

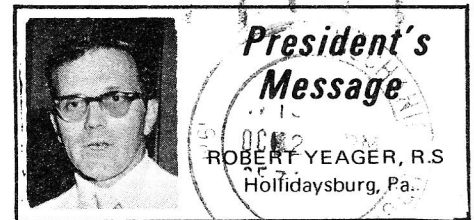
The A.S.H.E. SCANNER

VOLUME XI, NO. 1

THE AMERICAN SOCIETY OF HIGHWAY ENGINEERS

SEPTEMBER 1974

President Robert E. Yeager Assumes Leadership At Seven Springs



As your new President writing September's Message, my thoughts are concerned with the New Administrative Year for the Society. The Committees have been selected and the very capable Chairmen and members have acknowledged their appointments.

Much discussion and thought has been and will be given to the New Sections Committee activities. During the past year the ground work has been started for a Section in New Jersey. It is my sincere hope that it will materialize this year. Other areas are being explored for expansion and the Committee is confident that preliminary contact can be made in at least two additional areas.

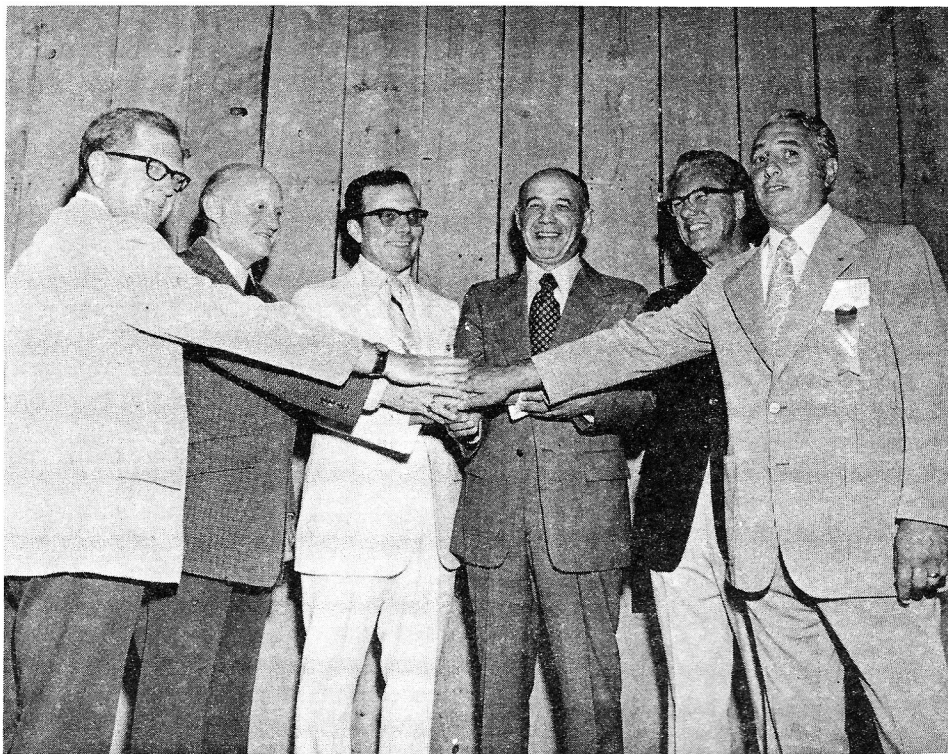
It is our responsibility to strengthen our Sections from within. Emphasis must be shown within each Section to increase its membership to sustain our growth.

Efforts must be made through the Public Relations Committee of each Section, and each individual member, to present to the public the true information regarding proposed highway projects and highway legislation. Do not let the slanted views of local action groups go unchallenged to later be quoted as "Gospel" by the general public. This should be the year for your Section to become more active in local civic affairs.

It is my desire to attend as many Section meetings as possible this coming year.

The Executive Committee and Board of Directors' meetings will be held, when possible, at various geographical locations with the thought in mind of the local Section Officers attending.

