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THE AMERICAN SOCIETY OF HIGHWAY ENGINEERS

DECEMBER 1978



President's Message

**JOSEPH C.
MARTINELLI**

NOW IS THE TIME!!

The elections are over and NOW IS THE TIME to begin drumming up the support that will be needed to save OUR highway industry, NOW IS THE TIME to begin organizing the "grass roots" push to remind the legislature that unless they act AT ONCE the highway industry will suffer so badly that it could take many, many years to recover.

Too many times we all rationalize that the "holiday season" is taking too much of our time and let everything go until the middle of January. We CANNOT afford to fall into this "holiday letdown" as this is the BEST time to meet with our representatives who are in recess and who at this very moment are listening to other groups to push THEIR favorite legislation.

NOW IS THE TIME that we will be meeting and talking to more people than at any other time of the year. We CANNOT waste this opportunity to let these people, many of whom know little about the highway industry, hear our side of the story. It is also from this group of people that we expect to get our "grass roots" level of support. So NOW IS THE TIME to act!

What is National ASHE doing? As promised in my last message, the Law, Legislative and Public Relations Committee has been formed and had their first meeting on November 17th. ASHE was broken down into regions with each region having a coordinator. The coordinator for your section will soon be in

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The only way to go is up



by William R. Gruver

On Wall Street, a company in financial trouble is reported as "bottoming out" when it reaches the worst of its troubles. In Pennsylvania, it would be accurate to describe the "highway crisis" as "bottoming out." We have just about hit the lowest point with no highway or bridge projects for the past 1½ years. This State leads the nation with more than a billion dollars in the Federal Highway Trust Fund that we can't retrieve because of no matching money. The Commonwealth's 12-year program of priority projects has been shelved. And our roads continue to deteriorate as we face what weather experts tell us will be an even more severe winter than last year.

Attempts to have a highway funding bill enacted by the General Assembly this

past year did not succeed because any new tax proposals were seen as unpopular at this time.

However, unemployment in the highway transportation industry continues to rise, as it does in scores of other spin-off industries. Many business organizations have closed up and many others are in serious trouble.

It is a fact of life that a State as big as Pennsylvania depends heavily on a safe and efficient highway system in order to survive and prosper.

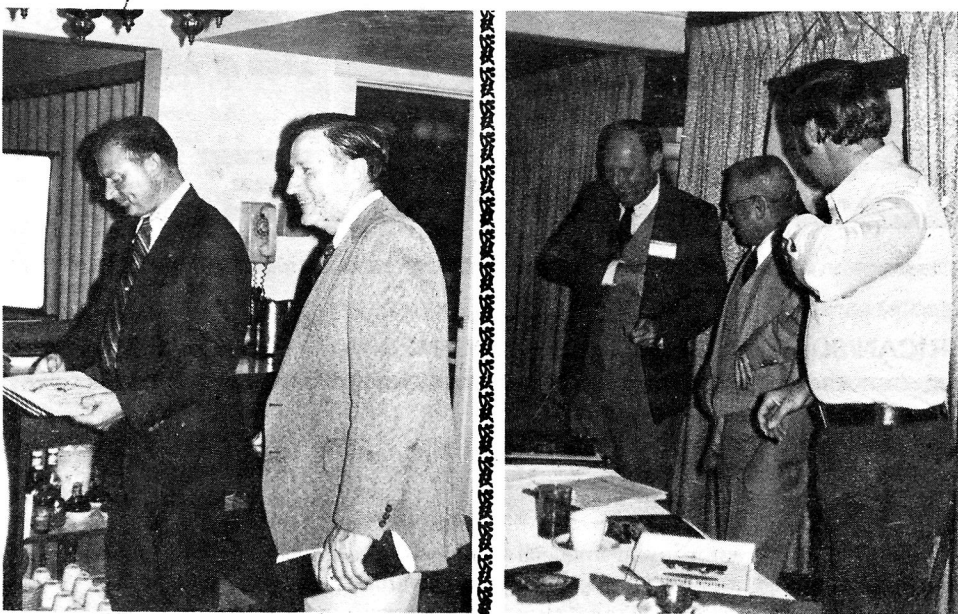
Added to this anguish is the fact that Pennsylvania's highway users continue to pay State and Federal highway taxes and get very little in return. The people who use the roads have every reason to be outraged that their interests are not served.

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Robert Turgeon, center, President of ASHE's Harrisburg Section recently accepted a Governor's Meritorious Citation from Milton Shapp for a money-saving idea submitted through the State's Cost Reduction Program. Also on hand for ceremonies at the Governor's Reception Room is Leo D. Sandvig, a local ASHE member and Turgeon's Immediate Supervisor at PennDOT.

Turgeon is a Soils Engineer with PennDOT's Bureau of Materials, Testing and Research in Harrisburg.



PRESIDENT'S MESSAGE

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touch with you. He will explain the "grass roots" program plus other plans they have drawn up to form a committee from the other Highway Construction organizations such as PHIA, APC, etc. to put all efforts to the best use.

Again, I would like to remind you that "NOW IS THE TIME" to fight to save our industry!!

On behalf of National ASHE and my family, we wish you the happiest holidays ever.

J.C. Martinelli, President

HARRISBURG SECTION

Brian McCoola, P.E., Public Relations



The Harrisburg Section of ASHE formally marked the opening of its 1978-79 campaign on Friday, September 22nd with a fall picnic at the Monaghan Township Fire Company near Dillsburg in York County.

As customary, this first-of-the-year outing was again sponsored jointly with the Harrisburg Chapter of PSPE. A well received ham and oyster serving this year replaced the traditional clambake fare of recent years.

Nearly 100 individuals were on hand for this always popular fall get-together.

MEETING NOTES: A call to speak out on the future of highways in Pennsylvania was the message presented to 50 Section

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WESTERN RESERVE: left to right: John Molnar, P.E.; Mike Fidas, P.E., County Engineer. John and Mike are admiring John's new certificate.



WESTERN RESERVE: left to right: W. J. Ludlow, speaker; Frank Kotouch, 1st V.P.; Ken Bentfeld, President. All digging for their 50-50 Drawing ticket.

WESTERN RESERVE: left to right: John Molnar, P.E., new member; Ken Bentfeld, President. Ken is presenting John with his certificate.

WESTERN RESERVE: left to right: Joe Kovach, P.E., new member; Ken Bentfeld, President. Ken is presenting Joe with his certificate.

members on Monday, October 2 at a monthly dinner meeting held at the newly opened Hanover Trails off Interstate 81 near Harrisburg.

