



The IEEE

Newsletter

Published monthly September thru May 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 20 November 1973 Number 3

NEWSLETTER STAFF

Editor John A. Zieger
Managing Editor M. Perugini
Student Activities Editor Les Kovach
Associate Editor Al Schreiber
Associate Editor Thomas Morton

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 1973-1974

Chairman.....Harlan J. Perlis
Vice Chairman.....John Gerth
Treasurer.....Max J. Schindler
Secretary.....Kenneth Grace, Jr.
Member-at-Large.....James C. Gass
Member-at-Large.....Dr. Robert McMillan
Jr. Past Chairman.....Carl C. Torell

Communications for the Banking Industry

The November 14th Meeting of the North Jersey Chapter of the Communication Society will feature a talk on modern communications facilities for the nation's banking industry as exemplified by Teleprocessing Industries' SYSTEM-3000. The speaker will be Leonard Stier, a Staff Specialist with the Banking and Credit Services Division of Western Union's Teleprocessing Industries, Inc.

SYSTEM-3000 is an operator-assisted, computer-based communications system designed to increase operating efficiency and lower overall costs for commercial banks. It automates the major functions of a bank's Wire and Cable Room, as well as the Money Transfer Operation. SYSTEM-3000 interfaces with other communications facilities, including Fedwire, Bank Wire, direct wire or cable, TELEX, TWX international cable or MAILGRAM.

Mr. Stier joined Western Union in 1966 and has since been involved in the design of computer message switching systems. He served as Section Manager, Communications Engineering, responsible for the network design associated with the im-

plementation of Western Union's ISCS-II Site at Middletown, Va., a nationwide computer message switching system.

In his current capacity, Mr. Stier is developing new services relative to the Banking and Credit field. He received his B.S. in 1962 from the University of Toronto and his M.S.E.E. from Columbia University, N.Y.C., in 1966.

Time: 8:00 P.M., Wednesday, November 14, 1973

Place: Bell Laboratories, Whippany Road, Whippany, N.J. 07981 (Call: 201-386-3275 for information)

Low Noise Receivers

The North Jersey MTT/AP Chapter is having its second talk this fall. It will be given by B. Glance and W.W. Snell from Bell Laboratories on a "Low-Noise Integrated Millimeter-Wave Receiver."

Time: 8:00 P.M., Thursday, November 15, 1973

Place: ITT-Avionics Auditorium at 500 Washington Ave., Nutley, N.J.

Pre-Meeting Dinner: Copperhood Restaurant, Park Ave. (off Rt. 3), Lindhurst, N.J.

Tungsten Gate Technology

Tungsten Gate Technology will be the subject of the November 15 meeting of the Metropolitan Electron Devices Group. H.A. Waggener of Bell Telephone Sales, Murray Hill, N.J. will trace the technology of a 1024 bit self-aligned W gate memory chip from inception to completion.

Herbert A. Waggener was born in Sedalia, Missouri in 1936. He received the B.S. degree in physics from the University of Missouri, Columbia, Missouri, in 1958 and the M.S. degree in physics from San Diego State College, San Diego, California, in 1960 where he worked as a graduate assistant.

From 1954 to 1961, he was employed by the Navy Electronics Laboratory where he worked on the development of underwater acoustic transducers. He joined Bell Laboratories, Murray Hill, New Jersey, in 1961. He has worked on problems related to both hybrid and silicon monolithic integrated circuits. This work includes design and fabrication of the first beam-lead air-isolated integrated circuits, development of anisotropic etching and electrochemically controlled thinning techniques for improving fabrication of such devices. From 1967 to 1969, he was engaged in further development of beam-lead and air-isolation techniques at Bell Labs, Allentown, Pennsylvania. In 1971, he was appointed Supervisor of the Metals-Insulator-Semiconductor Studies Group; and in this connection, contributed to the development of a beam lead sealed junction self-aligned W gate IGFET technology. He is presently employed as a project supervisor with the Teletype Corp. in Skokie, Illinois.

Mr. Waggener is a member of the IEEE.

Time: 8:00 P.M., Thursday, November 15, 1973

Place: General Instruments, Hicksville, L.I., N.Y.

Pre-Meeting Dinner: 6:00 P.M., Milleridge Inn

Antenna Array Element

A meeting of the NY & LI Group on Antennas and Propagation is to be held at the Polytechnic Institute of New York on Route 110 in Farmingdale, Long Island, New York on November 29, 1973 at 8:00 P.M.