The Pittsburgh Section is to be highly commended for the excellent planning and presentation of the Twelfth Annual Convention at Seven Springs. My wife and I are deeply grateful for the hospitality. †



Dave Sims, James Weaver, Robert Yeager, Jacob Kassab, Don Rimmer and Anthony Gaeta

Youth Traffic Safety Conference October 11-14

The Governor's Youth Traffic Safety Council of Pennsylvania will be holding its Third Annual Conference at the Host Inn of Harrisburg, October 11-14, 1974. Approximately 100 youth delegates and 29 adult advisors, representing the over 800 member statewide youth group, will be in attendance.

On October 11, they will be joined by the Citizens Advisory Committee of the Governor's Traffic Safety Council, which will be holding its annual business meeting. The CAC/GTSC is composed of 99 individuals, reflecting both their own

personal interest and, in some instances, the concerns of a statewide organization they represent for the cause of traffic safety.

The Cabinet officers who comprise the Governor's Traffic Safety Council will join the youth and citizen groups for a banquet on the evening of October 11. Scheduled as main speaker is the Honorable Milton J. Shapp, Governor of the Commonwealth of Pennsylvania.

The remainder of the youth program includes a 'convention' day on October

Continued on Page 3.

TECHNICAL CROSS SECTION*John H. Leapson, P.E.***CASE HISTORIES OF
CONCRETE PAVEMENTS**

Continuously reinforced concrete pavements have generally performed well in most areas of the United States, according to case histories published recently by the Transportation Research Board in the form of Transportation Research Record 485, "Pavement Design and Continuously Reinforced Concrete Pavement Performance." The Record contains six reports presented originally at the Board's 53rd Annual Meeting in January 1974.

Results of a 1972 statewide study of continuously reinforced concrete pavements in Indiana and a summary of factors affecting performance are reported by Professor Eldon Yoder and Asif Faiz (Purdue University). The comprehensive performance study showed that subbase type was found to be a significant factor in performance, with gravel subbases having the poorest record. Crushed stone and slag subbases have generally performed well and, at the time of the survey, bituminous stabilized subbases showed little or no distress.

With all other factors constant, loose bars and welded wire fabric showed good performance. Bar mats, used mainly on some of the earlier projects, showed the poorest performance. However, pavements reinforced with bar mats have been exposed to a wider range of environmental and traffic conditions. Depressed steel had significantly better performance than pre-set steel used on chairs.

The researchers point out that much of the distress takes place during winter, suggesting that extreme temperature drops have a major effect on performance.

Virginia's 185 miles of continuously reinforced concrete pavements have performed well except in cases where design or construction technology were deficient, according to K. H. McGhee (Virginia Highway Research Council). He reported that the earlier pavements were built on unstabilized subgrades and subbases and contained both longitudinal and full transverse reinforcement. Design evolution later led to use of cement stabilized subgrades and subbases and pavements containing only longitudinal reinforcement with transverse tie bars between 12-foot lanes. Similarly, slipforms have replaced side-forms in the placement operation.

Cracks tend to become more closely spaced and to develop greater surface

widths during the first two to three years of pavement life. While crack spacing can be influenced by weather conditions during pavement placement, there is no apparent relationship between crack widths and either crack spacing or placement weather.

Laboratory studies show that no definite crack exists at the surface of the steel for any of several cores examined. Thus, McGhee concludes, the cracks present no threat of steel corrosion and the steel is functioning properly to restrain the concrete so that fine, harmless cracks develop at relatively close intervals.

A method of selecting optimal pavement designs considering reliability, performance, and costs is described by Michael I. Darter, W. Ronald Hudson, and Ralph C. G. Haas (University of Texas). For any given project there are usually several.

Transportation Research Record 485 is available for \$2.60 a copy from the Transportation Research Board, Publications Department 805, 2101 Constitution Avenue, N.W., Washington, D.C. 20418. (Payment in advance is required on orders of \$7.50 or less.) †

**SPECIFICATION CHANGES
RECOMMENDED IN
FATIGUE PROVISIONS FOR
STEEL-BEAM BRIDGES**

Following an intensive study of the fatigue behavior of steel bridge members, researchers at Lehigh University recommend changes in the Standard Specifications for Highway Bridges published by the American Association of State Highway and Transportation Officials, and in specifications of the American Welding Society and the American Railway Engineering Association.

