no. states EIT PE LS	paid in addition to above salary, indicate expected amount per	pension			
		year	mandatory retirement			
			age			
		3. Vacation (incl. Admin. Leave,	13 The 25 Jun 2			
	7. Other Membership	Personal Days, etc.) days	11. Profit sharing			
	Indicate the number of Profes-	4. Holidays days	yes no			
	sional / Technical Organizations	5. Sick Leave (no. days in each				
	other than ASCE of which you are a dues-paying member (i. e.	category)	12. Formal severance pay policy			
	N'SPE, ACI, AWWA, ASTM,		yes no			
	etc.)					
		50 - 69% salary	10.00			
ю т	EMPLOYMENT DATA	Other (explain)	13. Continuing Education tuition			
ВЕ	EMPLOTMENT DATA		reimbursement			
	1. Type employer or self-employ-	Indicate max. number of sick	yes no			
	ment (check one)	days that may be accrued	If yes:			
	Consultant	6. Hospitalization Insurance	max. %			
		% comp.				
		yes no paid	D OPINIONS			
		Self				
		Family	1. Do you feel that a bi-annual			
		7. Life Insurance	salary survey is			
	Manufacturer Education Sales Other (explain)	yes no	yes no			
			a Useful to you			
		If yes:	b Appropriate for			
		amount	Phila. ASCE			
		% comp. paid	c A waste of time			

2.	Do you believe your salary, considering your experience and ability, compared to other Civil Engineers, is:		4.	To improve any of the following would you consider joining a la- bor union or employees' associa- tion				b
	much lower lower similar higher much higher			salary benefits security work, co	union yes no		no	· ·
3.	Do you believe your frifts, compared to other gineers, are: much lower lower similar higher much higher		5.	Do you the followante Register the results of the r	agree or disputing statem stration should be equired for a neers as a continuation of continuation of the continuation of the equirent of the equirement of	sagree .ents? ag. ld .ll n-		
		Additional	comme	ents and	suggestions	for 1	future	questions:

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Continuing Education should be required to maintain registration.

Consulting work may be competitively bid when the requirements are reasonably well de-

fined.



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FEBRUARY MEETING

February 13, 1979 Engineers' Club

Editor's Note: THE NEWS thanks David M. Barr, III, Vice Chairman, Structural Group, for his excellent writeup of the technical portion of the following article.

The great turnout — more than 125 members and guests — in the face of the bitter cold and snow-clogged streets of the city and suburbs, is a testimonial to the fortitude and dedication by the Phila. Section ASCE Membership, to its causes and efforts. The subject of the regular monthly February meeting was: The Teton Dam Failure — An Update. Principle speaker was E. Montford Fucik, Chairman Emeritus, Harza Engineering Company. Mr. Fucik braved the frigid elements, traveling from Chicago especially to speak to us.

The meeting was arranged and sponsored by the Section's Structural Group; and its Chairman, Dr. Ish Aneja, was the genial Program Host.

Happy Hour before the meeting was sponsored courtesy of Aerial Data Reduction Associates, Pennsauken, N.J., whose representatives described some of the services exhibited at the meeting. The company offers aerial photography, photo-interpretation, and stereo-photogrammetric mapping services.

Univ. of Pa. Night

The Civil Engineering Department and ASCE Student Chapter of the University of Pennsylvania were tendered special recognition at this meeting. Dr. John Lepore, Chairman of the C.E. Department, introduced the distinguished faculty members present: Dr. Sidney Shore, Past Chairman; Dr. Frederic Roll, Prof. of Civil Engineering, and Vice President designate of the Phila. Section next season; and the more than 35 students and alumni in attendance.

Dr. Lepore described the growth in Engineering School enrollment and particularly in civil engineering; the introduction to the curriculum of the Bachclor - of - Applied - Science - in - Engineering degree; dual degree programs combining the B.S. with B.A. in Environment, Management and Economics, and others. He reviewed the expansion, current and projected, in the physical plant of the Engineering School, developmental research facilities, faculty and staff. In sum, Dr. Lepore's remarks testified to dynamic and innovative programs in store at the University,

Miss Randy Heskins, President of the

ASCE Student Chapter at Penn, presented other officers and members. She delineated the varied activities and events planned for this year. These include: participation in the Concrete Canoe Race this spring; engineering educational films; programming speakers on various civil engineering specialty subjects for Chapter meetings; and other technical, social and athletic events. Miss Heskins proved herself to be an amiable, witty and articulate speaker, and drew a very appreciative response from the audience.

