



The IEEE

# Newsletter

Published monthly except June and July by the North Jersey Section of the Institute of Electrical & Electronics Engineers, Inc. Office of Publications: 399 Howard Boulevard, Mount Arlington, N. J. 07856

Volume 18 April 1972 No. 9

## NEWSLETTER STAFF

Editor..... Robert McMillan  
Managing Editor..... M. M. Perugini  
Student Activities Editor..... Gary Woerner  
Associate Editor..... Mrs. Robert McMillan  
Associate Editor..... Raymond Vaccari  
Associate Editor..... John Zieger  
Chairman, Publications..... Raymond Dusault

## Newsletter Deadline

Deadline for receipt of material is the 20th of the second month preceding month of publication. All communications concerning the Newsletter including editorial matter, advertising, and mailing, should be addressed to: The NEWSLETTER, c/o Girard Associates, Inc., P. O. Box 111, Mt. Arlington, N. J. 07856, Phone: 398-5524.

Subscription: \$0.75 per year through dues for members; \$1.50 per year for non-members.

Second Class Postage Paid  
at Mount Arlington, N. J.

## REPORT ALL ADDRESS CHANGES TO:

Institute of Electrical and Electronics  
Engineers, Inc., 345 East 47th Street  
New York, N. Y. 10017

It is not necessary to inform the North Jersey Section when you change your mailing address. The NEWSLETTER and other section mailings use a list provided by IEEE's national headquarters in New York. This means the Section has no need to maintain a mailing list or addressing plates. Section membership records are changed when Headquarters notifies us.

## SECTION OFFICERS 1971-1972

Chairman..... Robert G. Sokalski  
Vice Chairman..... Carl C. Torell  
Treasurer..... Harlan J. Perlis  
Secretary..... John H. Gerth  
Member-at-Large..... James Gass  
Member-at-Large..... J. K. Kampschoer  
Jr. Past Chairman..... Herbert E. Blaicher, Jr.



Al Kohan



Robert G. Sokalski



Joel B. Snyder

## LI, NJ, and NY Section Chairmen Report to Members

This issue is a special one. It is an experiment to test the feasibility of a single publication for the three metropolitan sections; Long Island, New York, and North Jersey.

The rationale of such a joint venture is two-fold. First is one of communications. Many activities of our adjacent geographic sections are of interest to our members. A joint publication will serve to keep everyone informed of all activities. The second reason for this experiment is one of economics. This pilot issue will, we hope, show a substantial cost advantage over independent publications for each of the three participants.

If this pilot issue is successful we will strongly consider making more permanent arrangements. The cost factors will be easily determined and evaluated. The unknown will be your response. Please, drop us a line indicating your comments, opinions, and desires with regard to the joint format. Without your feedback, we will be guessing. Remember, the executive and publications committees are here to serve you, so let us know what you want.

As soon as financial and usefulness, etc., information is compiled a summary will be published to establish an open forum on this important question.

Joel B. Snyder, Chairman, Long Island Section  
Robert G. Sokalski, Chairman, North Jersey Section  
Al Kohan, Chairman, New York Section

## How This Joint Issue Came About

During the past two years, the Metropolitan Sections Advisory Council (METSAC) conducted a careful study of the feasibility of combining "The Newsletter," "The Pulse," and "The Monitor" into a single publication. (METSAC is an advisory council consisting of two members — Past Chairmen — from each section. Its function is to investigate issues of common interest to the three sections and make recommendations to the sections.)

The study report outlining both advantages and disadvantages of a merged publication was communicated to the three Executive Committees.

It was felt that publication committees of the sections would gain insight into the advantages and the problems involved by first publishing an experimental combined issue. This April issue is the culmination of their combined efforts.

Haroun Mahrous, Member, METSAC

# CALENDAR OF LOCAL MEETINGS

## **Wednesday, April 5 – Magnetics Chapter—Princeton Section**

"Magnetic Plasma Confinement for Controlled Thermonuclear Research," Dr. Robert G. Mills, Speaker. Murray Hall, Room 217, Rutgers University, New Brunswick, N. J., 8:00 P.M. Pre-Meeting Dinner: Reservations needed.

## **Wednesday, April 12 – Metropolitan Circuit Theory**

"The Design of Computer Communication Systems," Dr. Howard Frank, Speaker. Polytechnic Institute of Brooklyn, Room 418, Rogers Hall, 333 Jay Street, Brooklyn, N. Y., 8:00 P.M.

## **Wednesday, April 12 – LI MTT and AP**

"Antenna Systems for Military Satellite Communication Terminals," Emmanuel J. Perrotti, Speaker. P.I.B. Graduate Center, Route 10, Farmingdale, N. Y., 8:30 P.M. Pre-Meeting Dinner: Marcpiere Restaurant, Route 110, S. Melville, N. Y., 6:00 P.M.

## **Thursday, April 13 – NJ GMTT and AP**

"Prospects for Millimeter Wave Radio Systems," Dr. Hogg, Speaker. Arnold Auditorium, Bell Laboratories, Murray Hill, N. J., 8:00 P.M. Pre-Meeting Dinner: Wally's Tavern on the Hill, Watchung, N. J., 6:00 P.M.

## **Tuesday, April 18 – Metropolitan I&M**

Spring, 1972, Lecture Series. 2nd Floor Conference Room, 30 Evergreen Place, East Orange, N. J., 8:00 to 10:00 P.M.

## **Tuesday, April 18 – LI Section**

"Dilemmas and Decision Making in Preparing the Fiscal Year 1973 Civil Technology Budget Request to Congress," Dr. Lawrence A. Goldmuntz, Speaker. Light Engineering Building, Room 102, State University at Stony Brook, N. Y., 8:00 P.M. Pre-Meeting Dinner: Al Dowd's, Route 25A, East Setauket, N. Y., 6:00 P.M.

## **Tuesday, April 18 – NY P&I Division**

"Power Fuses and Accessories," Peter Shurman, Speaker. Consolidated Edison, Room 1425, 4 Irving Place, NYC, 6:30-8:30 P.M.

## **Tuesday, April 18 – NY Comm-Tech and Computer**

IBM Facilities Tour, Poughkeepsie and Fishkill, N. Y. Registration required.

## **Tuesday, April 18 – NJ Communications Society**

"Off-Track Betting Systems," Mark Wall, Speaker. ITT Laboratories, Nutley, N. J. (Auditorium is located at base of Tower), 8:00 P.M.

## **Wednesday, April 19 – NJ Power Engineering Society**

Tour of GM Assembly Plant, Linden, N. J., 7:15 P.M. Registration required.

## **Wednesday, April 19 – Metropolitan G-EMB**

"Modern Electrophysiological Measurement Techniques," Ernest Amatriek, Speaker. Rockefeller University, South Lab, Room 204, York Ave. and 68th St., NYC, 8:00 P.M. Pre-Meeting Dinner: Tower Building Cafeteria, Rockefeller U., 6:00 P.M.

## **Wednesday, April 19 – NY/LI Power Engineering and I&GA**

"New World of Electronics at Disney World, Florida," R. W. Sonnenfeldt, Speaker. Also 1972-73 officers to be elected. Con Edison Auditorium, 19th Fl., 4 Irving Place, NYC, 6:30 P.M.

## **Thursday, April 20 – Metropolitan Electron Devices**

Symposium on MOS Devices and Integrated Circuits. CUNY Graduate Center, 33 W. 42nd Street, NYC, 9 A.M. to 4 P.M.

## **Thursday, April 20 – LI Computer Society and ACM**

"Has Multiprogramming Really Delivered What You Expected?," Nick Ziccardi, Robert Eckes, Kurt Fuchel, and Steve Shellings, panel members. Pickwick Motor Inn, Exit 48, LIE, 8:15 P.M. Pre-Meeting Dinner: Pickwick Motor Inn, 7:00 P.M. Cocktails, 6:00 P.M. Reservations: Call Joan Hopke (516) 575-1404 or Dan Polofsky (516) 575-7210.

