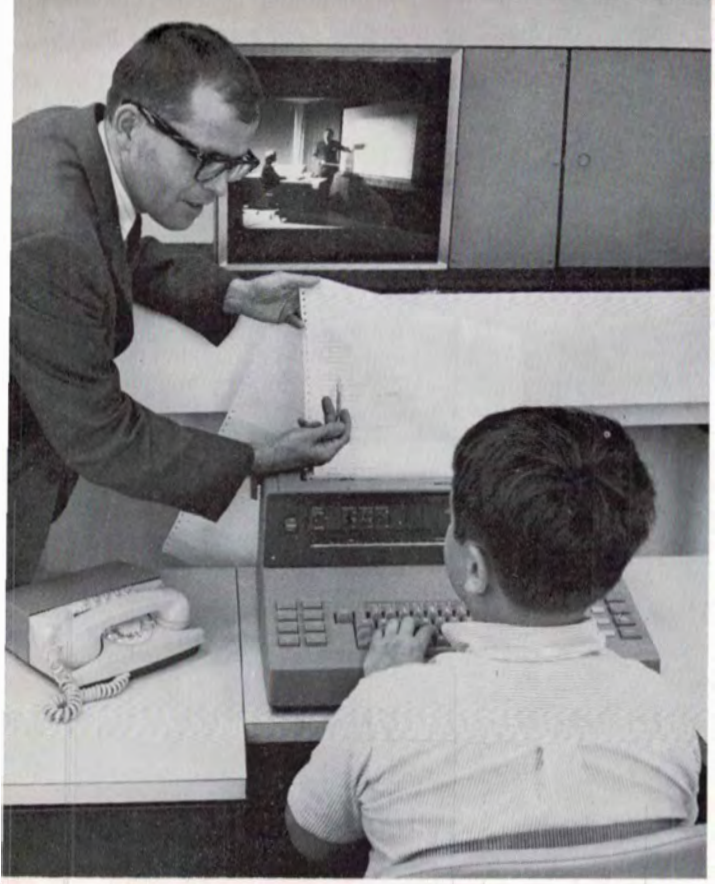


Section Meeting Computer Group

Computer-Assisted Instruction

By Ralph E. Grubb

Wednesday, May 25 — 8 P.M.

Arnold Auditorium — Bell Telephone Labs
Murray Hill, N. J.

For details, see page 6.

Special Interest Item

Seminar on Electroluminescence and Semiconductor Lasers at Stevens Institute

For details, see page 7.

The IEEE
Newsletter
The Magazine of the North Jersey Section

NORTH JERSEY SECTION — ANNUAL DINNER

Wednesday, June 8 — Cocktail Hour 5:30 P.M.

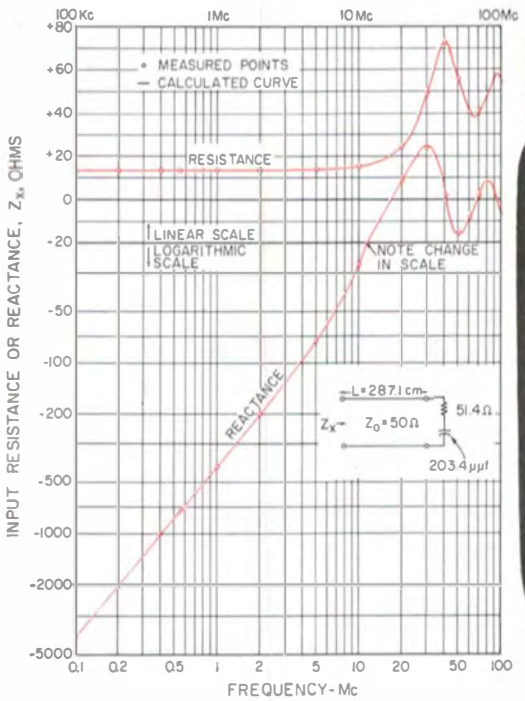
ROBIN HOOD INN, CLIFTON
Guest Speaker —
Col. Edwin J. Istvan, Comsat

For details, see page 4.

Volume 12 / Number 9 MAY, 1966

For Impedance Measurements

over a 400-kc to 60-Mc range



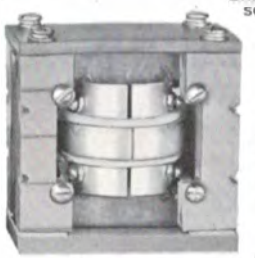
Resistance and reactance of a loaded transmission line as measured with a 1606-A R-F Bridge.

Type 1606-A
Radio-Frequency Bridge . . . $925
in U.S.A.

This R-F Bridge measures resistance and reactance of antennas, transmission lines and networks over a 150:1 frequency range. It is easy to use; measuring technique is by the series-substitution method. The bridge is first balanced with a short-circuit across the unknown terminals. The short is removed, the unknown connected, and the bridge rebalanced. Resistance and reactance of the unknown are then read directly on the bridge's dials (reactance dial reads directly at 1Mc; at other frequencies the reading must be divided by frequency in Mc).

This instrument has the physical ruggedness necessary to withstand severe operating conditions — it is as useful in the field as it is in the laboratory. A complete line of generators and null detectors is available. Write for complete information.