The research into fatigue strength of welded steel beams was carried out at Lehigh University, and at Drexel University, under contract to the National Cooperative Highway Research Program (NCHRP), which is administered by the Transportation Research Board. Drexel acted as a subcontractor for Lehigh University. Results of the study have now been published by the Transportation Research Board as NCHRP Report 147, "Fatigue Strength of Steel Beams with Welded Stiffeners and Attachments."

The importance of welding and welded details on the life expectancy of highway bridges was emphasized during the AASHTO Road Test when fatigue fractures were observed in cover-plated steel-beam bridges, and more recently in similar

structures in the field. Of great significance in these bridges are such factors as the loading history of the structure, the types of materials used, the design details, and the quality of fabrication. Among the more important design details are cover plates, stiffeners, attachments, and splices.

In the past, only approximate general design relationships have been possible on the basis of the limited existing experimental data. In 1966 Lehigh University and its subcontractor, Drexel University, began research on the first phase of NCHRP Project 12-7 to develop design relationships for rolled and welded beams, both with and without cover plates, and for welded beams with flange splices. More than three years later 374 beam specimens had been tested, and the results were published in NCHRP Report 102, "Effects of Weldments on the Fatigue Strength of Steel Beams." Recommendations contained in that report were adopted in the 1971 "AASHTO Specifications for Highway Bridges."

The newly-published NCHRP Report 147 is based on Phase II, the purpose of which was to extend the study to details not covered in Phase I, thereby making possible the development of comprehensive design and specifications provisions. Some 157 steel beams and girders were fabricated and tested in Phase II. Most of these tests were used to define the fatigue strength of transverse stiffeners and attachments under constant-amplitude fatigue loading.

Researchers found that stress range accounted for nearly all the variation in fatigue life for all stiffener and attachment details examined in this study. The authors recommended use of this finding in appropriate provisions of the AASHTO Standard Specifications for Highway Bridges. The recommendations were approved and are included in the 1974 Interim AASHTO Specifications.

The beam bending stress range at the weld toe determination was found to dominate the fatigue strength of full-depth stiffener details welded to the web alone. The bending stress range at the stiffener-to-flange weld defined the strength for stiffeners welded to the web and the flanges.

According to the report, welding transverse stiffeners to the tension flange should be permitted when desired. The fatigue strength provided by such details is much greater than that provided by attachments with lengths equal to or greater than their width.

New design categories have been added to the AASHTO specifications to provide

for the effect of attachment length on allowable fatigue stresses. The same fatigue strength values are applicable to transverse stiffeners and very short attachments (less than one-and-one-half inches). A category has been provided for attachments welded to the flange or the web with lengths between one-and-one-half inches and 12 times the attachment thickness, but not more than four inches.

All welded details were observed to experience fatigue crack growth from an initial micro-flaw at the toe of fillet welds. The fatigue crack grew as a semi-elliptical part-through crack during most of the fatigue life. From 80 to 95 percent of the life was consumed in propagating the crack through the plate thickness, depending on the detail.

Attaching diagonal bracing to the transverse stiffeners had no effect on their fatigue strength.

A theoretical stress analysis based on the fracture mechanics of crack growth confirmed the suitability of the empirical regression models. The theoretical analysis also provided a means of rationally explaining the observed behavior and permitted the effect of other variables such as plate thickness and initial crack size to be examined in a rational way.

NCHRP Report 147 is available for \$4.80 a copy from the Transportation Research Board, Publications Department 805, 2101 Constitution Avenue, N.W., Washington, D.C. 20418 (Payment in advance is required on orders of \$7.50 or less.) †

THE YEAR THE RAINS CAME: HIGHWAYS AND THE FLOODS OF 1972

The most devastating disaster ever to strike the United States battered the East in a three-day period in June 1972, when Hurricane Agnes caused more than \$3 billion worth of damage, killed 118 people, damaged or destroyed 116,000 dwellings and mobile homes, wiped out 5,800 businesses, and inundated 5,000 square miles of land. But this, the greatest flood in the recorded history of the nation, was only one of many floods to strike the United States in 1972. Almost a dozen other floods would have rated "disaster" status by themselves.

The story of these floods, with special emphasis on the damage inflicted on highways and bridges, is told in Highway Research Record No. 479, "Highways and

the Catastrophic Floods of 1972," published recently by the Transportation Research Board.