A paper entitled "A Wide Band Dual Polarized Phased Array Element" will be presented by Al Lopez of the Hazeltine Corporation, Greenlawn, Long Island, New York. Fundamental pattern coverage and impedance matching limitations of a small element in a phased array environment will be discussed. The effects of a thin high-K dielectric sheet placed in front of the array aperture, and the implications of surface waves and mutual coupling will also be discussed.

Al Lopez received the BSEE degree from Manhattan College in 1958, and the MSEE degree from the Polytechnic Institute of Brooklyn in 1963. He was employed by Wheeler Laboratories, Smithtown, New York, a subsidiary of the Hazeltine Corporation, in 1958, where he is presently employed as a consulting engineer. He has worked on various monopulse radar systems, AMI, and the development of array feed networks and apertures. Most recently he had participated in the design of a Microwave Landing System (MLS). He is a member of IEEE, G-AP, and EKN, and has published several papers in the Transactions on Antennas and Propagation.

A pre-meeting dinner will be held at the Blue Dolphin Restaurant on Route 110 in Farmingdale, Long Island, New York at 6:00 P.M. For further information call B DeMarinis, 201-284-2074.

Recording Techniques

The I&M Group, Metropolitan Chapter IEEE, is planning a one day seminar on the latest recording techniques. The seminar will be held on Thursday, November 15, 1973, at the Newark College of Engineering.

The seminar will encompass many new techniques such as liquid jet recorders, electrostatic, laser beam and instruments with memory. The speakers will include prominent engineers from Hewlett-Packard; Minneapolis Honeywell, Siemens and Brush.

The seminar will be of great practical interest to engineers engaged in R&D, testing, power system protection and communications. The presentations will emphasize applications and the latest equipment will be on hand to demonstrate the various techniques.

Detailed information and registration can be obtained by writing the Chairman, Jerome G. Friedman, c/o Friedman Associates, Inc., 110 Halsted St., East Orange, New Jersey 07018, or calling 201-673-2500.

State-of-the Art In Real-Flight Test Analysis

The New York/North Jersey Chapter of the Aerospace & Electronic Systems Society will hear Mr. Raymond P. LeCann discuss the "State-Of-The-Art In Real-Flight Test Analysis Systems" at its November 29th meeting.

The development of a real-time flight test analysis system is traced from design to implementation. The major criteria employed in determining its feasibility, configuration, and expected profitability are explained. The resulting configuration and capabilities of the system are discussed. Finally, an appreciation of the system's effectiveness is provided by means of a film depicting man-machine interactivity during an actual F-14 test flight.

Mr. LeCann is Director of Commercial Telemetry Products at the Grumman Data Systems Corporation. He has been responsible for the development of the Grumman Automated Telemetry System currently being supplied to Edwards AFB, as well as several earlier Grumman automated systems for flight test data processing. He has also been Chairman of the data standards subcommittee of the Telemetry and Data Systems Committee, Aerospace and Flight Test Radio Coordinating Council, since 1968, and is a member of the New York Academy of Science and the Society of Flight Test Engineers. Mr. LeCann received the B.S. degree from N.Y.U.

Time: 8:00 P.M., Thursday, November 29, 1973

Place: ITT Defense Space Group Auditorium, 500 Washington Ave., Nutley, N.J. (main lobby entrance near base of microwave tower)

Pre-Meeting Dinner: 6:15 P.M., Copperhood Restaurant, 1 Park Ave., Lyndhurst, N.J., (just south of Rt. 3)

Failure Analysis

The November 1st meeting of the North Jersey Chapter—Reliability Group will hear Mr. A.J. Graf discuss "Failure Analysis Methodologies and Case Histories."

The presentation will describe the failure analysis techniques employed by the Device Physics Section, Feltman Research Laboratory, to determine the failure modes of various components used in munition systems. Since the military environment offers many unique problems to the failure analysts, the discussion will center on the application of microelectronic failure analysis techniques as applied to munitions items. A tour of the Reliability Physics Lab will be included in the discussion session.

Mr. Albert J. Graf is Chief of the Device Physics Section, Engineering Sciences Division of the Feltman Research Laboratory. He is responsible for directing the FRL reliability physics activity. Mr. Graf has for a number of years been active in national organizations and symposia concerned with the reliability of electronic components.