The Teton Dam

The principle speaker of the evening, Mr. E. Montford Fucik, Chairman Emeritus of Harza Engineering Company in Chicago, began his presentation with a description of the Teton Dam and its failure. The Teton Dam is a typical earthfill dam located on the Teton River in eastern Idaho. The dam rises to 305 feet above the riverbed and the crest is about 3000 feet along. The dam, built by the Bureau of Reclamation, cost \$86 million and was intended primarily to provide water to irrigate thousands of acres of farmland in the Upper Snake River Valley in Idaho. The embankment was topped out in November 1975 and the reservoir was just fifteen feet short of full capacity when the failure occurred on June 5, 1976.

By late June, the Independent Panel was assembled and its membership included Arthur Casagrande, Wallace Chadwick, Chairman, H Bolton Seed, Howard A. Coombs, Thomas M. Leps, Munson Dowd, Ralph Peck, R. Keith Higginson, and Ed Fucik. They began their investigation immediately by touring and inspecting the site, studying plans, construction records, and preparing excavation plans.

Catastrophic Failure

After these introductory remarks, Mr. Fucik showed a film of the failure which was prepared by the Bureau of Reclamation. The color movie presented the failure in startling and dramatic realism. As soon as the first leaks were found, trucks and dozers brought fill material to close the holes, but to no avail. Moments before the collapse the drivers and operators fied for their lives. The rushing water pushed millions of cubic yards of material down into the river, burying the power plant and raising the river bed almost seventy feet. The muddy torrents equaled the flow of the Mississippi River at New Orleans and inundated the town of Rexburg, Idaho. As the movie showed the dam's fill material being swept away, Mr. Fucik explained that Rexburg suffered the loss of eleven people and \$400 million in property under ten to twelve feet of water.

Theories Described

Following the movie, Mr. Fucik used a series of color slides to illustrate the failure mechanism and to present various theories on why the dam failed. Most investigators explain that the failure mechanism was piping, a condition in which water seeping through the fill material erodes small passages which gradually grow larger and larger. The flowing water passed over the grout curtain through the key trench. Just what caused the open passage through the key trench has not been clearly explained. Some investigators feel the piping began near the base of the key trench due to water passing beneath the key trench through windows in the grout curtain. Others suspect the first openings were caused by hydraulic cracking, i.e., cracks and splits in the fill material caused by high water pressures. A third possibility indicates failure was initiated by differential settlement.

Independent Panel Report

Since the Independent Panel Report in January 1977, further excavations by the Bureau of Reclamation at the site have uncovered a large (almost five acres) wet area within the fill material nearly one hundred feet above the river. Mr. Fucik showed much personal interest in this discovery and explained the relation of the wet area to the 1974-75 winter shut down line. He felt that no evidence led to construction errors since accurate records and careful inspection procedures were maintained throughout the construction.

Enthusiastic Q and A Period

By his own description, Mr. Fucik is "all wound up ..." in this subject and he encouraged comments and questions from the audience. His answers to the queries exuded unrestrained enthusiasm, and this phase of his talk was a tableau and lecture in itself. Only the lateness of the hour forced its termination.

Mr. Fucik's outstanding and enlightening presentation was warmly received and greatly appreciated by the Philadelphia Section audience. At the conclusion of his address and the Question and Answer period, President Pennoni presented him the Section's Certificate of Appreciation and a copy of The Book. (If you don't know what The Book, is, please write to Publications Chairman Sid Robin (see page 2) and he'll tell you in 2 or 3 thousand words).

CONCRETE CANOE RACE

The date for this year's Annual Concrete Canoe Race is all set: Saturday, April 7, 1979, from 9 a.m. to 2 p.m., at the usual location, the Schuylkill River rowing course along East River Drive in Fairmount Park. A total of fourteen colleges and universities have been invited to vie for honors in the following categories:

- * Best constructed canoe
- * Best decorated canoe
- * Races --- Men, Women, Faculty, Mixed (one man, one woman per boat)

Last year's races were very well attended and we're looking for an even better turnout this time around. All Section members, families, friends—everyone is cordially invited to attend.

Arrangements for the popular event are being coordinated by Section Assistant Secretary Bill Malarkey.

THE INIMITABLE TANTALA-DAVIS COLLABORATION

Once again Section Secretary Albert M. Tantala and Treasurer Theodore Davis have pooled their inexhaustible talents to produce and submit to ASCE National Headquarters the magnificent Annual Report of The Philadelphia Section, ASCE, Fiscal Year October 1, 1977 to September 30, 1978.