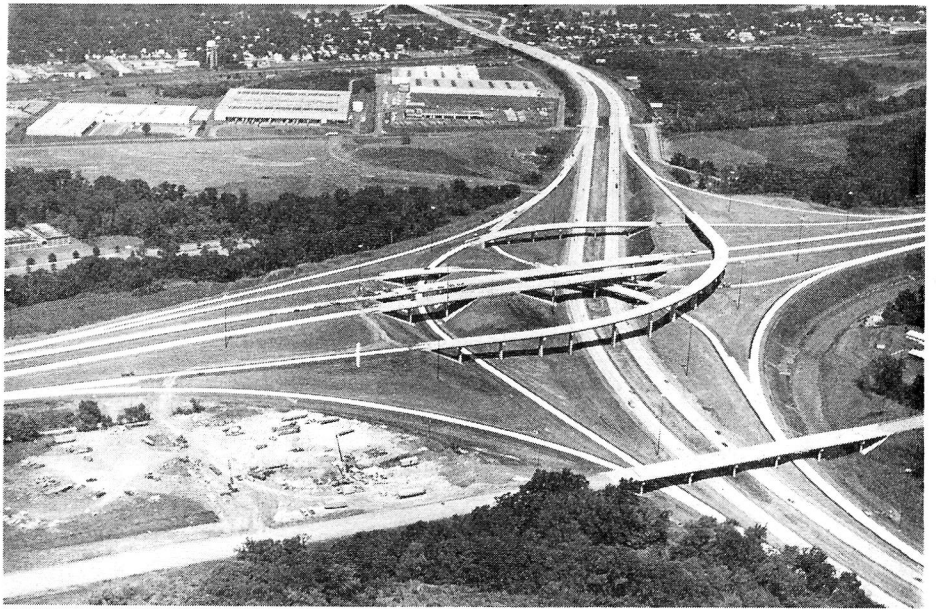
William R. Gruver II, Managing Director of the Pennsylvania Highway Information Agency (PHIA), painted a bleak picture of the current highway outlook in the Commonwealth. "We are desparate and feel abandoned, Gruver said. Many of our lawmakers have let us down."

Gruver emphasized that Pennsylvania has been buying highways on the installment plan for 22 years. The state now has a 2.3 billion dollar indebtedness, tops in the nation. 47% of Pennsylvania's Motor License Fund goes for non-highway related items. The State's highway network is the nation's 4th largest. And, as of October 1, Pennsylvania has over \$1 billion in federal funds available yet it can't touch a penny due to a lack of matching monies.

"There is no free lunch" Gruver said. "We have to face the facts and bring citizen pressure to bear on the Legislature to turn things around. We cannot continue to tolerate the continued downward trend, not only in highways, but in the State's overall injured economy. Only the voice of the people can restore Pennsylvania's previous indistrial dominance," he said.

The speaker noted that the so-called "tax revolt" was in reality a protest against unwise government spending. "Nationwide, people aren't angry about the spending of these taxes. This is what

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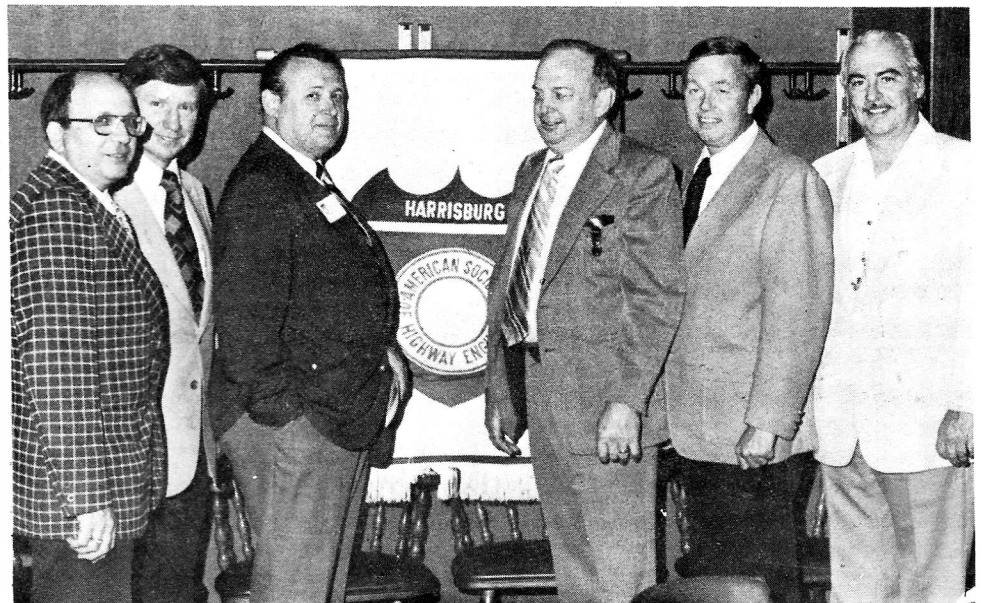


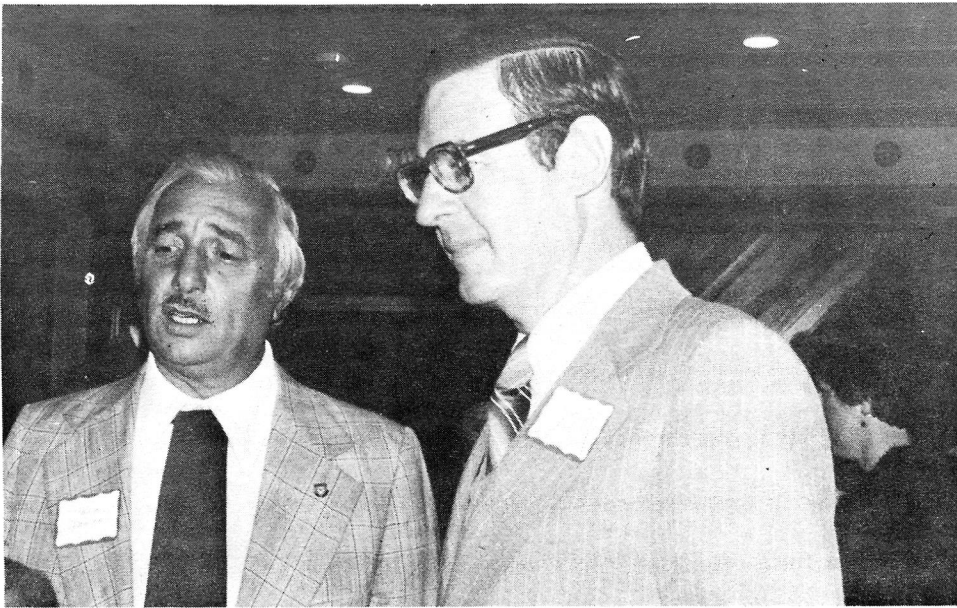
HARRISBURG: Dauphin Co., I-81 & U.S. 322-22.