## **Thursday, April 20 – NJ Computer Society**

"Structuring Programs for Correct Operation," Prof. Peter J. Denning, Speaker, Room 1H009, Bell Labs at Whippany, N. J., 8:00 P.M. Pre-Meeting Dinner: DeMario's Restaurant, Route 10 at U.S. 287 Junc., Whippany, N. J., 6:00 P.M.

## **Saturday, April 22 – Metropolitan I&M**

Consolidated Edison Field Trip. Con Edison Gowanus Station, 27th Street & 3rd Avenue, Brooklyn, N. Y. 10 A.M. and 2 P.M.

## **Wednesday, April 26 – LI GMTT**

"Recent Advances in Filter Technology," Robert L. Slevin, Speaker. PIB Graduate Center, Route 110, Farmingdale, N. Y., 8:00 P.M. Pre-Meeting Dinner: The Blue Dolphin Restaurant, Route 110, Farmingdale, N. Y., 6:00 P.M.

## **Wednesday, April 26 – Metropolitan Reliability**

"Computer Software Reliability," Dr. Martin L. Shooman, Speaker. The Polytechnic Institute of Brooklyn Graduate Center, Farmingdale, N. Y., 6:00 P.M.

## **Thursday, April 27 – NJ Automatic Control and Multi-Group**

"Identification and Control of Industrial Hazards," William J. Schreiber and Dr. Frederick M. Kessler, Speakers. County College of Morris, Faculty Dining Room - Student/Community Center, Route 10 at Center Grove Rd., Randolph Township, N. J., 8:00 P. M. Pre-Meeting Dinner: Daren Scott Inn, 6:00 P.M.

## **Thursday, April 27 – North Jersey Section**

Tour of Garden State Paper Co., Garfield, N. J., 6:00 P.M. Registration required – tour limited to 30 persons.

## **Saturday, April 29 – Metropolitan Student Council**

Student Activities Day. County College of Morris, Route 10 and Center Grove Road, Randolph Township, Dover, N. J.

## **Wednesday, May 10 – Metropolitan G-EMB**

"Prolonged Living in an Undersea Environment," Dr. T. Reich, Speaker. Rockefeller University, South Lab., Room 204, York Ave. and 68th St., NYC, 8:00 P.M. Pre-Meeting Dinner: Tower Building Cafeteria, Rockefeller U., 6:00 P.M. Details next issue.





LI SECTION

## Dilemmas and Decision Making in Preparing the Fiscal Year 1973 Budget Request to Congress

The April meeting of the Long Island Section will hear Dr. Lawrence A. Goldmuntz, of the Office of Science and Technology, Executive Office of the President, discuss "Dilemmas and Decisionmaking in Preparing the Fiscal Year 1973 Civil Technology Budget Request to Congress" at the meeting to be held at State University of N. Y. at Stony Brook. Dr. Goldmuntz will discuss the factors which determine what funds the President will request Congress to provide for Civil Technology.

### About the Talk

The civil technology portion of the Administration's budget request to Congress consists of a great many inputs from the various branches of government, from the private sector, from interagency task forces oriented toward a specific technology, from the Executive Office staff, with a mandate to review technology opportunities appropriate to the Federal Government. All these efforts must be screened through various limiting processes having to do with (1) the availability of funds; (2) the imbedding of technology in a frequently larger problem structure involving economic and social limitations; and (3) the conflicting requirements of various segments of our civil society.

### About the Speaker

Dr. Lawrence A. Goldmuntz joined the Office of Science and Technology as the Executive Secretary to the Federal Council for Science and Technology in March 1971. In September 1971 he was also made an Assistant Director of the Office of Science and Technology for Civilian Technology. He had previously been with the staff of the Assistant Secretary for Research and Technology, Department of Transportation.

In the Department of Transportation he served as Chairman of the Metroliner Steering Committee charged by the Secretary of Transportation with the task of implementing the recommendations of the Government/Industry Task Force, to identify the problems delaying the initiation of the Northeast Corridor Washington-New York high speed rail demonstration. He also served the Department as the Executive Secretary of the Air Traffic Control Advisory Committee from July 1968 until September 1969.

Dr. Goldmuntz received the B.E.E., M.E.E., and Ph.D. degrees from Yale University in 1947, 1948, and 1950, respectively. He is a member of Sigma Xi, the American Physical Society, and the American Institute of Aeronautics and Astronautics.

*Time:* Tuesday, April 18; 8:00 P.M.

*Place:* Light Engineering Building, Room 102, State University at Stony Brook, N. Y.

*Pre-Meeting Dinner:* Al Dowd's, Route 25A, East Setauket, N. Y.; 6:00 P.M.

## LI COMPUTER

### Has Multiprogramming Really Delivered?

The April 20 meeting of the L. I. Chapter of the IEEE Computer Society will be a joint meeting held with the L. I. Chapter of the ACM. The format will be a panel discussion titled "Has Multiprogramming Really Delivered What You Expected?", during which several experts will be given an opportunity to evaluate the performance of multiprogramming in their respective fields. Panel members are: Mr. Nick Ziccardi, Doubleday Co.; Mr. Robert Eckes, Teleprocess Industries, Inc.; Mr. Kurt Fuchel, Brookhaven Labs; and Mr. Steve Shellins, Merlin Systems. Members of the panel will be available for comments and questions following the presentation.

### Joint Sponsorship Objectives

The IEEE Computer Society has two objectives in sponsoring this and the next meeting (which will also be a joint meet-

ing with the ACM). First, it affords the computer engineer an opportunity to obtain a good picture of an important type of computer operating system. Secondly, it offers him an opportunity to meet and communicate with professionals in the user and software domains.

### Reservations Required

The ACM Chapter will handle reservations for dinner. Call Joan Hopke at (516) 575-1404 or Dan Polofsky, Vice-Chairman LICACM, at (516) 575-7210. A cocktail hour at 6:00 P.M. precedes dinner at 7:00 P.M.

*Time:* Thursday, April 20; 8:15 P.M.

*Place:* Pickwick Motor Inn, Exit 48, LIE.

*Pre-Meeting Dinner:* Pickwick Motor Inn; 7:00 P.M. Cocktails, 6:00 P.M.

*Reservations:* Call Joan Hopke (516) 575-1404 or Dan Polofsky (516) 575-7210.

*A report from the Computer Society Chairman appears on page 4.*

## REPORT FROM LI CHAIRMAN

We are studying the feasibility of offering a retraining program for our unemployed members.

A special course is being assembled which will teach Computer Programming. The course will cover programming techniques from machine language to high level languages for computers from mini to maxi. The goal is to prepare participants for work as programmers in such fields as: communications, utility routines, compiler construction, financial and business systems, and commercial and scientific programming.

The course will be given on Long Island and unemployed IEEE members will be admitted FREE.

Registration will be limited. If you are interested in this course please drop a note with your: Name, Address, Phone, IEEE Membership Grade and Number, and Employment Status to me at: 58 Diamond Drive, Plainview, N. Y. 11803.

*Joel B. Snyder, Chairman, LI Section*



The realization of highly selective MIC filters is one of the most significant developments toward the achievement of completely integrated receivers for space applications. The discussion of MIC filters will include examples illustrating the bandwidth, selectivity and insertion loss achievable with the various filter types. Characteristics of the different MIC transmission lines will also be discussed.

Robert L. Sleven is head of the Filter Technology and Applications Department of AIL where he is responsible for the development and manufacture of special purpose filters, equalizers, and related RF components. This has included superconducting filters, active filters, multiplexers, microwave integrated circuits, solid-state switches and ferrite devices. For the past several years he has specialized in the application of computers to filter design. Since joining AIL in 1956, Mr. Sleven has authored over a dozen papers on filters, parametric amplifiers and microwave mea-

*Pre-Meeting Dinner:* The Blue Dolphin Restaurant, Route 110, Farmingdale, N. Y.; 6:00 P.M.