All attendee must be U.S. citizens and at least 18 years old. No cameras are allowed.

Place: Engineering Sciences Division Conference Room, Bldg. 350, Picatinny Arsenal, Dover, N.J.

Pre-Meeting Dinner: Picatinny Arsenal Officer's Club, 6:15 P.M.

Contact: Mr. Sid Markowitz, 201-328-6534; Mail—Bldg. 92, Picatinny Arsenal, Dover, N.J. 07801

Lighting Design

The N.Y. Power and Industrial Division of the IEEE will hold a general meeting on Wednesday, November 28, 1973.

A very prestigious group of experts will discuss the most controversial topics in terms of the mechanics of calculating lighting design. The moderator will be Mr. Irving Fishman, Consultant Engineer, Irving Fishman Associates. Speakers will include Mr. Howard Branstom, President, Branstom Lighting Limited; Mr. Willard Warren, President, Lighting Unlimited and Mr. Der Scutt, President, New York Section, Illuminating Engineering Society and Associate Architect, Kahn & Jacobs/H.O.-K. Several viewpoints will be discussed

based on the experience of these experts in the field.

Time: 6—7:30 P.M. Refreshments Served 5:30—6:00 P.M.

Place: 1 World Trade Center, Room 62S (Port Authority Career Development Lecture Room), New York, N.Y.

Morris Planetarium Visit

The Multi-group chapter of the North Jersey Section is sponsoring a trip to the County College of Morris's Planetarium on Wednesday, November 28, 1973 at 7:30 P.M. The Planetarium has just been completed as part of the Phase II building program at the college. It will serve a dual purpose in the North Jersey area. The college will be using it for their space science courses and the community and grade schools will be using it for special programs.

Professor Robert Gebhardt will describe the installation and demonstrate some of the features of the Planetarium. Professor Gebhardt received his B.S.E.E. & M.S.E.E. from the Moore School,

University of Pennsylvania and his M.S. in Mathematics from Stevens Institute of Technology. He has been with the County College of Morris since its opening in 1968. Until now, his primary responsibilities were with the Mathematics Department. He was instrumental in specifying and supervising the construction of the planetarium. Professor Gebhardt's dynamic speaking ability and quick wit will make for a very interesting meeting.

Seating capacity is limited to 80 persons so please send your reservation form in immediately. (sorry—No children under 8 years of age). Tickets will be sent to you by return mail. This meeting is open to friends and relatives of IEEE members.

Reservation Form—Planetarium

Name _____

Address _____

Phone _____

Number of Tickets _____

Mail to Martin Hollander—County College of Morris—Dover, New Jersey 07801—Phone, 361-5000, ext. 261

STUDENT NEWS

Paper Prize Contest Winners

Five papers were presented orally by students to the judges and a sizeable audience at the nineteenth annual Student Paper Prize Contest held at Westchester Community College on April 28th, 1973. The contest was part of a highly successful Student Activities Day sponsored by the Metropolitan Student Council (MSC) in conjunction with WCC IEEE Student Branch and Student Council.

The first prize (\$200) went to Larry Goldstein and Ori Bar-Gadda from Cooper Union for their paper on "A Digital Television System for Signal Redundancy Reduction." The second prize (\$100) was awarded to Robert Smith and Anthony Lamagna from Richmond College for their presentation of "Air Pollution Produced by Commuter Travel on Staten Island." Robert Bleakley of Westchester Community College received the third prize (\$75) for his paper on "Electro Chemical Procedure for Evaluating Water Content in Industrial Products Utilizing the Karl Fischer Method." The fourth (and last) prize of \$50 was awarded to Peter Facciola and Frank Oeliyya of

Pratt Institute for their paper on "Microwave Anticollision Research at Pratt Institute." The fifth place contestants were Miss Willie Webb and Mrs. Stephanie Holloway from Bronx Community College who presented a paper on "Fusion Energy—The Power of the Future." A high degree of professionalism and expertise was very much in evidence during the oral presentations.

The judges were Mssrs. W.J. Carrol (New York Telephone Co.), J.F. Connolly (Western Electric), L.D. Kovach (County College of Morris). Mr. R.W. Hudack was secretary for the judges.