HARRISBURG: left to right: Pulakos; Senator Manbeck; Mrs. Lentz; Deputy Comm. Evans, State Police; Kasseb; Wagner. Ribbon Cutting River Relief Route.

HARRISBURG: left to right - Carl Spataro, Secretary (Capitol Engineering); Al Stallknecht, 2nd V.P. (Rummel, Klepper & Kahl); William R. Gruver, featured speaker (Managing Director P.H.I.A.); Robert Turgeon, Section President; Hank Heck, 1st V.P. (Associated Pennsylvania Constructors); Jack Gilliland, Treasurer (PennDOT).





the "tax revolt" is all about," Gruver said.

Comparing the deterioration of highways with the progressive demise of the railroads, Gruver concluded that the State's investment in highways is too important to take lightly.

"It is our need, our money, our future. Any further deterioration, . . . we simply cannot afford to let it happen."

The answer, Gruver stressed, lies with all of us.

"If you want the current downward trend in highways changed, you yourself are going to have to work to change it."

SECTION NEWS: The President of our local section, Bob Turgeon, last month received a citation from Governor Milton Shapp for having an original cost reduction idea formally adopted by the State.

The suggestion, involving a system of more expeditious distribution of State Cred Union forms for employee payroll deductions, was judged to be of value in contributing to the efficiency of state services.

Shapp commended Turgeon for the time and effort given to improve the quality of State government.

PITTSBURGH SECTION



PAST PRESIDENT'S BANQUET

The Pittsburgh Section held their Past President's Banquet on October 27 at the Holiday House Supper Club in Monroeville. Immediate Past President Chuck Way of Richardson-Gordon Associates received his Past President's Plaque from our current President Bill Becker of the Equitable Gas Company.

We enjoyed an excellent dinner which was followed by first rate entertainment provided by Jerry Vale. While everyone is familiar with Jerry's fine voice, many of us learned that he is also a top notch storyteller.

All the pictures were taken at the Past President's Banquet.

PITTSBURGH: District Engineer Tony Gaeta with Past President Chuck Way.

PITTSBURGH: Rudy Melani; Lee and Frank Taylor; and Ann and Gil Teitel.

PITTSBURGH: Chuck Way receiving Past President's Plaque from President Bill Becker.



PITTSBURGH SECTION

C. E. Slanina



On September 13, 1978 the Pittsburgh Section was treated to an exceptionally well prepared presentation by Colonel Max Janiero, recently retired of the U.S. Army Corps of Engineers and Mr. Jerry Costanzo, PennDOT utility Relocation Engineer in District 11-0. Their presentation on The Demolition of the Brady Street Bridge included slides as well as a short movie.

On the 23rd of May, the Monogahela River was closed to all river traffic by the Coast Guard for reasons of safety. On the 29th of May the contractor dropped the bridge into the river with full assurances that the river channel would be open within 24 hours. However within 24 hours nothing was done.

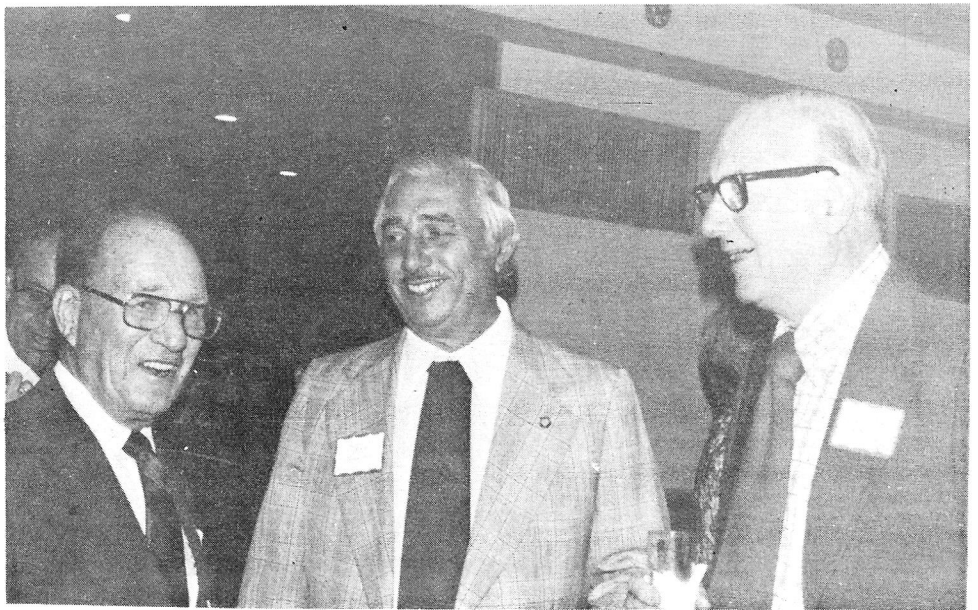
Colonel Janiero and PennDOT District Engineer Tony Gaeta were watching the situation closely. On the 31st Colonel Janiero ordered the disengagement of field personnel who were scattered throughout a 26,000 square mile area and positioned a repair fleet within an hour's sailing time from the bridge. They were alerted for a possible 3-shift operation.

With the pressures of industry building, which by now were laying off men for lack of materials and 50 river towns with more than 500 barges stalled both upriver and downriver, District Engineer Gaeta gave the word "Go" at 7 pm on the 31st of May. By 7 am on June 1 the Colonel's men were in position to start work.

3 8-hour shifts of 15 men were assigned and with the aid of extensive equipment the channel was opened within 55 hours.

Included in this effort was the cooperation of private industry which provided a towboat and 5 barges. This also was engineered by Colonel Janiero.