## LI MTT & AP Satellite Antenna Systems

Mr. Perrotti is presently the manager of the Antenna Group at ITT Defense Communication Division. His group is responsible for the development of communication antenna systems for submarine, surface ships and land satellite communication terminals. Prior to his present position, he was the section head responsible for all advance development antenna systems. In addition, he was also responsible for the design and fabrication of commercial earth terminal antenna feeds built by ITT. Mr. Perrotti holds degrees in both mechanical and electrical engineering from the City College of New York and John Hopkins University, respectively.

*Pre-Meeting Dinner:* Marcpierre Restaurant, Route 110, South Melville, N. Y.; 6:00 P.M.

## LI COMPUTER Chairman Details Plans

As yet we have not selected a speaker or topic for the May meeting and are therefore open to suggestions from our membership. Members are invited to participate in all functions of the Computer Society and the L. I. Section. Several ambitious projects are currently underway that are of technical and professional importance to the IEEE Membership.

Of particular interest to Computer Society members is the symposium now in the planning stage. It is titled "Computer Software Reliability." It is planned for late this year and addresses itself to any aspect of computer hardware, software and management relating to software reliability. An extensive list of topics has been prepared and several committees are now functioning. Representatives of distinguished universities and major companies on Long Island are involved at present in making plans for the symposium. Here is another excellent opportunity for IEEE members to get involved in a major, meaningful project of direct benefit to themselves. Anyone requiring more information may contact me or Dr. Milton Minneman, Chairman, IEEE Symposium Committee, c/o General Instruments Corp., Andrews Road, Hicksville, N. Y. 11802. (516) 681-4300.

We are constantly striving to find ways in which the Computer Society can best serve its membership and its community. We would appreciate hearing from you on any matter you feel pertinent to the above.

*Frank S. Butash, Chairman  
L. I. Chapter, IEEE Computer Society  
c/o B.E.E., Inc., Box 125,  
West Hempstead, N. Y. 11552  
(516) 538-4498*

  
**CHECK CALENDAR ON PAGE 2**  
**FOR ALL LOCAL MEETINGS**  




## Structuring Programs for Correct Operation

The North Jersey Chapter of IEEE Computer Society will present a program on "Structuring Programs for Correct Operation" on April 20. Prof. Peter J. Denning of Princeton University will be the featured speaker.

It has been found that disciplined programmers who limit themselves to a small number of constructions while constructing an algorithm, very often and with less effort, produce programs which are comprehensive, easy to explain, simple to document and straightforward to validate. This talk will review Structuring Programs for Correct Operation.

Professor Denning is noted for his

work on operating systems, particularly with respect to analyses of resource allocation. He was appointed to the EE Department of Princeton University in 1968, after receiving the Ph.D. degree from MIT. He contributed to Project MAC while at MIT. At present, in addition to authoring a book on the analysis of operating systems, he serves on the ACM Council.

*Time:* Thursday, April 20; 8:00 P.M.

*Place:* Room 1H009, Bell Labs at Whippany, N. J.

*Pre-Meeting Dinner:* DeMario's Restaurant, Route 10 at U.S. 287 Junc., Whippany, N. J.; 6:00 P.M.

## NJ POWER ENGINEERING

### Tour of General Motors Assembly Plant

The North Jersey Chapter of the Power Engineering Society will hold its sixth meeting on April 19 at General Motors Assembly Plant, Linden, New Jersey. (U.S. Route 1, opposite Newark Airport.) **Reservations Required**

This meeting will be a tour of this facility. The tour will be limited to 40 adults on a first-come, first-serve, basis. Anyone interested in attending this meeting shall confirm his position by contacting Mr. Steve Cowan at (201) 376-9000, ext. 280. The meeting place will be in the Visitors' Parking Lot of General Motors. Please return coupon below prior to April 12, 1972.

*Time:* Wednesday, April 19; 7:15 P.M.

*Place:* General Motors Assembly Plant, Linden, N. J.

#### GM PLANT TOUR

Send to: Mr. Steve Cowan  
General Electric Company  
25 E. Willow Street  
Millburn, N. J. 07041

Name \_\_\_\_\_

Address \_\_\_\_\_

No. Required \_\_\_\_\_

Business Phone \_\_\_\_\_

## NJ SECTION

### Visit Scheduled to Garden State Paper Plant

A tour of the Garden State Paper Co., Garfield, N. J., will be held by the North Jersey Section on Thursday, April 27, at 6:00 P.M.

The tour group will have an opportunity to view ways in which modern electrical technology is used in the recycling of old newsprint into usable paper.

Don't miss this opportunity to observe the production operations of paper manufacture right in your own backyard.

Reservations required. Those who are interested, please fill in the registration slip below and mail it in before April 18, enclosing a self-addressed envelope. The tour is limited to 30 persons, so mail your reservation early!

Mr. John J. Imm  
c/o General Electric Company  
25 East Willow St.  
Millburn, N. J. 07041

I intend to participate in the Garden State Paper Co. plant tour on April 27, 1972.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

Telephone \_\_\_\_\_

## NEWARK COLLEGE OF ENGINEERING

### 1972-73 Day and Evening GRADUATE PROGRAMS In ELECTRICAL ENGINEERING

#### PROGRAM OFFERINGS

Full-time day, Afternoon part-time\*, Evening part-time

Leading to the Graduate Degrees of  
MASTER OF SCIENCE IN ELECTRICAL ENGINEERING, MASTER OF SCIENCE, ELECTRICAL ENGINEER, AND DOCTOR OF ENGINEERING SCIENCE

Interdisciplinary programs including courses and research in computer science, bioengineering, environmental systems, etc., are available.

#### AREAS OF SPECIALIZATION

SYSTEMS ENGINEERING  
(INTERDISCIPLINARY)  
PASSIVE AND ACTIVE CIRCUIT SYNTHESIS  
CONTROL SYSTEM ENGINEERING  
ELECTRONIC COMPUTERS  
COMMUNICATION THEORY  
COMMUNICATION DEVICES  
MICROWAVES, ELECTRO-OPTICS,  
HOLOGRAPHY  
ELECTRONIC SYSTEMS RELIABILITY  
ELECTRIC POWER SYSTEM ENGINEERING

#### Tentative course offering for Fall 1972:

EE 120 - Electromagnetic Field Theory  
EE 150 - Circuit Analysis  
EE 163 - Introduction to Control Systems  
EE 175 - Introduction to Digital Circuits  
EE 211 - Transients in Power Systems  
EE 239 - Feedback Amplifiers I  
EE 241 - Reliability in Electronics  
EE 242 - Modulation Theory I  
EE 250 - Transistor Circuits  
EE 256 - Linear Systems  
EE 264 - Discrete Systems  
EE 270 - Advanced Electromechanical Energy Conversion  
EE 273 - Random Processes in Electrical Communications I  
EE 280 - Analog Computer Techniques  
EE 323 - Theory of Guided Waves  
EE 353 - Electric Filter Design  
EE 379 - Principles of Phase Lock and Frequency Feedback  
EE 424 - Advanced Antenna Theory  
EE 466 - Optimal Control Theory

#### REGISTRATION

Obtain complete details by calling or writing:  
The Graduate Division, NCE

323 High Street, Newark, N. J. 07102

Telephone: (201) 645-5160

between 9:00 a.m. and 4:00 p.m.

For Fall semester, application and supporting documents deadline is August 1.

NOTE: the newly reinstituted Auditor status can be used to update engineers in industry.

#### GENERAL INFORMATION

Newark College of Engineering is supported by the City of Newark and by the State of New Jersey. It is located in Newark within a few minutes of the Erie-Lackawanna and the Pennsylvania and PATH Railroads as well as the N.J. Turnpike, Garden State Parkway, and U.S. 1-9.

\*The doctorate requires a minimum of 1 year in residence for the dissertation.