D. M. Thomas (U.S. Geological Survey) recounts the chronology of the various floods in 1972, beginning with the Buffalo Creek, West Virginia flood, caused primarily by a coal-waste dam failure. One hundred and eighteen people died in this February disaster.

Flooding began in earnest at the end of May, with snowmelt, delayed by cool weather, suddenly inundating towns in Central Washington, Idaho, and Montana. On June 7, a thunderstorm flood caused one death and quarter of a million dollars worth of damage near Bakersfield, California. On the following day, thunderstorms hit a 500-square-mile area of northwest Nevada, causing extreme mud and sediment flows, but because of the remote location there was no loss of life, nor for that matter, any dollar damage.

It was a far different story in another 500-square-mile area on the following two days. This time Rapid City and the Black Hills of North Dakota were struck, with a staggering loss of 237 lives, 28 people missing, and \$160 million in damage.

On June 18 and 19th, flooding occurred in Westchester County, New York and one day later a dike failed on the Sacramento-San Joaquin River in California, causing the evacuation of 2,000 people and property damage of \$41 million. But these were only the curtain-raiser for Hurricane Agnes, winding up for the big blow that hit June 21.

Even as the waters receded after Agnes, more flooding occurred in Minnesota, causing more than \$17 million damage to railroads, roads, homes, businesses, and agricultural land. In August and September, severe flooding hit Iowa, and in October southern and central Virginia was devastated for the second time in the year, Richmond being flooded for the third time since 1969.

Nine lives were lost and \$20 million worth of damage was caused in Colorado, Arizona, and New Mexico later in October. November saw extreme flooding as Lake Erie rose two feet above its previous known maximum. Two thousand homes and businesses were flooded and several thousand people evacuated.

In December, severe ice-jam flooding on the Snake and Salmon Rivers inundated the towns of Weiser, Idaho, and Ontario, Oregon. As the author points out, "We can all sympathize with the victims of any river floods, but consider the problems of people who are flooded at temperatures

of 20 degrees below zero."

Other papers in Record 479 discuss the hydrometeorological conditions associated with these floods and the part played by state and federal agencies in such emergencies. A comprehensive report on bridge damage due to Hurricane Agnes is included as a vital supplement to the proceedings. Debris was found to be a primary cause of, or a significant contributing factor to, bridge damage, and scour at the substructure was found to be the other major cause. Other papers discuss recording, evaluating, and predicting extreme floods.

Record 479 will be of special interest to administrators, practicing engineers, and researchers interested in improving hydrologic analyses and hydraulic designs to minimize flood damage to transportation and other facilities.

Highway Research Record No. 479 is available for \$2.20 a copy from the Transportation Research Board, Publications Department 805, 2101 Constitution Avenue, N.W., Washington, D.C. 20418. (Payment in advance is required on orders of \$7.50 or less.) †

YOUTH TRAFFIC SAFETY

Continued from Page 1.

12. State and national organizations have been invited to participate with exhibits, demonstrations and presentations related to the full scope of the traffic safety field. October 13 will be devoted to developing project ideas for the Youth Traffic Safety Council members to conduct within their communities in the coming year. The program will end October 14 with a youth resolution session, with the delegates' recommendations to be submitted to the Governor's Traffic Safety Council.

For more information on the program and on the availability of exhibit space at the 'convention', contact: Philip M. Deemer, Coordinator, Governor's Youth Traffic Safety Council, 1210 Transportation and Safety Building, Harrisburg, Pa. 17120. †

The U.S. Treasury has under consideration the return of the \$2 bill. The Bureau of Engraving and Printing reports they could save \$4 million annually by printing 400 million two-dollar bills instead of 800 million ones. The new notes would carry a portrait of Susan B. Anthony of women's suffrage fame. †

ALTOONA SECTION

Jack Stefanko, Public Relations

The Altoona Section held its annual picnic on August 9, 1974 at Mr. L. Robert Kimballs' Klein Immergrun, near Loretta. Our gracious host provided us with swimming, tennis, volley ball, horseshoes, and the use of the local Golf course. Although the weather was not completely cooperative, everyone had a good time eating, drinking, and making use of the facilities available.