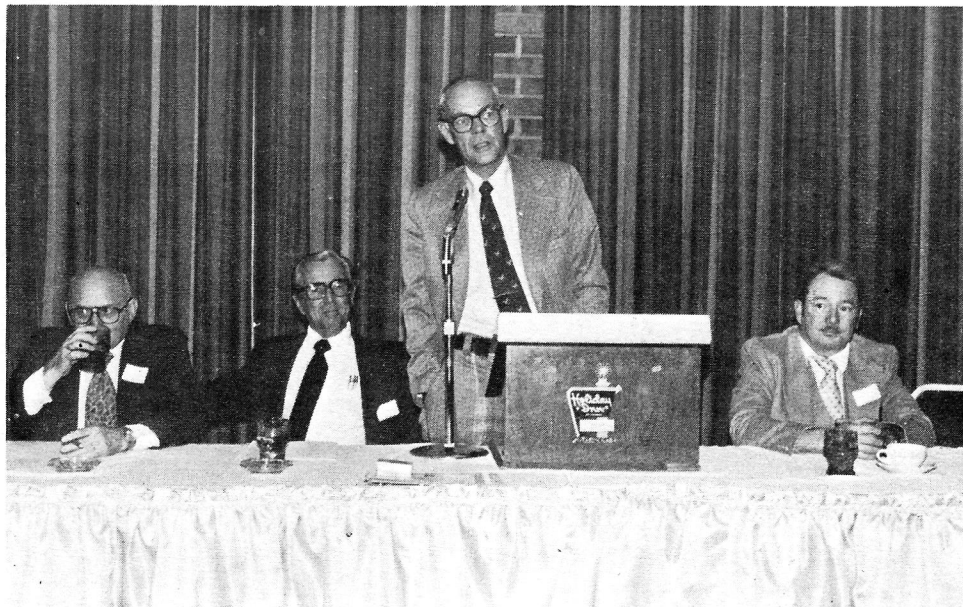
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PITTSBURGH: Bill Peternel; District Engineer Tony Gaeta; and Assistant District Engineer Mike Gittens.

PITTSBURGH: National President Joe Martinelli flanked by Pittsburgh Section Past President Chuck Way on the left and Pittsburgh President Bill Becker on the right.

PITTSBURGH: Mr. and Mrs. Bill Peternel.



DELAWARE VALLEY SECTION

On September 13, 1978 the Delaware Valley Section held their first regular meeting of the season at the Holiday Inn in King of Prussia.

Mr. Frank Depman, an engineer with Kaufman Construction Company Inc. of Philadelphia and a member of the Sections Board of Directors, gave an interesting presentation concerning the construction of the massive foundations for the two river piers of the new Passyunk Avenue Bridge in Philadelphia.

Each pier was excavated to rock within a cofferdam to approximately 70 feet below water. A tremie concrete seal was then poured 55 feet by 118 feet by 36 feet deep, totaling 8,650 cubic yards per pour. Complicating the logistical problem of supplying this pour were the facts that

the prime central mix concrete plant was 20 miles distant and the nearest staging area for unloading the trucks was separated from the cofferdam by an essential city street, a gallery of pipes serving the ARCO refinery and open water of the Schuylkill River.

Each pour was made using two lines, 5 units each, of 18 inch Rotec conveyors operating at 900 feet per minute. These two conveyor lines were placed side by side and were elevated over all the obstructions. Each line was capable of handling 3 cubic yards per minute. The 8,650 cubic yards in the east pier were poured in 40 hours, averaging 216 cubic yards per hour. The west pier, which was the second pour, was placed in 34 hours of continuous pouring, averaging 254 cubic yards per hour. At the peak of the second pour, actual placement reached

PITTSBURGH SECTION

Colonel Janiero closed with a profound statement that warrants a direct quotation: "I am sure there are many lessons to be learned from the Brady Street experience. It may be an engineering lesson. Or a contracting lesson. It may have been an operational lesson or even a legal lesson. For me, personally, it was the reinforcement of the philosophy that no man, nor organization, is an island; that to exist we must get to know each other and work together; that there is no better vehicle to bring this about than active membership in our professional societies, such as ASHE. For Tony Gaeta and me, it was the Society of American Military Engineers which gave us a common bond and better appreciation of both our limitations and our capabilities. If anyone were to ask you why they should join a professional organization, the answer is: "To be more effective!" "

The Colonel then made a presentation to District Engineer Gaeta of a mounted section of the demolished Brady Street Bridge.

DELAWARE VALLEY SECTION

DELAWARE VALLEY: left to right: Andy Antonucci, Secretary; Paul McConnell, President; Richard Hutchins, Speaker from DuPont; Peter Webb, Program Chairman.

DELAWARE VALLEY: Some of the chapter members listening to Speaker Hutchins from DuPont.



360 cubic yards in one hour.

The concrete was a 7 bag mix, 6 to 9 inch slump with 4 oz. of retarder. Each conveyor line fed directly into a tremie hopper suspended from a barge mounted 150 ton crawler crane.

Upon dewatering the dams, it was found that the concrete surface was exceptionally flat and free from laticence. Twelve cores were taken full depth in each pour and no defects were found.

Kaufman Driscoll Joint Venture was the contractor for the project. This PennDOT project was administered by District 6.

On October 11 the Delaware Valley Chapter held their monthly meeting at the Valley Forge Holiday Inn. The speaker for the evening was Richard Hutchens from DuPont, who gave a talk and slide

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presentation on Typar. Typar is a textile material developed by DuPont and manufactured by an integrated process of fiber spinning and bonding. This material is placed on soils with poor load bearing ability, instead of excavating and replacing the unsuitable soil. DuPont claims that using this material will increase the CBR value by approximately 4 percentage points. Mr. Hutchen's slides showed different applications for Typar, such as: placing on wet and unstable soil, underdrain applications, soil erosion and siltation problems and usage on large paved areas such as parking lots. A method of calculation for the use of Typar was also presented.

NEW MEMBER

Nelson J. Shafter, Drexel Hill, Consultant

SOUTHWESTERN SECTION

Frank Petrarca, Public Relations

Our September meeting was held at Packrall's Bay Restaurant near Fredricktown. The social hour of the first meeting of the new season was sponsored by Frank Gavlik & Sons. The members were given their choice to order from the menu and steak appeared unanimous. Bob Gavlik introduced Phil Joyce, CPA, who spoke to the group about income taxes.

The October meeting found us at Howard Johnson's, Uniontown. Solomon & Teslovich Construction Co. sponsored the social hour. After a short business meeting we made plans for the annual Ladies Night Christmas Party.