## REPORT FROM:

# The North Jersey Section Nominating Committee

### Nomination of Section Officers

The Nominating Committee is offering the following slate of individuals as candidates to serve as North Jersey Section IEEE officers for the period from July 1, 1972, to June 30, 1973:

Chairman	— Carl C. Torell
Vice Chairman	— Harlan J. Perlis
Treasurer	— John H. Gerth
Secretary	— J. F. Kampschoer
Member-at-Large (1)	— Peter F. B. Jackson
Member-at-Large (2)	— Max Schindler

### Independent Nominations

Additional nominations may be made by a petition signed by no fewer than 25 voting members of the Section and transmitted to the Secretary for submission to the Executive Committee not later than April 30. The petition must certify that persons nominated have agreed to serve if elected.

### Election of Officers

The election of officers shall take place at the May general meeting of the Section, unless the Executive Committee decides that a mail ballot is required. In case a mail ballot is used, it shall be sent out to all voting members no later than May 10 and shall be returned no later than one month from the date of mailing; in the case of a mail ballot, the Chairman shall appoint at least three tellers having the approval of the Executive Committee to count the mail ballot within one week after the closing date for returns.

### Institute Committee and Boards

In addition to recommending a slate of candidates for Section offices, the Nominating Committee is also charged with recommending to IEEE Headquarters the names of suitable individuals to serve on various Institute Committees and Boards. Any Section member who wishes to propose nominees for Section Committees and Boards should contact the Chairman of the Nominating Committee whose name and phone number are shown below.

*Section Nominating Committee of the North Jersey Chapter*  
*Herbert E. Blaicher, Jr., Chairman*

If there are questions related to any of the above materials, or any aspect of the nominating process, those inquiries should be directed to: Herbert E. Blaicher, Jr., G.P.U. Service Corp., 260 Cherry Hill Road, Parsippany, N. J. 07054. Phone (201) 539-7888, Ext. 670.

**Anaren Microwave Inc.**  
Couplers, Mixers, Hybrids  
Stripline Systems, Butler Matrix

**International Microwave Corp.**  
Amplifiers, Oscillators, Receivers  
Bite, Noise Monitoring Equipment

**Electronic Navigation Industries**  
High Power Wide Band Amplifiers  
Power Combiners

**Electromagnetic Sciences Inc.**  
Latching and Analogue Ferrite  
Devices, Isolators, Circulators,  
Phase Shifters, Monopulse  
Convertors, Modulators

**Bertan Associates**  
High Voltage Power Supplies

**Curtis Instruments**  
Electrochemical Elapsed Time  
Meters, Integrators

**FOR IMMEDIATE, INFORMED APPLICATIONS  
ENGINEERING ASSISTANCE, CALL:**



**bertram d. aaron & company**  
P. O. Box 186, ROSLYN, N. Y. (516) MA 1-0630

NYC Phone: (212) 895-3840

## NJ MTT & AP

# Millimeter Wave Radio

The North Jersey section of IEEE groups on Microwave Theory and Techniques and Antennas and Propagation present a talk on the applicability of millimeter waves to terrestrial and satellite communication radio systems. The speaker will be Dr. David Hogg.

The limitations imposed by attenuation and depolarization by rain are discussed in detail. High transmission reliability is found to be achievable by short repeater spacings in the terrestrial case and by path diversity in satellite systems. A guided radio transmission system, called the Hertzian cable, under study for application in denser urban areas, is also described. The impact of new technology on systems economics is discussed.

Dr. Hogg, a Fellow of the IEEE, received his B.Sc. from the University of Western Ontario and his M.Sc. and Ph.D. from McGill University. He has been with BTL since 1953.

*Time:* Thursday, April 13; 8:00 P.M.

*Place:* Arnold Auditorium, Bell Laboratories, Murray Hill, N. J.

*Pre-Meeting Dinner:* Wally's Tavern on the Hill, Watchung, N. J.; 6:00 P.M.

## NJ COMM-TECH

# Off-Track Betting

Mr. Mark Wall of Computer Sciences Corporation will discuss off-track betting systems on April 18, 1972, at ITT Laboratories, Nutley, N. J. (Auditorium is located at base of the Tower.)

Off-track betting systems, otherwise known as voluntary revenue systems since they are operated by government agencies to offset other taxation, are presently in the pioneering stage of development. One such system being developed is the New York Off-Track Betting System which, when completed, will be one of the largest and most unique data processing systems in the nation. Mr. Wall will give a system overview of the OTB System. Included in the presentation will be a description of the communications terminals used with telephone betting and window ticket selling as well as system design with respect to security and reliability.

*Time:* Tuesday, April 18; 8:00 P.M.

*Place:* ITT Laboratories, Nutley, N. J.



## NJ AC & MULTI GROUP Environmental Hazards Control in Industry

On Thursday, April 27, the Automatic Control Group and the Multi-Group Chapters of the North Jersey Section will hold a joint meeting to discuss the identification and control of environmental hazards in industry. In recent years major importance has been placed on the control of these hazards by enactment of federal legislation.

Guest speakers will be William J. Schreibeis of Bell Telephone Laboratories and Dr. Frederick M. Kessler of L. S. Goodfriend & Associates.

Mr. Schreibeis will discuss the role that the industrial hygiene engineer plays in creating a safe industrial environment for employees. The traditional techniques used include the identification and evaluation of potential problems, and the design and installation of control systems.

Dr. Kessler will discuss the new Williams-Steiger Occupational Safety and Health Act of 1970 and will describe how it extends noise standards to all non-governmental industrial activities. He will also discuss noise data acquisition, reduction and analysis with particular emphasis on a computer-controlled real time analysis system. The talk will conclude with a description of a novel means of muffler parameter optimization developed by Dr. Kessler at Rutgers University.

Mr. Schreibeis received his B.S. degree in Civil Engineering and a Masters of Public Health from the University of Pittsburgh. He is a licensed P.E. and is the industrial hygiene engineer at Bell Laboratories in Murray Hill.

Dr. F. M. Kessler is presently the director of the engineering acoustical consulting services for both environmental and product acoustics at L.S. Goodfriend & Associates in Cedar Knolls. He was a member of the faculty of the Electrical Engineering Department at Rutgers University where he received his Ph.D.

*Time:* Thursday, April 27; 8:00 P.M.  
*Place:* County College of Morris, Faculty Dining Room - Student/Community Center, Route 10 at Center Grove Rd., Randolph Township.

*Pre-Meeting Dinner:* Daren Scott Inn on the north side of Rt. 10, two miles east of the college or one-half mile west of K-Mart Shopping Center; 6:00 P.M.

## PRINCETON MAGNETICS Plasma Confinement for Thermonuclear Research

The IEEE Magnetics Chapter-Princeton Section announces a talk by Dr. Robert G. Mills entitled "Magnetic Plasma Confinement for Controlled Thermonuclear Research."

Dr. Mills will introduce the audience to the need for and interest in thermonuclear power. The current state of the world research effort will also be examined.

Dr. Mills heads the Engineering and Development Division of Princeton University, Plasma Physics Laboratory.

*Time:* Wednesday, April 5; 8:00 P.M.  
*Place:* Murray Hall, Room 217, Rutgers University, New Brunswick, N. J.

*Pre-Meeting Dinner:* Alumni-Faculty Club, 199 College Ave., New Brunswick, N. J.; 6:00 P.M. Call (201) 247-1766, ext. 6325 for reservations.

### NY P&I

## Fuses and Accessories

The New York P&I Division will hold a Technical Discussion Group meeting on April 18, chaired by Alphonse Martino. Mr. Peter Shurman of S&C Electric Co., Inc., will speak on "Power Fuses and Accessories."

Mr. Shurman will discuss high voltage power fuses, fuse type switch gear, design, fabrication and application, including coordination.

*Time:* Tuesday, April 18; 6:30-8:30 P.M.  
*Place:* Consolidated Edison, Room 1425, 4 Irving Place, NYC.

### NY COMM-TECH & COMPUTER Tour of IBM Facilities

A tour of the IBM Facilities at Poughkeepsie and Fishkill, N. Y., will be co-sponsored by the NY Comm-Tech and Computer Groups on April 18.

The tour will include inspection of the Main Frame Facilities at Poughkeepsie and Components and Semiconductors at Fishkill. There will be a Dutch lunch at the IBM cafeteria.