Our convention chairman, Mr. John Young, is working very hard to secure a site for the 1976 National Convention to be held in the Altoona area. Suggestions to improve on the National Convention will be greatly appreciated by our section.

NEW MEMBERS

John C. Pierchoski, P.E., Ebensburg, Consultant.

Charles H. Meyers, EIT, Altoona, PennDOT

Joseph F. Geissinger, Altoona, PennDOT
Kenneth R. Pittman, Everett, PennDOT
Frederick J. Moyer, Hollidaysburg, PennDOT

Robert J. Kimball, Ebensburg, Consultant
Galen P. Seese, R.S., Ebensburg, Consultant

John C. Weisenmiller, P.E., Flinton, Consultant. †

NORTHEAST PENN SECTION

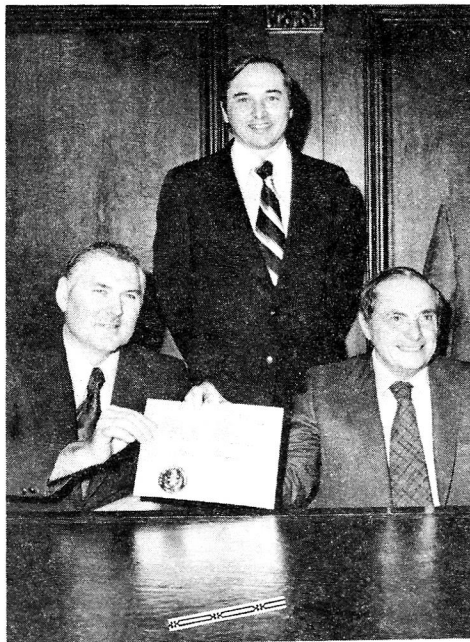
Scoop Morden and Snoop Kolander
Public Relations

Members of the Northeast Penn Section who attended the 1974 National Convention extend their congratulations to the Pittsburgh Section for a job well done. A special thanks goes out to the Chairman, Co-Chairman and Committees for making the Twelfth Annual Convention a great success. We surely did enjoy Pittsburgh's hospitality.

The May meeting was Ladies' Night and Installation of Officers. The Officers and Directors installed for the 1974-75 term are: President, George J. Parrs, P.E.; First Vice-President, Allan J. DuBosar, P.E.; Second Vice-President, Paul A. Lucas, Jr., R.S.; Secretary, Nicholas I. Genovese, P.E.; Treasurer, Joseph E. Notartomas; Directors (3 years), Gerald J. Ceccoli, R.S., John A. Kolander, P.E. and Michael R. Milano. After the officers and directors were installed, all attention was focused on the ladies, which they so dearly deserve.

The Annual Clambake was held on June 15 at McDonald's Clambake Grove.

ANDY ONUFRAK HONORED



In the May edition of the Scanner, we failed to note that Andy Onufrak, left, receiving a cost reduction award from Governor Milton Shapp, is a member of the Williamsport Section. Best wishes Andy!

Entertainment was provided by the "Over-the-Hill" Baseball Players.

Programs for the New Year will be based on the results of a membership survey. The members were questioned as to what subjects they had interest in, their choice of meeting locations, and menus.

NEW MEMBER

Theodore J. Fisher, Jr., EIT, Wyoming, PennDOT †

DELAWARE VALLEY SECTION

NEW MEMBERS

David W. Markloff, Holland, Technical Sales Manager

David W. Humphreys, Abington, Consultant †

PITTSBURGH SECTION

NEW MEMBERS

George J. Dunn, R.S., Pittsburgh, Consultant

Robert S. Ward, Burgettstown, Pa., PennDOT

Richard D. Schuck, Pittsburgh, Consultant
Thomas W. Lampl, Pittsburgh, Consultant