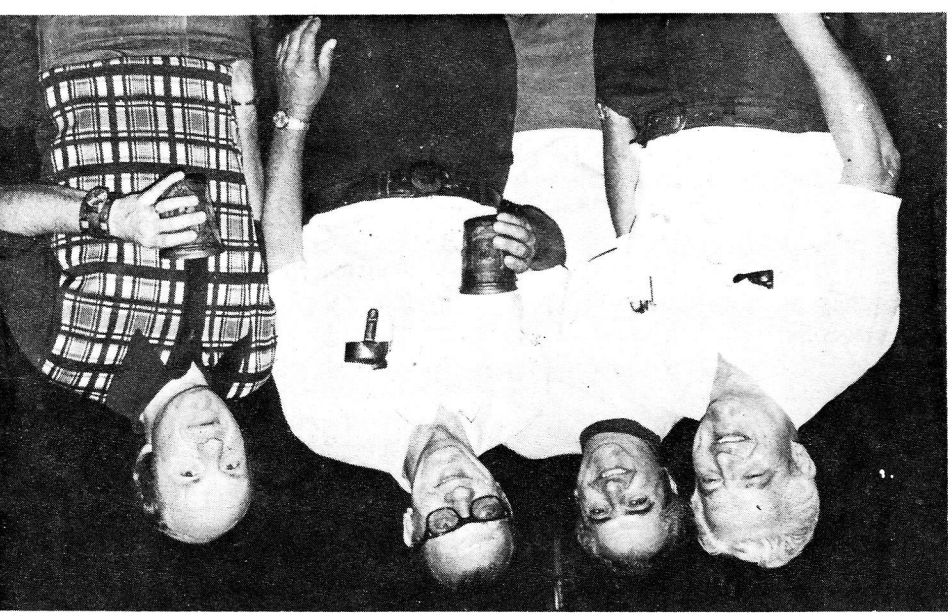


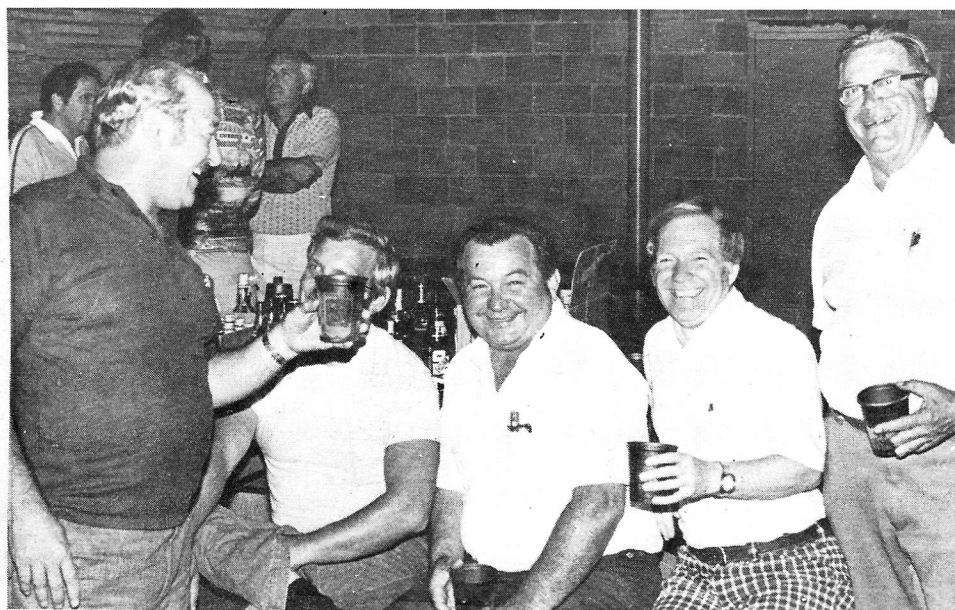
SOUTHWESTERN PENN: Here are some of our members at the "Isaac Walton Park" steak fry which was held recently.

SOUTHWESTERN PENN: Bob Burkholder, Vince Gavlik, Jack McCune and Bob Gavlik.

SOUTHWESTERN PENN: "Buzz" Eidemiller, Gene Pancellia, John Loope and Terry Conner.

SOUTHWESTERN PENN: Jim Moyer, Russ Mechling, Bud Moyer, George Jenkins and Ben Crimbly.





SOUTHWESTERN PENN: Gene Galiardi, Bob Kara, George Teslovich Frank Petrarca and Joe Geary.

EAST PENN SECTION

26 members and guests attended the September meeting at Hieter's Restaurant in Emmaus Borough. An interesting presentation by the DuPont Company on the uses of TYPAR filter-support fabric was enjoyed by all.

The October meeting was held at Trainer's Restaurant in Lehigh. 30 members and guests were entertained by James Geest of the Baltimore Regional Office of the Federal Highway Administration, who gave a slide presentation on noise abatement measures.

It has been found that the average East Penn Member gains 7.35 pounds after consuming one of the monthly family style dinners. Section President Bob Jones has reportedly devoured 3 2-pound loaves of garlic bread himself. At the last meeting, Trainer's served 87 pounds of beef to 30 members. And that's a lot of bull.

35 members and guests attended our November meeting at Trainer's Hotel in Lehigh to hear a presentation by Ed Levandowski of the Fitness Motivation Institute on "Fitness for Busy People."

The program deviated slightly from our usual highway-oriented program and I am certain it was of value and interest to all. The program was intended to motivate and inform the employer and his employees of new techniques to keep fit to do a better and safer job.

NEW MEMBERS

Douglas R. Paules, Emmaus, Engineering, Municipal

THE ONLY WAY

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But all is not lost. We have learned, in talking to citizens throughout this Commonwealth, that there is wide support for putting our highways in shape.

During the recent Gubernatorial campaigns, both Peter Flaherty and Richard Thornburgh made commitment to re-institute needed highway and bridge projects. Each pledged that he would, as Governor, not allow any further loss of Federal Funds.

The facts about our highway needs have been cited in just about every major newspaper and on nearly all radio and TV stations throughout the State.

It is no longer necessary to demonstrate the physical or economic need for better highways and bridges.

However, it will be necessary to marshal all possible support for a substantial highway funding program in the coming year. We cannot afford to lose what may be the last chance to save our highway transportation system from total decay. And we should not agree to any half-way funding measures which will only have to be corrected later on. We have already paid a heavy price for putting off the hard decisions on highway funding.

The Pennsylvania Economy League pointed the way towards a sensible highway program. The League called for reforms to improve the Administrative and Management function of PennDOT; re-institution of the 12-year Transportation

Program; and plans for a scheduled return of State highway mileage to local government. The League also said none of this could be done without new funding.

The incoming Governor and his Administration will have precious little time to act on our highway needs. Initiative will have to be taken early in the New Year in order for Pennsylvania to qualify for available Federal funds.

The highway crisis is now so acute that it will not be easily solved within one year. But we must start the gradual process of applying prudent spending to a dormant highway system.

It is clear that fixing roads will materially assist in the need to fix our overall economy.

The horror stories of bridges that have become endangered species are now legion. The bridge and road closings are seen all over the State. Many companies have left Pennsylvania for a more favorable economic climate. Other companies who are looking for new plant or headquarter sites have often rejected Pennsylvania because of the baseness of good enough roads.