The bus from New York City will leave from 34th St., midway between 7th and 8th Ave. (north side), at 8:30 A.M. and return at 5:00 P.M. Fee is \$3.00.

Those who wish to drive on their own

shall meet at 10:30 A.M. at IBM Education Center, Bldg. 005, Poughkeepsie - just off Route 9.

### IBM Tour - Registration Form

Send to: Mr. K. K. Clarke, Clarke-Hess Co.  
43 West 16 St., New York, N. Y.

Tour - New York Bus at \$3.00 each:

\_\_\_\_\_ persons

Check enclosed for \$ \_\_\_\_\_  
(Payable to IEEE Comm Tech Group)

Tour - By Personal Car \_\_\_\_\_ persons

Names: \_\_\_\_\_

Tele. No. \_\_\_\_\_

Address \_\_\_\_\_

## RETRAINING PROGRAM

Mr. A. Thumann, P.E., announces that the last 18-hour Retraining (REP) Program for this year in the N. Y. area will be held at the United Engineering Center on Tuesdays and Thursdays, 7:00-10:00 P.M., beginning April 25.

The course simulates the role of the electrical consultant in the construction industry and includes: 1) Power & Lighting Design; 2) Conduit Cable & Fuse Selection; 3) Short Circuit Analysis; 4) Logic and Control for Process Operation; 5) Schedules, Budgets, Manpower & Fees.

The Program, recognized by sections of the IEEE and AIAA Workshops, has proved it can be an effective tool in helping unemployed and overspecialized electronic engineers. Registration fee (including materials) - \$60.00 IEEE members; \$75.00, all others.

NOTE: If unable to attend, you can receive a self-study book based on the REP Program - \$12.00, IEEE members; \$15.00, all others.

Checks should be made out to A. Thumann. To register contact (by April 17): A. Thumann, 85-20 Elmhurst Ave., N. Y., N. Y. 11373. (212) HA4-1078.

# NEWS OF METROPOLITAN JOINT GROUPS

## METROPOLITAN CT Design of Computer Communications Systems

The April meeting of the Metropolitan New York Joint Chapter on Circuit Theory will be held on Wednesday evening April 12, at 8:00 P.M. at the Polytechnic Institute of Brooklyn, Room 418, Rogers Hall, 333 Jay Street, Brooklyn, N. Y.

It will feature a talk on "The Design of Computer Communication Systems," by Dr. Howard Frank of the Network Analysis Corporation of Glen Cove, New York.

In his talk Dr. Frank will explore the relationship between classical topological circuit techniques and the effective design of a computer communication network. These principles are applied in the design of the ARPA network of 21 computer sites throughout the continental United States.

Dr. Frank is President of Network Analysis Corp. He was formerly Associate Professor of Electrical Engineering and Computer Sciences at the University of California, Berkeley, Consultant to the Office of Emergency Preparedness, and a Consultant to the Computation Center at the Lawrence Radiation Laboratories.

The interim officers, who are also candidates for the offices for the coming years, are as follows:

*Co-Chairmen:* A. Glaser and H. Shichman, Bell Telephone Laboratories, Murray Hill, N. J.

*Secretary-Treasurer:* S. Prigozy, City College of New York

*Time:* Wednesday, April 12; 8:00 P.M.  
*Place:* Polytechnic Institute of Brooklyn, Room 418, Rogers Hall, 333 Jay Street, Brooklyn, N. Y.

## METROPOLITAN I&M Spring Lecture Series

The Metropolitan Chapter of the Instrumentation and Measurement Group will hold a Lecture Series on "Instrumentation for Environmental Pollution Measurement." The series, to be held on Tuesdays, April 18 through May 23 (8:00 - 10:00 P.M.), will be conducted at the 2nd Floor Conference Room, 30 Evergreen Place, East Orange, N. J. (Convenient

parking and dining facilities — Holiday Inn, Suburban Lounge, etc.)

Topics to be covered are:

April 18: "A Survey of Environmental Pollution Instrumentation Problems," Mr. Harvey Lunenfeld, Technical Advisor and Power Plant Specialist, U. S. Environmental Protection Agency, New York, N. Y.

April 25: "Instrumentation for Water Quality Measurements," Speaker from Technicon Industrial Systems, Tarrytown, N. Y.

May 2: "The Measurement of Effects of Pollution on Marine Life," Dr. Robert Tucker, Middle Atlantic Coastal Fisheries Center, Sandy Hook Laboratory, Highlands, N. J.

May 9: "The Prediction and Measurement of Thermal Pollution," Dr. Stanley G. Chamberlain, Environmental Systems Center, Raytheon Co., Portsmouth, R. I.

May 16: "The Measurement and Monitoring of Air Pollution," Dr. John W. Liskowitz, Associate Professor of Environmental Engineering, Newark College of Engineering, Newark, N. J.

May 23: "Noise Pollution Instrumentation," Mr. Robert A. Buole, Product Marketing Manager for Acoustic Instrumentation, General Radio Co., West Concord, Mass.

Fees are: IEEE Members - \$20, Non-Members - \$30, Student Members - \$5. Advance registration advisable - study group size limited to 40. Send check, payable to "Joint Chapter I&M, IEEE," to Mr. Daniel Cotte, 4 Telemark Road, Rockaway, N. J. 07866.

For further information: contact Prof. Harlan J. Perlis, Newark College of Engineering at (201) 645-5492/5472.

## METROPOLITAN G-EMB Modern Measurements

At the April 19 meeting of the Group in Engineering in Medicine and Biology, Mr. Ernest Amatniek will speak on "Modern Electrophysiological Measurement Techniques."

### About the Talk

Close to two decades ago major advances in electrophysiological research were made possible by the introduction of; first, the micropipette electrode and; second, the neutralized input capacitance electrometer amplifier for intracellular

measurements. The new instrumentation technique is centered around the simple concept that an ideal current generator shunting the input of an ideal amplifier can measure the external circuits voltage and impedance parameters — as defined by Thevenin's Theorem — without modifying the circuit characteristics. Mr. Amatniek will discuss the characteristics of a measuring system, based on the above concept and its applications to intra- and extra-cellular stimulation, and voltage and impedance measurements.

### About the Speaker

Mr. Amatniek is Technical Director of the Bioelectric Instruments Division, General Microwave Corporation. Mr. Amatniek has been a Research Associate, Department of Neurology, Columbia University College of Physicians and Surgeons. In 1961 he established Bioelectric Instruments Inc. to produce electronic instruments for biological research. In 1970 his company became a division of General Microwave Corp. Mr. Amatniek's present prime responsibility is guiding the expansion of his company's product line into medical as well as research applications.

*Time:* Wednesday, April 19; 8:00 P.M.  
*Place:* Rockefeller University, South Lab, Room 204, York Ave. and 68th St., NYC.  
*Pre-Meeting Dinner:* Tower Building Cafeteria, Rockefeller University; 6:00 P.M.

## LI/NY POWER & I&GA Disney World Electronics

The combined Power Engineering Society and I&GA Group of the New York and Long Island Sections of the IEEE will sponsor a talk by Mr. R. W. Sonnenfeldt on the "New World of Electronics at Disney World, Florida."

Mr. Sonnenfeldt, who is a Staff Vice President of Systems Marketing and Development at RCA, will discuss the role that RCA has played in developing the electronic wonderland at the magic kingdom of Walt Disney World.

1972-73 officers for the group will be elected at this meeting.

*Time:* Wednesday, April 19; 6:30 P.M.  
*Place:* Con Edison Auditorium, 19th Fl., 4 Irving Place, NYC.  
*Refreshments:* Served 6:00-6:30 P.M.



## METROPOLITAN ED All-Day MOS Symposium

An all-day symposium, sponsored jointly by the City University of New York and the IEEE Metropolitan New York Group on Electron Devices, will be held April 20 at CUNY Graduate Center, 33 West 42nd Street, from 9:00 A.M. to 4:00 P.M.

### *Papers to be presented are:*

MOS-Silicon on Sapphire Technology, Edward C. Ross, Inselek Corp.