FRANKLIN SECTION

NEW MEMBERS

Charlton A. Adsit, Jr., Conneaut Lake, PennDOT

Edward R. Petulla, R.S., Oil City, Consultant

James A. McQuitty, North East, Materials Producer

Philip J. Kraus, E.I.T., Union City, PennDOT

Thomas J. Haslett, P.E., Oil City, PennDOT

Bruce E. Matthews, Greenville, PennDOT

David A. Slozat, Espyville, PennDOT

Ronald L. Fox, Tidioute, Engineering

Albert J. Staub, Titusville, PennDOT †

CLEARFIELD SECTION

NEW MEMBERS

Bruce E. Speegle, P.E., Clearfield, PennDOT †

SOUTHWESTERN PENNSYLVANIA

NEW MEMBERS

Charles J. Thompson, Smithfield, PennDOT †

URBAN TRAVEL NEEDS BEST MET BY PRIVATE CARS, TRUCKS

The government has released new data on travel patterns of America's urban workers which help explain why the automobile is the most widely used method of commuting.

Essentially, the picture that emerges reveals that about as many people live and work in the suburbs as live and work in the central city. Of the entire work force, only 18 percent commute to jobs in the city from outlying residential areas.

For all the Standard Metropolitan Statistical Areas surveyed, the commuting patterns showed that:

—36 percent of the people both live and work in the central cities.

—34 percent both live and work in the suburbs.

—18 percent live in the suburbs but work in the city.

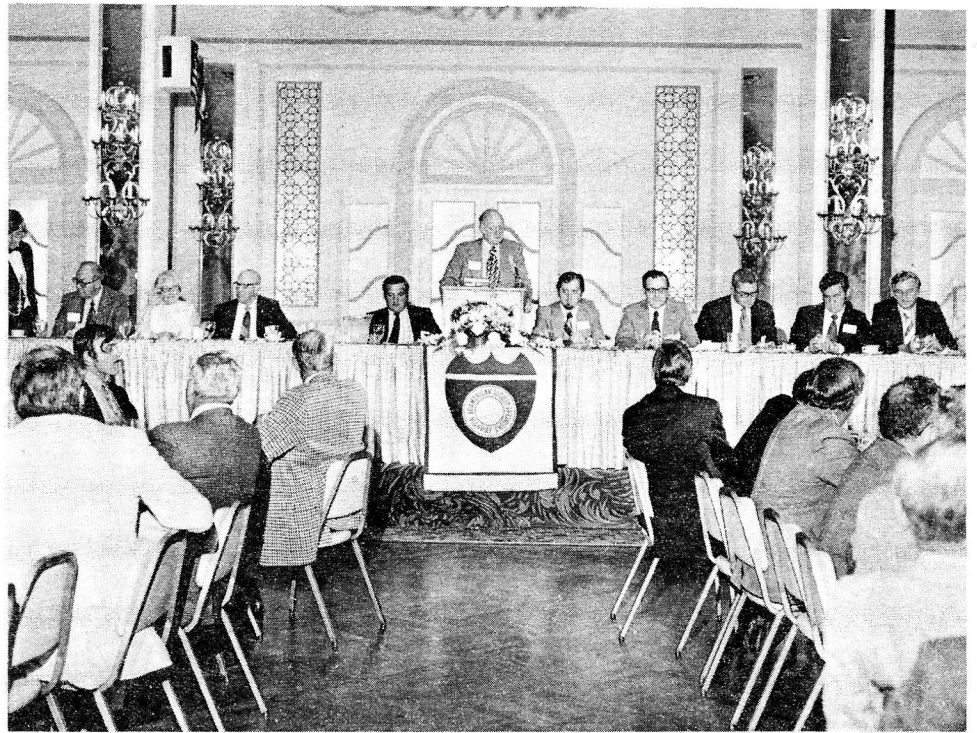
—7 percent live in the city but work in the suburbs.

—5 percent live in the metropolitan area (encompassing both the central city and its suburbs) but work outside of it.

Additional data from the study show that 68 percent drive their own vehicles, and 12 percent are passengers in private vehicles.

**ALL OF THE
FOLLOWING
CONVENTION PHOTOS
ARE BY**

**ERCOL O. ACRI
Director of
Photographic Services
Commonwealth of Pennsylvania**



Past President Jim Weaver addresses meeting held May 15, 1974 in Newark, New Jersey to discuss organization of a New Jersey Section. George Parrs, far right, Chairman of the New Section Committee, worked very hard to set up the meeting.