Whatever source of new funding is acceptable to the Governor and the Legislature, it must be adopted without delay.

If for any reason a new highway/bridge funding program is not adopted, then eventually Pennsylvania's monies in the Federal Highway Trust Fund will be allocated (in a succession of increments) to other states. Ironically, we could journey to other states in order to see OUR money used to build good roads. That would indeed be a tragic commentary on our State's response to the highway dilemma.

Anyone with the courage to look over the horizon into the future would readily admit that the only way we have to go is up!



ONE STEP AT A TIME

Wallace N. Rasmussen, director of Beatrice Foods Co.; "I don't even like to hear people say the words 'never' or 'can't.' I've always believed that you can do anything you want to do. I think that difficult times form the character of a person. As long as I can remember, my main objective was that tomorrow I wanted to be just a little better off than I was today. And I always say, just take it one step at a time."

LOW-VOLUME ROAD CONFERENCE PLANNED FOR IOWA IN 1979

The Second International Conference on Low-Volume Roads will be held August 20-23, 1979 at the Scheman Continuing Education Building, Iowa State University, Ames, Iowa. The purpose of this conference is to facilitate the exchange of information on the practical aspects of design, construction and operation of low-volume roads. Current practices and problems will be discussed and needed research identified. The conference will be of interest to researchers and practitioners alike. The primary focus will be on practical aspects, particularly the aspect of cost.

The conference is being planned and will be conducted by the Transportation Research Board and sponsored by the United States Agency for International Development and the Federal Highway Administration in cooperation with: the American Association of State Highway and Transportation Officials, The American Road and Transportation Builders Association; the International Bank for Reconstruction and Development; the National Association of County Engineers; the National Association of County Officials; the National Science Foundation; U.S. Army Engineers, Waterways Experiment Station; U.S. Forest Service; Iowa State University; Iowa Department of Transportation; Iowa Association of County Engineers; and the International Road Federation.

Approximately 25 international and 50 national papers are being reviewed and will make up the majority of the program, supplemented by discussion sessions. The papers cover low-volume roads in relation to planning, operations, design, maintenance, construction, pavements, soils, aggregates and structures.

Conference registration forms and information on accommodation will be mailed along with the tentative program in May 1979. Registration will begin at noon on August 19, 1979 and the conference will be formally opened at 9:00 am Monday, August 20, 1979, concluding at noon on Thursday, August 23, 1979.

Those wishing to be put on the waiting list to receive the program registration information in May, 1979, please write to Mr. John Guinee, Second International Conference on Low-Volume Roads, Transportation Research Board, 2101 Constitution Avenue, N.W., Washington D.C. 20418

TRANSIT IN RURAL AND SUBURBAN AREAS STUDIED

A great deal of emphasis has been placed in recent years on the many problems of transportation in the cities, but nevertheless the problems of rural and suburban transit are no less real and was the subject discussed in Transportation Research Record 661, "Public Transportation in Rural and Suburban Areas" published recently by the Transportation Research Board.

Douglas J. McKelvey and Richard S. Watt (North Carolina State University) are the authors of a paper on innovative approaches to rural transportation at federal, regional, state and local levels. Examples include federal and regional task forces; state assistance with planning, management, funding and cash-flow, coordination and insurance; and local level approaches to service provision, cost savings, revenue sources, coordination, user-side subsidies, maintenance and promotion. The authors discuss such travel modes as carpooling, van-pooling, school busses and taxis for provider use and even hitch-hiking, which is, they say, "a feasible low-cost alternative in rural areas."

Jon E. Burkhardt, Armando M. Lago, Kenneth P. Ceglowski and Carlos F. Montoulieu (Ecosometrics, Inc.) summarize a study undertaken to assist the Urban Mass Transportation Administration in programming non-urban transit funds available through the National Mass Transportation Act of 1974. They conclude that the supply of rural transportation services available in the next few years will vary significantly according to the type and amount of financial assistance available from UMTA and that the transit assistance program with the most benefit to rural areas would be flexible depending on local conditions and would include some assistance for operating costs.

A second paper by Ceglowski, Lago and Burkhardt concludes that total operating cost per vehicle mile are highest in the Northeast and Pacific coast states.

Edward S. Neumann and Bernard F. Byrne (West Virginia University) discuss the development of a Poisson Model for estimating ridership on rural public transportation routes.

Section 147 of the 1973 Federal-Aid Highway Act established the Rural Highway Public Transportation Demonstration Program which authorized funds to encourage the development, improvement and use of public transportation for residents of non-urban areas, so as to improve access to employment, health

care, retail centers, education and public devices. Total funding of \$24.65 million for fiscal year 75 and 76 permitted the selection of 102 projects from more than 500 applications. 98 of the projects have been authorized to proceed, with about three-fourth in actual operation according to the paper by Ervin Poka, Gary Maring, Perry Davidson and Raymond Benacquista (Federal Highway Administration). The results of the first two quarters' evaluation although preliminary, show performance measures comparable to or better than previous rural public transportation projects.

David L. Weiss and Alfred J. Neveu (New York State Department of Transportation) describe an analysis of the attitudes of residents of several small urban areas to transit improvement. The two most preferred improvements were special vehicles for the handicapped and reduced fares for the elderly and handicapped.

Also contained in Record 661 are two abridged papers; PUBLIC TRANSPORTATION FOR THE SUBURBS, by George T. Mauro (United States Railway Association) and GEORGIA'S CRITICAL RURAL PUBLIC TRANSPORTATION NEEDS by Hal S. Maggied (Envirosphere Company).



BENEFITS OF KEEPING PEDESTRIANS AND VEHICLES SEPARATED

"In recent decades, the pedestrian has not been given adequate consideration in the decisions for personal mobility. Increasing concern for the environment, safety, energy, community cohesion and health have contributed to a social awareness of the pedestrian. In determining use of space, an inherent conflict exists between vehicles and pedestrians." Separating pedestrian and vehicle facilities is a solution to the conflict.

Techniques to measure the social, environmental and economic benefits are contained in National Cooperative Highway Research Report 189, "Quantifying the Benefits of Separating Pedestrians and Vehicles," published recently by the Transportation Research Board, which administers NCHRP. The report describes the results of a study undertaken by Stanford Research Institute of Menlo Park, California under contract to NCHRP.

SRI's approach to the problem was to identify the benefits of separating pedestrians and vehicles and affected population groups. The researchers examined hundreds of individual parameters as candidates for describing benefits and created measurement techniques which went one level deeper in precision than had previously been attempted by others. They then incorporated the results into a comprehensive evaluation technology that could be used to assess individual and alternative proposals for pedestrian separation facilities.