Ion Implanted Silicon Gate Circuits, Robert B. Palmer, MOSTEK

N-Channel Coplanar MOS Technology, Paul Richman, Standard Microsystems

Recent Developments in MOS IC Technology—Applications to Imaging Devices, Joseph Kostelec, Philips Laboratories

Charge Transfer Devices, Robert J. Strain, Bell Telephone Laboratories

MOS Edge Detection—Speed without Power, Richard Greene, MOS Technology  
MOSM-ary Varactors and Their Microwave Application, Raymond Camisa, Joseph Nadan, CCNY

MOS for Data Communication and Applications, Gerry Gollub, Standard Microsystems

Single Cell Random Access Memory, Leo Cohen, General Instruments

Registration: IEEE Members, \$25; Non-Members, \$30; Full-time Students, \$5. Registration fee includes coffee and lunch. Make checks payable to "CCNY EE Dept. Conference" and remit to: Dr. J. Nadan, CCNY EE Dept., 140th St. and Convent Ave., New York, N. Y. 10031, or register at door.

## METROPOLITAN I&M Barge Field Trip

The New York, North Jersey, and Long Island Joint Chapter—Instrumentation & Measurements will sponsor a tour of the instrumentation areas on a Consolidated Edison Company barge mounted, gas turbine generating unit. The field trip will include an inspection of the G.T. Barge and its equipment, a presentation by the G.T. Operating Department on the operation and role played by these units in providing electric power for New York City and a "question & answer" period. The tour will take about two hours.

The Gas Turbine Barges are located at Con Edison's Gowanus Substation; 27th Street and Third Avenue; Brooklyn, New

York. Parking is available outside the station. Due to the limited space on board the G.T. Barges, the tour will be restricted to the first 50 applicants and will be divided into two sections, one in the morning and one in the afternoon. Send in your reservation early. You will receive an identification pass as confirmation of your reservation.

*Time:* Saturday, April 22, 10:00 A.M.—25 persons; Saturday, April 22, 2:00 P.M.—25 persons.

*Place:* Con Edison Gowanus Station; 27th Street & 3rd Avenue, Brooklyn, N. Y.

*Reservations:* Karl O. Sommer, Consolidated Edison Company of New York, Inc., 4 Irving Place—Room 1301, New York, New York 10003, Phone: 212-460-6176.

## METROPOLITAN EM Re-activate Group?

The Joint Metropolitan Engineering Management Group has been involved with topics that are primarily management oriented and secondarily connected with engineering.

The Group has had speakers, panels, discussions, dinner meetings, etc., on such topics as Patents, Motivation (Work Enrichment), Pensions, Role Playing Games in Management, etc. Meetings have been held in Nassau County, New York City, and New Jersey.

The Group, so far, has been self-sustaining in that it has made money by running courses such as "Financial Aspects of Management," "Management Games," "A Computer Survey Course," etc.

Apathy and economics have combined this past year to bring activity to a halt.

### **The BIG Question**

The question is now being asked: "Is there sufficient interest to warrant re-activating the Group?"

Do not look upon this question as academic, for if you answer "yes," realize that carries the responsibility of action. This group calls upon its members to help in the operation; members are required to help in the programs, and to attend meetings. By operating in this fashion, members have had an interesting and enjoyable time.

If you are interested in becoming involved, write to:

Stanley Kramer  
14 Thunderbird Drive  
Oakland, N. J. 07436

## METROPOLITAN RELIABILITY Computer Software

The IEEE Reliability Group, New York/Long Island Chapter, is having a meeting on April 26 at the Polytechnic Institute of Brooklyn Graduate Center in Farmingdale, N. Y. A presentation will be delivered by Dr. Martin L. Shooman on "Computer Software Reliability."

Dr. Shooman is Associate Professor of Electrical Engineering at the Polytechnic Institute of Brooklyn and a noted authority in reliability analysis and has authored many papers and research reports in this area. He is author of the book, *Probabilistic Reliability: An Engineering Approach*.

Computer programs have become increasingly more complex, and the problem of residual errors and their effect on the system has become more acute. This talk will summarize some of the work being done in the field of software reliability and introduce some new probabilistic models for software errors.

Those attending, who so desire, will get together afterward at a local restaurant.

*Time:* Wednesday, April 26; 6:00 P.M.

*Place:* The Polytechnic Institute of Brooklyn Graduate Center, Farmingdale, N. Y.

## METROPOLITAN PH&P Heat Transfer Papers Call

The Chairman of the Metropolitan Parts, Hybrids and Packaging Group (G-21) would like to bring to the attention of Group members an ASME meeting on Heat Transfer in Electronic Systems. A special session on Heat Transfer in Electronic Systems will be held at the ASME Winter Annual Meeting in New York on November 26-30, 1972.

Intended papers should deal with the transient and/or steady state heat transfer characteristics of electronic equipment. Consideration may be given to the cooling of individual electronic components or the entire electronic package.

The deadline dates are **April 15, 1972** for Abstract to Symposium Chairman and **May 26, 1972**, for complete manuscripts (4 copies) to Symposium Chairman. Abstracts and manuscripts should be sent to the Symposium Chairman: Dr. W. Aung, Bell Laboratories, Room 5C-120, Whippany Road, Whippany, N. J. 07981.



# COME BLOW YOUR HORN

Have you felt the winter wind of unemployment? Have you heard the unsettling oratoria of the anti-technologists? Have you seen the once proud stamp "MADE IN U.S.A." on a piece of consumer electronics equipment lately?

An estimated 100,000 engineers and scientists are currently unemployed. Include our underemployed colleagues (hot dog vendors, meat inspectors, etc.) and that number looms even larger. These colleagues of ours have felt the chill of lost pensions and health benefits, and subsistence on unemployment benefits. Many of them have also felt the frostbite of expired unemployment benefits. Some of them have suffered the trauma of welfare checks, food stamps and severe self doubt due to over exposure to this "economic climate" of ours. Of course it can't happen to you. You are talented, in demand, and comfortable before your hearth of false security. Or are you?

You the technologist — discoverer of atomic fission, inventor of the computer, despoiler of the environment, proponent of war — are not only passive to the destruction of our world but contribute more to it each day. Haven't you heard the words sung in the oratorio, "Damn Technology and Its Proponents"? Perhaps the all-enveloping warmth of false security extends to deafness too!

Look into your local electronics emporium. Over 90 percent of the solid state radios, tape recorders, etc., carry a stamp which I read as "NOT MADE IN U.S.A." Does your brand of economics cloud your vision and thus make it difficult to see the impact upon our balance of payments problem and "de" valuation of the dollar?

Where were you the week of February 20, 1972? Incidentally, that was NATIONAL ENGINEERS WEEK. Were you busy listening to the overwhelming proclamations of the national disgrace of wasting a critical manpower resource? Perhaps you listened to the many prayers of thanks offered for the living standard provided by engineering technology? You must have at least heard the glowing descriptions of new programs for employing us to solve the problems of our cities, our environment, and our international trade position. THERE WERE NONE! OUR WEEK passed without so much as the blessing or recognition given the ubiquitous pickle during its WEEK. But, perhaps the pickle is truly more valuable to society than THEE and ME. Judging by the relative effort devoted to promoting use of each, the pickle certainly comes out on top.

Ah, you say, the question is not where was I, but where was my profession, my technical society. They were prepared with information packets to provide you

to do your own local promotion. National promotion? They're not geared up for that! International publications, by the ream; international conventions, by the score; an annual presentation to the public throws them to the floor! You see by all evidence we are only capable of talking to ourselves, and our societies can only talk to us and, occasionally, we to them. A neat little closed and circular communications system. Notably well designed to maintain our talents and internal self image. Not worth a damn for producing and maintaining a public image. I wonder if anyone has ever successfully marketed a service or product by describing its virtues to his competitors only? Isn't that what we try to do?