James Weaver presents an Achievement Award to Secretary of Transportation Jacob Kassab.



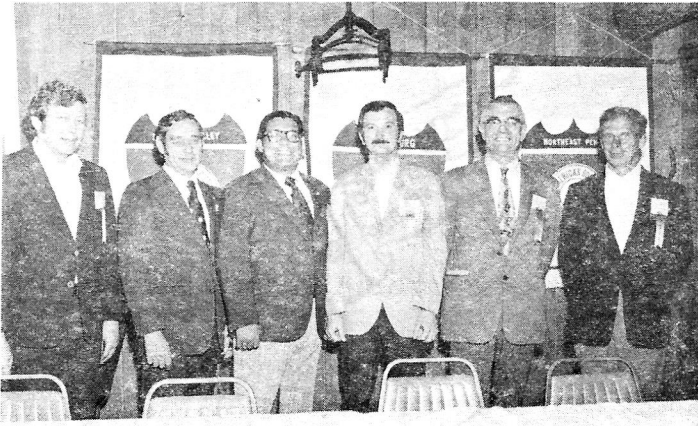
President Robert Yeager accepts office for 1974-1975.



New Officers for 1974-75: Robert Yeager, President; George Hart, Treasurer; Robert Sherr, Secretary; John DeRoss, 2nd Vice President; Gene Smith, Director; Harold Poulson, Director; Atwood Welker, Jr., 1st Vice President; Rudy Melani, Director; Joseph Ostroski, Director; Joseph Martinelli, Director; and Albert Stallknecht, Director. At rostrum — Oath of Office by Robert Kepner.



Air Quality Mobile Laboratory, Michael Baker, Jr., Inc. Granville Kester, Jr., Michael Baker, III, Pamela Mundo, and John Wakelee, III. On top of Lab is Michael Kimak.



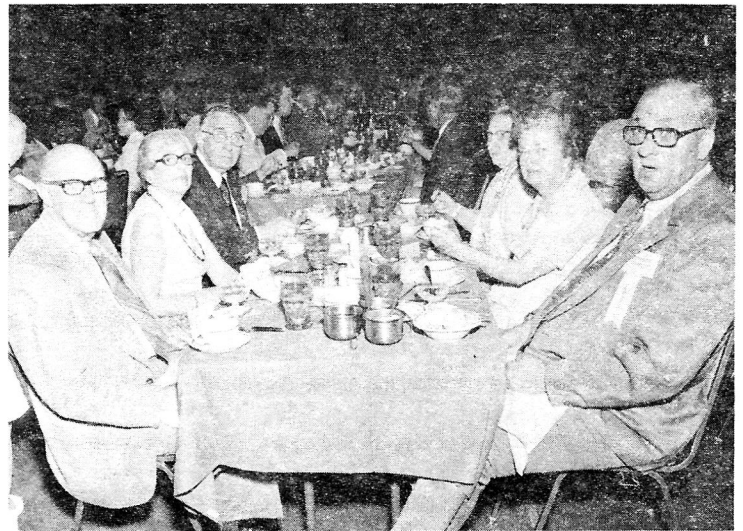
Pittsburgh Section Convention Committee: Kenneth McCurdy, William Urick, John DeRoss, William Dobias, Lambert Jaroska, and Millard Stewart, Jr.



Pittsburgh Section Convention Committee: Denny DeMarco, Samuel Kennedy, Rudy Melani, Robert Haynos, Conrad Slanina.



Anthony Gaeta; Robert Yeager; Harold Reslink, Friday Luncheon Speaker; James Weaver; and Michael Gittens.



Society Secretary Robert Sherr and wife, Helen; Mr. and Mrs. Harold Reslink; Maye Hart and husband, Society Treasurer George Hart.



An Environmental Technical Wrokshop presented by Michael Baker Jr., Inc.; John DeRoss, Technical Chairman; James Weaver, ASHE President; Speakers, John Wakelee, III, Pamela Mundo, John McCandless and John Hayward.



Saturday night Dinner-Dance.