As required by the Society By-laws, the Annual Report of Section Activities and Finances summarizes programs and operations. It includes data on the Reading Branch, Technical Groups, Committees, Publications, Associate Member Forum, Student Chapters, Women's Auxiliary and other subsidiary affiliations.

The Report conveys information helpful to the National Board of Direction, Committee on Local Sections and District Councils, Headquarters Staff and other Sections - in evaluating Phila. Section affairs. It is also a prime prerequisite to the payment by National of the annual allotment to the Section.

This year's volume features comprehensive descriptions of the Section's activities within Intersociety organizations such as ETSCO, Engineers' Week Committee, Phila. Urban Manpower Program (PUMP), Construction Career Day Committee, N.J. Industry Advancement Fund, Community Action Services Groups, Academy of Political and Social Science, and many others.

The Phila Section is deeply indebted to its esteemed Secretary and Treasurer for their extraordinary efforts.

SOCIETY LAUNCHES CAMPAIGN

This spring National ASCE is launching a new national advertising campaign to enhance the public's view of civil engineers and their profession. Our members and their work are going to be heroes of the ads since each of the advertisements will feature an individual civil engineer.

To give the public an understanding of the contribution that civil engineers make to the lives of us all, each of the planned advertisements will feature a civil engineer talking about a project in which he has been involved which has had a positive affect on the lives and well-being of people.

It could relate to any area of human concern, but the areas of environmental improvement, energy conservation, urban planning and transportation are particularly relevant.

Editor's Note: An early issue of THE NEWS will feature a proposed Philadelphia Section local program inspired by National ASCE's Campaign.

LEGISLATIVE REPORT

A comprehensive report was submitted to District 4 Director Ronald J. Drnevich by Phila. Section President C. R. Pennoni, Chairman, Legislative Committee, District 4.

The committee has reviewed approximately 800 pieces of legislative bills to determine those which may be of interest to the engineering community. These have numbered about forty-seven (47). The committee has studied these to determine if any action should be taken and what action if any was being taken by other engineering organizations.

Copies of the Report were sent to several concerned individuals, including officials of all District 4 Local Sections and Legislative Committee activists of the Phila, Section.

Details of the report will be published in subsequent issues of THE NEWS.

Interested individuals may make inquiries by contacting Mr. Pennoni at his office:

Pennoni Associates, Inc. 2006 Walnut St., Phila., Pa. 19103 (215) 561-0460.

TECHNICAL GROUP ACTIVITIES

(continued from page 1)

Transportation and Urban Development Sponsor of Main Section Meeting Tuesday, March 13, 1979

CIVIL ENGINEERING SPECIAL ISSUE

Civil Engineering — ASCE has published a special volume featuring highlights of civil engineering history. This unique publication, containing no advertising, features thirty-one articles and illustrations reprinted from earlier issues of the magazine. The articles span subjects ranging from the beginnings of Philadelphia as a planned city in 1683, to such current topics as why design/constnuction firms have grown so strong in recent decades.

This special issue is more than an overview of the history of civil engineering profession; it also covers topics such as engineers as managers and leaders, and includes a commentary on the writings of Thorstein Veblen, a brilliant American social philosopher.

It is believed to be important for students to know the profession's history, for "If we don't know where we've been, are we likely to have as good a fix on where we want to go?

The 168 page publication is available from the American Society of Civil Engineers, 345 East 47th Street, New York, N.Y. 10017, at a \$4.00 cost to members and a \$8.00 cost to non-members. Libraries may purchase copies for \$6.40.

Phila. Section Publications Chairman Sidney Robin received a complimentary copy, and he highly recommends this superlative volume, which was published to celebrate ASCE's 125th Anniversary.

WOMEN'S AUXILIARY

After a two-month hiatus, the Section's Women's Auxiliary is happy to announce resumption of its regular monthly Luncheon-Meetings.

On Wednesday, March 21, 1979, Auxiliary Past President Audrey (Mrs. Will M.) Heiser will escort her audience on a "Trip Through the Orient." This should be an especially enriching experience, because it will reflect Audrey's and Will's recent year-long assignment, by his firm, in that area of the world.

All Auxiliary members and their guests are cordially invited to attend this meeting (and all other Women's Auxiliary meetings and functions). In addition to the pleasantries and friendships renewed and engendered, Audrey's presentation is certain to be exciting and memorable,

For reservations and further information - including joining the Auxiliary please call Mary Ellen (Mrs. Warren R.) Van De Vort - (215) IV 3-0714.