Do we have something to market? Listen to the remarks of Milton Alpern, P.E. (President-Elect, N.Y.S.S.P.E.), upon accepting this year's Engineer of the Year Award from the Nassau County Chapter, N. Y. State Society of Professional Engineers:

" . . . A particularly large portion of my pride in accepting this award is based on my pride in being a member of the Engineering Profession itself. Though this Award may be in my name, its real significance is that it is symbolic of an award due to almost all members of the Engineering Profession. There is no need for me, or any Engineer, to be modest about the accomplishments of the Engineering Profession, as a whole. In fact, . . . some of the major current problems in our Engineering Profession stem from its legacy of unwarranted over-modesty about the accomplishments of its members. This perversion of our otherwise excellent code of ethics has resulted in a lack of public knowledge of, and recognition for the high ethical dedication and enormous contributions of the Engineer segment of society. The net effect of this lack of understanding has been distinctly harmful to the stability of the profession, and is in my opinion, chipping away at one of our country's real, though unrecognized, national resources.

" . . . today civilized people now enjoy, *but take for granted*, the immense product of Engineering achievement including warm and air conditioned buildings, abundant power at push-button command, safe water and sewage treatment systems, massive choices of varieties of food, abundant availability of information and education, easy two-way communications with the rest of the entire world, and basically safe and convenient local and world-wide transportation systems. They *take for granted* the facts — which were only recently considered science fiction — that Engineering has placed men on the moon and provided easy means of seeing

history in the making halfway around the world — in living color."

Isn't it time that the public understand the wealth of technology required to place Sapporo or Peking on our TV screens with the notation VIA SATELLITE. My 8 year old thought VIA SATELLITE was an outstanding athlete who competed in every event at the Winter Games until I heard him exclaim, "What him again!" Now that is a real measure of OUR failure to describe OUR success.

How then can we promote our product? Based on my experience with the Skills Conversion Research Project I would say "door to door." That project, managed by N.S.P.E. for the Joint Societies Employment Advisory Committee and sponsored by the Department of Labor, was aimed at identifying and creating new professional career opportunities for the displaced technical professional via project team member interviews of top and middle managers in some 30 industries and government agencies that are not users of technology in substantial ways. It has become apparent that while the target number of new opportunities were not found (by a large margin), a remarkable job of bringing knowledge of engineering and science skills, and their potential benefits to these people has been accomplished. There is nothing like effective person-to-person communication to sell a product. If nothing more, we can prove that we are human, intelligent, understanding and skilled — counter the stereotype of the dull engineer and the recluse scientist.

The stance and rigidity of our societies makes it obvious that WE must take the action required to preserve our profession and create a demand for its services. Where do you begin? Start with those who already have expressed concern for their nation and neighbor — Kiwanis, Rotarians, Lions, Chamber of Commerce, Boy Scouts, Church groups, etc. They need speakers to keep their meetings going. Why not one of us? Once the beginning is made, the rest will follow.

Why you? Simply put: 1) there is no one else; 2) if you can't explain it simply to a layman you don't understand it; 3) one day you may face an employer who asks, "What can you really do for me?" — have the answer now and test it; and 4) it's time you proved to yourself that talking to OTHERS can be fun and profitable.

Join me to assure that future talk topics will be in the vein: WHITHER ENGINEERING and not WITHER ENGINEERING.

COME BLOW OUR HORN.

*Gunther R. Geiss, Ph.D.  
Contributing Editor  
The PULSE of L.I.*



The twenty-second in a series of annual international symposia organized by the Microwave Research Institute of the Polytechnic Institute of Brooklyn to be held 4-6 April, 1972 at the Hotel Commodore in New York City. This symposium has been organized with the participation of the Communications Society and the Computer Society of the IEEE with the Communications Society as a cosponsor. As in the past, this symposium is cosponsored under the Joint Services Electronics Program at PIB by the Air Force Office of Scientific Research, the Office of Naval Research and the Army Research Office.

## TUESDAY 4 APRIL 1972

## I Opening Remarks and Keynote Paper

Brig. Gen. A. B. Crawford, Project Mgr., Army Tactical Data Systems  
Mr. R.H. Tonner, President, IEEE  
"Computer-Communications Networks and Policy," Dr. G.F. Mansur, Deputy Dir., Office of Telecommunications Policy, Executive Office of the President

## II Performance of Comp/Comm Networks

"An Analysis of the Separation Between Pockets in a Store-and-Forward Network," C.D. Cole & L. Kleinrock, UCLA  
"The Synthesis of Non Flow Redundant Communication Networks," J. deMercado & N. Spyrtos, Dept. of Comm., CANADA  
"The Structure of a Distributed Computer System—Communications," D.J. Farber & K. Lorson, UC, Irvine.  
"Traffic Flow in a Distributed Loop Switching System," M.L.T. Yuen, B.A. Black, E.E. Newhall & A. N. Venetsanopoulos, U. Toronto, CANADA.  
"Loops Used for Data Collection," J.D. Spragins, IBM, Raleigh.

## III Computer-System Modelling

"A Queuing Analysis of a Multiprocessor System with Shored Memory," K. Omahen & L. Schrage, U. Chicago.  
"Optimal Processor Scheduling if Service Times are Hyperexponentially Distributed & Preemption Overhead is Not Negligible," K.C. Sevcik, U. Toronto, CANADA.  
"Some Thoughts about Locality in Program Behavior," P.J. Denning, J.E. Savage & J. Spin, Princeton U.

"Measurement Data on the Working Set Replacement Algorithm & their Applications," W. Chu, N. Oliver & H. Opderbeck, UCLA.

## IV Queuing Models for Computer/Comm

"Service Epochs in a Loop System," A.G. Konheim, IBM, Yorktown.  
"Optimization of the Structure of a Digital Computer Program as a Priority Queuing System," I.M. Dukhovnyi & K.K. Kolin, USSR Acad. of Sciences.  
"Sampled Queuing Systems," M. Langenbach-Belz, U. Stuttgart, W. GERMANY.  
"A Disk File System Shared by Several Computers in a Teleprocessing Environment," J. H. Chong & S. Gorenstein, IBM Yorktown.  
"Dispatching in Network Computers," E.K. Bowden, Sr., U. Illinois

Banquet Speaker: Dr. Howard Frank, on "The Science Fiction Computer"

## WEDNESDAY 5 APRIL 1972

## V Theory of Connecting Networks

"Combinatorial Connecting Networks," A.D. Kharkevich, USSR Acad. of Sci.  
"On Networks Nonblocking in a Wide Sense," V. Beneš, U.C., Berkeley  
"A Study of One Class of Binary Blocking Connecting Systems," V.I. Neiman & N.D. Vvedenskaya, USSR Acad. of Sci.  
"On the Calculation of Overflow Systems with a Finite Number of Sources and Full Available Groups," R. Schehrer, Allgemeine Elektrizitäts-Gesellschaft, GERMANY  
"Two Matrix Models of Three-Stage Switching Circuits," V.A. Garmash, USSR Acad. of Sciences.  
"On the Methods of Designing Multi-Network Connection Systems," E. I. Melik-Gaikazova, USSR Acad. of Sciences.  
"On Nonblocking Switching Networks," D. G. Cantor, UCLA.

## VI Telecommunications, Switching, Routing

"Routing Technique for Message Switching Network with Message Outdating," A. Butrimenko, USSR Acad. of Sciences.  
"Methods to Control and Operate a Message-Switching Computer Network," G. J. Brandt & G. Chretien, Societé Int. De Télécommunications Aéronautiques, FRANCE.  
"The Influence of Faults on the Calculation of the Number of Devices for Non-Poisson Traffic," K. Rahko, Helsinki U. Tech. FINLAND.  
"Design of Optimal Gradings," G. L. Jonin, J. J. Sedol, A. A. Smilgaïs & P. Stuchka, Latvian State U. USSR.

## VII Multicommodity Flows and Computer Network Routing

"Routing Strategies for Computer Network Design," W. Chou & H. Frank, N.A.C.  
"A Heuristic Approach to Large Multicommodity Flow Problems," K. Steiglitz, Princeton U., F. J. Gratzner, B.T.L., Holmdel.  
"Mathematical Programming and Multicommodity Flow Problems," W.W. White, IBM, Philo.  
"A Large Scale Multicommodity Flow Problem: Telepak," D. J. Kleitman, MIT, A. Claus, SRA Networks.