1974 - 1975 NATIONAL OFFICERS

President, Robert E. Yeager, R.S., Hollidaysburg, Pa.
 1st V.P., A. L. Welker, Jr., P.E., Williamsport, Pa.
 2nd V.P., John F. DeRoss, Pittsburgh, Pa.
 Secretary, Robert M. Sherr, P.E., Jim Thorpe, Pa.
 Treasurer, George K. Hart, Montoursville, Pa.
 Past Pres., James M. Weaver, Gibsonia, Pa.

Directors, 3 Years

Gene G. Smith, P.E. Sharon, Pa.
 Harold C. Poulson, P.E., New Cumberland, Pa.
 Joseph C. Martinelli, Pittsburgh, Pa.
 Albert Stallknecht, P.E., Camp Hill, Pa.

Directors, 2 Years

William Boykas, P.E., Coopersburg, Pa.
 Charles J. Allison, P.E., Altoona, Pa.
 John V. Rignani, P.E., Camp Hill, Pa.
 Joseph C. Ostroski, P.E., Clarks Green, Pa.

Directors, 1 Year

Lawrence P. Opalisky, P.E., Curwensville, Pa.
 George J. Parrs, P.E., Dallas, Pa.
 Rudolph Melani, Cheswick, Pa.
 Robert L. Rowland, Willow Grove, Pa.

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SECRETARY'S REPORT ON MEMBERSHIP

Secretary's Report on Membership as of August 14, 1974 reflects 1,677 members.

<i>Section</i>	<i>Members</i>
Altoona	130
Clearfield	80
Delaware Valley	254
East Penn	144
Franklin	191
Harrisburg	288
North East Penn	105
Pittsburgh	252
S.W. Penna.	116
Williamsport	117
Total	1,677

HARRISBURG SECTION**NEW MEMBERS**

Ronald L. Soder, P.E., Camp Hill, Consultant
 F. C. Witkoski, P.E., Camp Hill, Consultant †

WILLIAMSPORT SECTION**NEW MEMBERS**

William B. Davis, Hughesville, Materials Producer
 William M. Toon, Trout Run, Contractor †

EAST PENN SECTION

Charles J. Sincavage, Chairman, Public Relations

East Penn Section of ASHE Annual Ladies Night was held April 26, 1974, at the Mahoning Valley Country Club. Forty-six (46) members, together with their wives, sweethearts and girlfriends, had an enjoyable evening with refreshments served and dancing into the wee morning hours.

The May 14, 1974 monthly meeting of the Section elected the following officers for the ensuing year: President, F. Michael Heylman; First Vice President, Carl G. Miller; Second Vice President, Leroy R. Fahringer; Secretary, Larry L. Geiger; Treasurer, Ronald Fritz; Directors (3 years), Joseph H. Raynock, William Boykas, James M. Montgomery, Sr.; Directors (2 years), Emory Polinchok, David E. Heinly, Fred Wolfe; Directors (1 year), Michael Quigney, Charles J. Sincavage, William F. Gilroy, III.

Plans are being made to hold this year's Annual Clambake on Saturday, September 21, 1974. Special Events Chairman, William Gilroy, III announced further details will be mailed to Section members.

Congratulations to our new senior members, Dmytrow and Turoscy.

NEW MEMBERS

Ronald S. Dmytrow, Tuscarora, Contractor.
 Larry S. Turoscy, P.E., Slatington, PennDOT. †

Secretary's Corner

With a new fiscal year in which to further the interest of our Society, it behooves each of us to expend every effort to cooperate with one another.

One of the major problems is record keeping. National has been trying to keep the mailing list on The Scanner current, but if we are not notified of address changes we cannot alert the Postal Department to deliver mail to the proper address.

Public Relations representatives of each Section should make an all-out effort to get new items of interest for The Scanner. Who has gone on vacation — where to — what activities — who caught the fish and who was successful on hunting expeditions. These are of interest to our membership; as are most of our activities. Share them with us.

As you will see by this issue, the Convention was a SUCCESS!!! Hope we can see all of you at the 1975 Convention which will be hosted by the Delaware Valley Section.

Our special "THANKS" to Jack Leapson who has done an excellent job in helping to put The Scanner together over the years. Let's give him all the help we can by getting the information for him. †

Editor: ROBERT M. SHERR, Box 14B1, Star Route, JIM THORPE, PA. 18229.

Notify us when you change your address!