Pedestrian groups examined by the researchers included the elderly, handicapped, children, persons under the influence of alcohol, shoppers, workers on break, persons conducting business, commuters, tourists and strollers. Other affected groups included joggers, bicyclists, motor vehicle operators and passengers, property owners, business persons, neighborhood residents, taxpayers special interest groups (such as environmentalists) and political representatives at all levels of government.

The researchers identified and described all significant direct and indirect benefits of separating pedestrian and vehicular traffic and categorized the four major categories of benefits as follows:

Transportation — includes the transportation impacts on actual and potential users of all transportation facilities within the evaluation area (pedestrians, motorists, transit riders and others).

Safety/Environment/Health — include

the safety and health impacts caused by the construction and use of the facilities under study on all persons within the evaluation area (both users and nonusers), as well as the impact of this subset of factors on the physical environment.

Residential/Business — includes the impact on interpersonal relationships, property and attitudes of those persons within the evaluation area, also the impacts on industrial and commercial properties and transactions within the evaluation area as a result of the facilities under study.

Government/Institutional — includes the impacts of the facility under study on government and community-wide services and activities within the evaluation area.

As a result of the study, measurement techniques were developed for 36 variables that quantify all significant direct and indirect benefits of facilities separating pedestrians and vehicles. The methodology can be used to establish alternative facilities being considered for a single site or to establish warrants or priorities for a number of pedestrian facilities.

Says the report, "The over-all methodology and the extensive range of measured parameters provide a broad perspective on the design and use of pedestrian facilities. Possibly the greatest advantage of the suggested methodology is that it makes possible and encourages the use of many benefit measures usually excluded from conventional economic analysis. By reflecting social needs and values that are not easily quantified, the use of the method may provide adequate justification for projects previously not defensible using only economic analysis. Thus, the general direction of the methodology is to increase the number of the impacts considered by the decision-maker, while making the decision task easier by the use of explicit rather than implied evaluation factors." †

EFFECTS OF GRADES ON TRAFFIC FLOW



The wide variety in the performances of different types of vehicles handicaps the flow of traffic on two-lane and multi-lane highways alike. The performance differences, which are more pronounced on grades, increase the likelihood of traffic instabilities, accidents and loss of highway capacity. The problem is further compounded in the United States by the diversity of size and width of the vehicle population. In recent years, the number of very small cars with low performance has increased, but so has the number of high-

performance sports cars, campers, travel trailers and motor homes, all of which vary greatly in size and performance. At the same time, truck performance has improved to a great degree. The range of load widths has been influenced by the increased use of mobile homes and modular homes, some of which are wider than the traffic lanes they use.

To investigate the effect of highway grades on traffic stability and capacity, the National Cooperative Highway Research Program (NCHRP), which is administered by the Transportation Research Board, entered into a contract with the Midwest Research Institute, Kansas City, Missouri. The results of the research have now been published by TRB in the form of NCHRP Report 185, "Grade Effects of Traffic Flow Stability and Capacity."

The major objectives of the research were to provide and apply a methodology to determine the performance capabilities of vehicles on public highways, to determine equivalency factors for low-performance vehicles and to determine the role that performance and size play in traffic instabilities, accidents and loss of capacity.

Examples of specific findings reported in NCHRP Report 185 are the following:

The acceleration capabilities of individual passenger and recreational vehicles are linear functions of speed and grade.

The acceleration capabilities of individual passenger and recreational vehicles can be estimated from their brake horsepower, gross weight, gear ratios, projected frontal area and the general characteristics of body shape.

Drivers of passenger and recreational vehicles only use about 7/10 of the maximum available horsepower on long upgrades.

The physical data to estimate performance characteristics for the vehicle population are not available in a directly usable form.

The acceleration capabilities of individual trucks are nonlinear functions of speed and grade.

The acceleration capabilities of individual trucks can be estimated from the ratios — weight/net horsepower and weight/projected frontal area.

Mobile home and modular-house combinations have weight/net horsepower ratios in the range 100 to 200, with a very few as high as 300. On steep grades, they perform like trucks of the same ratio. On moderate grades, the maximum

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speeds of mobile homes and modular-house combinations are 5 to 10 mph less than the maximum speeds of conventional trucks with equal weight/net horsepower ratios.

The anomalously low capacities observed for two-lane, two-way highways are probably associated with driver responses to high frequency encounters with oncoming vehicles.

The simulation program developed in this project for two-lane, two-way traffic can be used to determine traffic speeds and characteristics with a realistic account of vehicle characteristics and highway geometries.

CUYAHOGA VALLEY SECTION



The October meeting featured Mr. Welch of the Ohio Telephone Company who showed a film on "The History of Ohio Transportation" and gave a short talk about the Ohio Bell telephone Communication Evolution.

Chuck Luff, our president and Gus Arrendale, secretary, jointly introduced seven new members and presented them with pins and membership cards.

The new members are: Arthur R. Dupslof, Utilities, Senior Member; Gerald G. Wuchter, Utilities, Senior Member; William M. Fautsko, Utilities, Associate Member; Donald E. Lindeman, Utilities, Senior Member; Walter E. Bedillion, R.S., Supplier, Senior Member; Richard H. DeWitt, P.E., Supplier, Senior Member; James J. Coyle, Utilities, Senior Member. They bring our total membership to 60.

Chuck Luff announced a new committee to represent Cuyahoga Valley Section of A.S.H.E. at the National Engineer's Week February 18 to 24, 1979. They are: Art Dupslof, Bob Pogwizd, Fred Eisenzimmer.

National Engineer's Week 1979 will be observed February 18 through 24. The purpose of the week is to familiarize the public with the work of engineers and to honor outstanding members of the profession. The week of George Washington's birthday is traditionally observed as National Engineer's Week because our first president was, himself, a land surveyor and a designer of roads and fortifications and other structures.

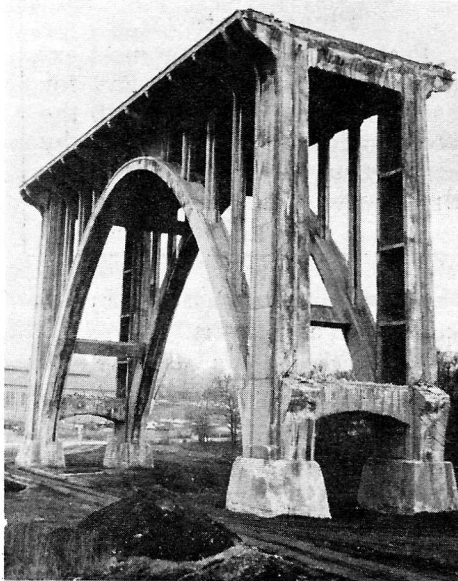
Nationally, the activities involve thousands of professional engineers in industry, government, construction, private practices and education. During the week, thousands of students are introduced to the many facets of the engineering profession. Tours and exhibitions are staged in the nation's industrial and research facilities. Scholarships are

awarded to deserving and needy students.