Now is the time for student members to consider entering the paper contest next spring. In addition to the four prizes mentioned above, a \$25 prize is presented to the author of the paper judged best in each local Student Branch that is a member of MSC. The valuable experience gained surpasses the financial awards. The work need not be original in technical content, but should be original in treatment and should be related to the areas with which IEEE is concerned. So submit a paper on your school project, your hobby, or on the job you did for your employer; a prize next year may be your own.

Microfilm Use In The Utility Industry

The Nov. 15th meeting of the North Jersey Section of the Power Engineering Society will be a program on "Microfilm Application As Applied In The Utility Industry." Equipment in actual operation will be demonstrated as part of a two part program. The second half of the program will be a conference with a question and answer period.

Mr. Eugene C. Jewell, Manager of the Public Service Electric and Gas Co. Microfilm Department, will be the guest speaker, assisted by Mrs. Lois Abrams, Technical Assistant to Mr. Jewell. Mr. Jewell has been in Microfilming for over eighteen years. His last thirteen years have been as manager. Mr. Jewell has been instrumental in adopting many new principles now in use in the microfilm industry. He is a member of the National Microfilm Association (NMA), Garden State Chapter of the NMA, and a member of the Garden State Reprographics Association. Mr. Jewell has lectured before several seminars of the NMA and will also discuss innovations in the industry. He will take questions from the audience after his presentation. Refreshments will be served.

This subject should be of major interest to all members of the IEEE, primarily in today's massive paper output which seems to be engulfing us all.

If you plan to attend this most important meeting, please contact Leo E. Lupia, Public Service Electric and Gas Company, at (201) 622-7000, Extension 2051.

Time: 7:30 P.M., Thursday, November 15, 1973

Place: Room 140 for 7:30 P.M. Demonstration and Room 9233 for 8:15 P.M. Conference at Public Service Electric and Gas Company, 80 Park Place, Newark, N.J.

About CNI Systems

The December 11th meeting of the New York/North Jersey Chapters of Aerospace & Electronic Systems Society and Communications Society will include a NASA color film and a talk by Mr. Jack Rubin, CNI Systems Engineering, ITT Avionics on Pros and Cons of Integrated Communication, Navigation and Identification Systems.

The past and near term history of Communication (C), Navigation (N), and Identification (I) systems is said by many to be replete with instances of uncoordinated decisions, each designed to fulfill an immediate operational need. As a result of this specialization in federated C, N, and I systems, we find ourselves today with what has been described as a highly burdensome proliferation of C, N, and I equipments. Integrated CNI has been proclaimed as the solution. The discussion will explore the validity of these assertions and, at the same time, bring up several very good reasons for not integrating CNI Systems. The issue of integrated vs. federated CNI systems is of extreme importance to the avionics community since a firm decision to go either way will shape the future of airborne avionics systems for decades to come.

Mr. Rubin is Engineering Project Manager for the Navy's Integrated Tactical Air Control System (ITACS) Demonstration Experiment Program currently under hardware development at the ITT Avionics Division. For the past five years, he has been involved in various phases of ICNI system definition and development under both Navy and Air Force contracts. Prior to joining ITT, Mr. Rubin was employed by the GPL Division of Singer/General Precision, where he was engaged in analytical studies of integrated doppler-inertial navigation systems. Mr. Rubin received the BEE degree from City College

of New York in 1963, and the MEE degree from New York University in 1964. He has also completed courses towards the Ph.D. degree in Electrical Engineering at New York University. Mr. Rubin is a member of the Institute of Electrical and Electronic Engineers and a member of the Institute of Navigation.

Time: 8:00 P.M., Tuesday, December 11, 1973

Place: ITT Defense Space Group Auditorium, 500 Washington Ave., Nutley, N.J. (main lobby entrance near base of microwave tower)

Pre-Meeting Dinner: Copperhood Restaurant, 1 Park Ave., Lyndhurst, N.J. (just south of Rt. 3) 6:15 P.M.

Network for Pacemakers

GEMB MEETING

Time: 7:30 P.M., Wednesday, November 14, 1973

Place: Rockefeller University, South Laboratory, Room 204, 66th St. & York Ave., New York City

Subject: COMPUTERIZED NETWORK FOR PACEMAKERS

Speaker: Dr. George Myers, Riverside Research Institute, New York

Pre-Meeting Dinner: 6:00 P.M., Tower Cafeteria, 64th St. & York Ave., New York City