## VIII Cable TV

"The Cable TV System as a Computer-Communications Network," I. Switzer, Maclean-Hunter Cable TV, CANADA

## IX Topological Optimization

"Restoring Route Outages in Networks Having Spare Capacities," F. T. Boesch & R. E. Thomas, BTL, Whippany.  
"Optimization of Concentrator Locations in Teleprocessing Networks," L. R. Bahl & D. T. Tong, IBM, Yorktown.  
"The Generation of a Minimal Tree with a Steiner Topology," S-K. Chong, Cornell U.  
"Design of Computer Networks Based on a New Reliability Measure," R. S. Wilkov, IBM, Yorktown.  
"Lagrangian Optimization of Stochastic Communications System Models," V. K. M. Whitney, G. M. Res. Lab.

Full Program, Hotel details on request

PLEASE POST

## THURSDAY 6 APRIL 1972

## X Queuing Theory

"Toward an Algebraic Theory of Markovian Networks," V. Wallace, U. of N.C.  
"Two Servers in Sequence with Erlang Input," W. Chong, IBM, White Plains.  
"Output Processes and Tandem Queues," P. J. Burke, BTL, Holmdel.  
XI, XII Queuing Models for Comp Systems  
"Waiting Time Distributions - Round-Robin Queuing Systems," R. R. Muntz, UCLA  
"Queuing Models for Multiprogrammed Computers," I. Adiri, IBM, Yorktown.  
"Mean Cycle Time for a Pure Time-Sharing System," L. Lee & M. Lewin, Bell-Northern Research, CANADA.  
"Comparison of Some Multi-Queue Models with Overflow and Load-Sharing Strategies for Data Transmission and Computer Systems," U. Herzog & P. Kuhn, U. of Stuttgart, GERMANY.  
"A Model for Data Transmission in Queuing System with Priorities," E. Wollner, FTZ Res. Inst. GERMANY  
"Random Service Queues," J. L. Sears, Go. Inst. Tech.

## XIII Design of Software/Architecture for Computer-Communications

"A Communications Interface for Digital Computers," A. G. Fraser, BTL, Mr. Hill  
"Strategies for Interprocess Communication in Distributed Computing Systems," R. Metcalf, MIT  
"Data Shoring Using Interprocess Communication on a Computer Network," P. Karp, Mitre Corp.  
"An Operating System for Network Environment," R. Akkoyunlu, A. Bernstein & R. Schantz, SUNY, Stony Brook  
"The Structure of a Distributed Computing System - Software," D. J. Farber & K. Lorson, U.C., Irvine.

## XIV Architecture of Computer-Communication Networks: The User's View

## PANEL DISCUSSION

Eight brief presentations introduce discussion of the past, present and future computer-communications environment from the viewpoint of systems engineers planning, designing, and testing major systems.

## SPECIAL LATE REGISTRATION

IEEE Metropolitan NY members with this notice may register at the door at the advance rate of \$15. One day registration after 4 April: Members: \$8, others: \$9. Full-time students with identification as such may register at half rates. (Above less \$3 if Vol. XXII ordered.)

PROCEEDINGS (Deduct 20% if IEEE member) To order: Circle item & send name, title, association & mail address with check payable to PIB Symposium, 333 Joy Street, Brooklyn, NY 11201 (or call 212-643-2393)  
XXII Computer-Communications Networks and Teletraffic (Prepaid to June 1972) \$20  
XXI Computers and Automata (1971) \$25  
XIX Computer Processing in Communications (1969) \$24  
XII Mathematical Theory of Automata (1962) \$14



## STUDENT COUNCIL Meeting Schedule Set

Meeting will be held on April 8, 1972, at County College of Morris, Room 151, Administration Building, Route 10, Dover, New Jersey, 12 miles west of Bell Labs, Whippany.

The agenda will be Prize Paper Contest at County College of Morris (tickets, program, transportation, etc.); IEEE Convention Results (Student Aide Program, report on MSC recommendation to "Student Policy and Planning Committee"; IEEE Spectrum (report on MSC letter); New Business.

Westchester Community College will host MSC meeting on May 6, 1972, finalizing the year's activities and making plans for 72-73 school year.

All colleges are invited and encouraged to send representatives.

# Student Activities

By **STELLA  
LAWRENCE**

### Student Activities Day — April 29, 1972

On Saturday, April 29, students from over 21 metropolitan colleges will attend the annual Student Activities Day to be held this year at the lovely campus of the County College of Morris, Route 10 and Center Grove Road, Randolph Township, Dover, N. J.

The chairman of the Metropolitan Student Council, Greg Price, will open the formal program at about 12:30 P.M. The leading papers in the Student Prize Paper Contest will then be presented by their authors. The Prize Paper Contest is supported by the New York, North Jersey, and Long Island Sections of the IEEE. The technical part of the day's program will take place in Room 141 of the Academic/Science Building

An Open House will follow the paper presentations. There will be tours of the college campus, which includes a beautiful pond, and if the sun will be shining (hopefully), a nice spring day will certainly be a joy after the long winter! In addition there will also be visits to the college laboratories and technical films.

The modern, new Student Center, completed in September 1970 will also be open to IEEE Student Branch Members and their guests. There are large lounges with fireplaces, and recreational facilities where the visitors will be able to relax and enjoy themselves.

The evening program will begin with a dinner, served in the Faculty Dining Room of the Student/Community Center. The winners of the Prize Contest will be announced after the dinner.

IEEE Student Branch Members are cordially invited to attend all or any part of Student Activities Day and to bring their friends. There will be a nominal fee of between one to two dollars since the costs are being subsidized by the IEEE.

Plan now to spend April 29 at County College of Morris! For exact details as to schedules, price of tickets, where to obtain tickets, etc., the editors wish to advise students to ask their Branch Chairman, IEEE Counselor, or the Metropolitan Student Council Representative.

### Directions to County College of Morris By Automobile

#### *George Washington Bridge*

After getting off the George Washington Bridge in New Jersey, take Route 80 west to its present end in Parsippany at Route 46. Take Route 46 west for 2.2 miles. On the left side of the road will be a turnoff for Route 287 south. Take Route 287 south for 3.1 miles. Get off at Route 10 going west. Take Route 10 west for 8.5 miles. Watch for County College of Morris green signs. Make a left at Center Grove Road. The college entrance is two or three blocks further on the right. It is well marked. Park in lots 3, 4, and 5. Time approximately one hour.

#### *Lincoln Tunnel*

After leaving the Lincoln Tunnel in New Jersey, take Route 3 west to the junction of Route 46 west. Take Route 46 west until you reach Parsippany. Follow the above directions.

#### *Holland Tunnel*

After leaving the Holland Tunnel in New Jersey, take Route 9 north to the junction of Route 3 west. Take Route 3 west and follow the above directions.

### By Public Transportation

Bus is the preferred means of public transportation, Port Authority Bus Terminal, 41st Street and 8th Avenue (Times Square). Buy tickets before boarding the bus at windows 1 through 4. Take Lakeland Bus which leaves from Platform 172.

Get off at main bus terminal in Dover, N. J. Transportation will be arranged to the County College from there. Check current bus schedule.

Saturday: Leave New York, 10:30 A.M.; Arrive Dover, 11:40 A.M.

Buses leave Dover every half-hour between 7:00 and 9:00 P.M.

### *Train to Dover*

Take Path train from 33rd Street to Hoboken. Erie Lackawanna train leaves Hoboken at 10:30 A.M.; arrives at Dover 11:45 A.M. Transportation will be arranged to the County College from there. Trains leave for Hoboken every hour at 55 minutes after the hour.

A list will be kept of people who are taking the bus or train to Dover so that their pickup can be arranged. This will either be done by private taxis or school vehicles. It would be best to notify your Branch Counselor or MSC Representative if you would like pickup at Dover.