The sponsoring society of the Akron Area Engineer's Week is the American Society of Mechanical Engineers. The planning group is chaired by Syed Nehal. The group including representatives of 16 engineering societies is working to coordinate activities for this observance. Highlight of the week will be a banquet at Tangiers on February 22. A schedule of the week's activities and reservation information will be announced soon.

The November meeting featured Mr. William Kozy, P.E., who honored us with a film on the construction of the Alaskan Pipeline. Mr. Kozy worked on the installation of the pipeline and the meeting should be very informative.

Our section is planning a Christmas Party-Dance jointly with the Johnny Appleseed Chapter of the Illuminating Engineering Society, December 1st. I'm sure a good time will be had by all.



An item that is receiving a large amount of notoriety in the Greater Akron Area is a concrete Arch Span standing in the center of the Cuyahoga Valley, bridging the Little Cuyahoga River.

The span is all that remains of the once North Main Street Viaduct. The Boyas Excavating Company of Cleveland, Ohio was to complete the demolition contract on October 31, 1978. However, as of this date the span will remain as a historic remembrance of the City of Akron's boom years of the 1930's.

"The Last Span" is 188 feet long, 72 feet wide and 135 feet high.

A fence will be constructed to keep sightseers away from the foot of the structure and ground mounted flood lights will be installed to light the surface of the structure at night.

The membership may be interested in the following statistics of the original structure.

Designed by: Harrington, Howard & Ash Inc.

Contractor: James D. Heyworth Construction Company

Contract Price: \$1,227,859

Began Work: May 29, 1919

Completed Work: October 12, 1922

Length: 2,810 feet Width: 72 feet

Width of Roadway: 52 feet

Width of Sidewalk: 10 feet

Length of Largest Span: 191 feet

Length of Narrow Arches: 20.5 to 36.25 feet

Number of Main Arches: 16

Number of Narrow Arches: 13

The structure used: 3,000,000 feet of lumber; 100,000 tons of concrete; 1,400,000 gallons of water; 2,500 tons of reinforcing steel; 2,731 concrete piles 38 feet below ground surface; 101,000 linear feet of piling; 34 major piers; 412,170 pounds of car rails; 5,380 cast cement spindles; 32 street lighting lamps; 64 trolley poles; 820 tons of railway; 10,940 square yards of asphalt paving for roadway; and 5,620 square yards of brick paving between trolley tracks.

The percent of grade on the bridge was 1.48.

A maximum of 280 men were employed by the contractor; 7 lost their lives and one lost a leg.

The project was considered a great feat of engineering in those days.

The viaduct will be replaced with two separate bridges to be constructed from the termini of two one-way streets on the south side of the Cuyahoga Valley and converge on the north side of the valley at North Main Street, which will give it the appearance of a single "Y" structure.

The project will be bid in the Spring of 1979 by the Ohio Department of Transportation.

Alternate bids will be received.

Alternate 1 — Precast Segmental Concrete Bridge

Alternate 2 — Reinforced Concrete Deck on Steel Girders.

Both alternates will have concrete piers.

The estimated project cost is 28 million dollars and will take 3 years to complete the construction.

Jack Mills, P.E., Manager of Expressways and Bridges Division of the Bureau of Engineering, is the Project Manager. †



OFFICERS 1978-1979

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**Secretary's Corner**

Well — that time is here again! It seems as tho it was only yesterday that we installed the present Officers and Directors however, there will be a meeting of the Nominating and Budget Committees on January 11, 1979 at the Host Inn, Harrisburg.

It is suggested that all Sections begin to give serious thought to their selection of nominees for the coming year. By reviewing your Scanner you will note those officers and directors who will have completed their term in office.

All members of every Section should give serious thought to becoming involved at both the Section and National level. There will be nominations in order for all officers — President, First and Second Vice President, Secretary and Treasurer as well as four Directors, at the National level. All Sections will have nominations for comparable offices at that level, also. Become more active for greater participation in furthering the growth of this organization. Volunteer for an office.

One last thought — If you have not as yet paid your dues — “A member whose dues become 6 months in arrears shall lose the right to vote and to receive publications normally furnished without special charge to members in good standing. Any member whose dues become 12 months in arrears shall forfeit his membership in the Society, subject to an investi-

CHANGE OF ADDRESS?**Please Note . . .**

Postage is one of our most expensive items. It costs 25¢ for each letter we get back with the wrong address. Please help us by sending us your change of address when you move.

Thank you.

gation and recommendation by the Section Board of Directors.”

Again, make certain we have your correct address. We had almost fifty returns on our last issue of the Scanner.

PLAN NOW to attend the 18th Annual Convention to be held at the Hotel Hershey Hershey, Pennsylvania on May 17 thru 20, 1979.

LOOK AHEAD WITH CONFIDENCE

J. Leonard Johnson, president of AARP “To be a citizen of this nation is a privilege but to be an active, mature American is a special privilege carrying with it special responsibilities. We can look to the future with confidence. By working together, we can serve our fellow Americans and forge a strong bond of friendship among ourselves.”

Three of every eight persons who are killed in city traffic accidents are pedestrians.

Membership

| | |
|-------------------------------------|--------------|
| Altoona | 118 |
| Clearfield | 62 |
| Cuyahoga Valley | 61 |
| Delaware Valley | 259 |
| East Penn | 122 |
| Franklin | 223 |
| Harrisburg | 271 |
| North-East Penn | 104 |
| Pittsburgh | 285 |
| Southwestern Pennsylvania | 144 |
| Western Reserve | 51 |
| Williamsport | 133 |
| Total | 1,833 |

AMERICANS & AUTOMOBILES

A recent Census Bureau survey reveals that 2 out of 3 workers drive their cars to work alone. Only 1 worker out of 6 is in a car pool and only 1 worker out of 8 uses public transportation.

55 MILES-PER-HOUR

Does anyone observe the 55-miles-per-hour limit? The Department of Transportation surveyed all 50 states and found that some people do. But the worst offenders were to be found in Wyoming, followed by Connecticut, Missouri, Maine and Texas. The states with the fewest offenders were Virginia, Louisiana, Hawaii, New York and Kentucky.