G-R Designed Components Help Make This R-F Impedance Bridge A Broad-Band, Highly Stable Instrument



This transformer is used to couple an external generator to the bridge. It covers the instrument's entire 150:1 frequency range and is triple shielded to keep undesirable coupling to an insignificant level.

Both rotor and stator sections of this unique balancing capacitor are milled from solid blocks of aluminum. This technique eliminates losses that occur at joints between spacers and plates found in conventional designs.

SPECIFICATIONS

Frequency Range: 400 kc to 60 Mc

Resistance Range: 0 to 1000 ohms

Reactance Range: ±5000 ohms direct reading at 1Mc — range varies inversely with frequency

Basic Accuracy: ±(1% + 0.1Ω) for resistance and ±(2% + 1Ω) for reactance; slightly less accurate at higher frequencies — corrections supplied.

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ABOUT ADDRESS CHANGES

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.

Executive Committee Meeting

at Verona Public Library — May 4

North Jersey Section
IEEE Executive Committee

Section Officers

Chairman ..... Walter L. Glomb
Vice Chairman ..... Stephen A. Mallard
Treasurer ..... James W. Gordon
Secretary ..... Joseph O'Grady
Member-at-Large ..... Bernard Meyer
Member-at-Large ..... Herbert Blaicher, Jr.
Past Chairman ..... John K. Redmon

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Education ..... Earl Van Tassel
History and Procedures ..... Frank Polkinghorn
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Nominations ..... A. G. Kandoian
Program ..... M. Irvine
Publications ..... Marcel Kozuch
Publicity ..... Harry Raven
Student Affairs ..... J. W. Earle
Group Coordinator ..... D. R. Campbell

CALENDAR

Friday, May 6

NEWARK COLLEGE OF ENGINEERING SEMINAR

Integrated Circuits Seminar and Field Trip
Apply to Miss Van Demark, NCE—624-2424
At—Newark College of Engineering, Newark, N. J.

Wednesday, May 11

NORTH JERSEY SEMINAR

9:00 A.M. to 4:30 P.M.—"IEEE Basic Sciences — Electron Devices — Electroluminescence and Semiconductor Lasers"
Apply to Mr. Elliot Schlam, EE Dept., N. Y. U., Bronx, N. Y.
At—Stevens Institute, Hoboken, N. J.

N. Y. COMTEC GROUP

6:00 P.M.—"The Engineer and Law"
Mr. F. M. Gibson, Patent Coordinator, American District Telegraph Co.
At—Brass Rail Restaurant, 40th St. and Park Ave., N. Y. C.

Thursday, May 19

JOINT N. Y. ENGINEERING MANAGEMENT GROUP

7:30 P.M.—"Management Information Systems"
Mr. Fritz Wanzenberg, Principal in Charge of MIS, The Diebold Group
Mr. Sam Matsa, Mgr. Advanced Engineering, IBM Corp.
At—United Engineering Center, Room 125, 345 East 47th St., N. Y. C.

N. Y. COMPUTER GROUP

7:30 P.M.—"Hardware Design for Software Facilitation to be Explored"
Dr. Ivan Flores, EE Dept., Stevens Institute
At—IBM Bldg., 590 Madison Ave., N. Y. C.

Friday, May 20

N. Y. RELIABILITY CONFERENCE

Registration at 8:00 A.M.— Seven-session program
General Chairman—Robert Gauger, Hazeltine Corp.
Program Chairman—Anthony Finocchi, ITT Federal Tel. Labs.

Wednesday, May 25

NORTH JERSEY SECTION MEETING
COMPUTER GROUP SPONSORED

8:00 P.M.—"Computer-Assisted Instruction (CAI)"
Mr. Ralph E. Grubb, IBM Corp. and Research Associate, Columbia University
At—Arnold Auditorium, Bell Telephone Labs, Murray Hill, N. J.

Wednesday, June 1

N. Y. INFORMATION THEORY GROUP

3:00 P.M.—"Error Control—Theory and Practice"
Dr. N. Abramson, Harvard University; Dr. A. H. Frey, IBM
Dr. E. J. Weldon, Jr. and Dr. A. D. Wyner, Bell Tel. Labs.
At—Arnold Auditorium, Bell Telephone Labs, Murray Hill, N. J.

Wednesday, June 8

NORTH JERSEY SECTION ANNUAL DINNER

5:30 P.M.—Cocktail and Social
6:30 P.M.—Dinner
At—Robin Hood Inn, 1129 Valley Road, Clifton, N. J.

NORTH JERSEY SECTION

ANNUAL DINNER

June 8, 1966

Guest speaker — Mr. Edwin J. Istvan of Communications Satellite Corporation.

Mr. Istvan, who is Director of the International Development Division of Comsat, will discuss the Corporation's plans for a global satellite communication system. He will also report on a Comsat International Committee meeting scheduled for early June.

The North Jersey Section dinner will be held at the Robin Hood Inn, 1129 Valley Road, Clifton, N. J. A "Dutch Treat" cocktail and social hour will begin at 5:30 P.M. A combination ham and chicken dinner will be served at 6:30.

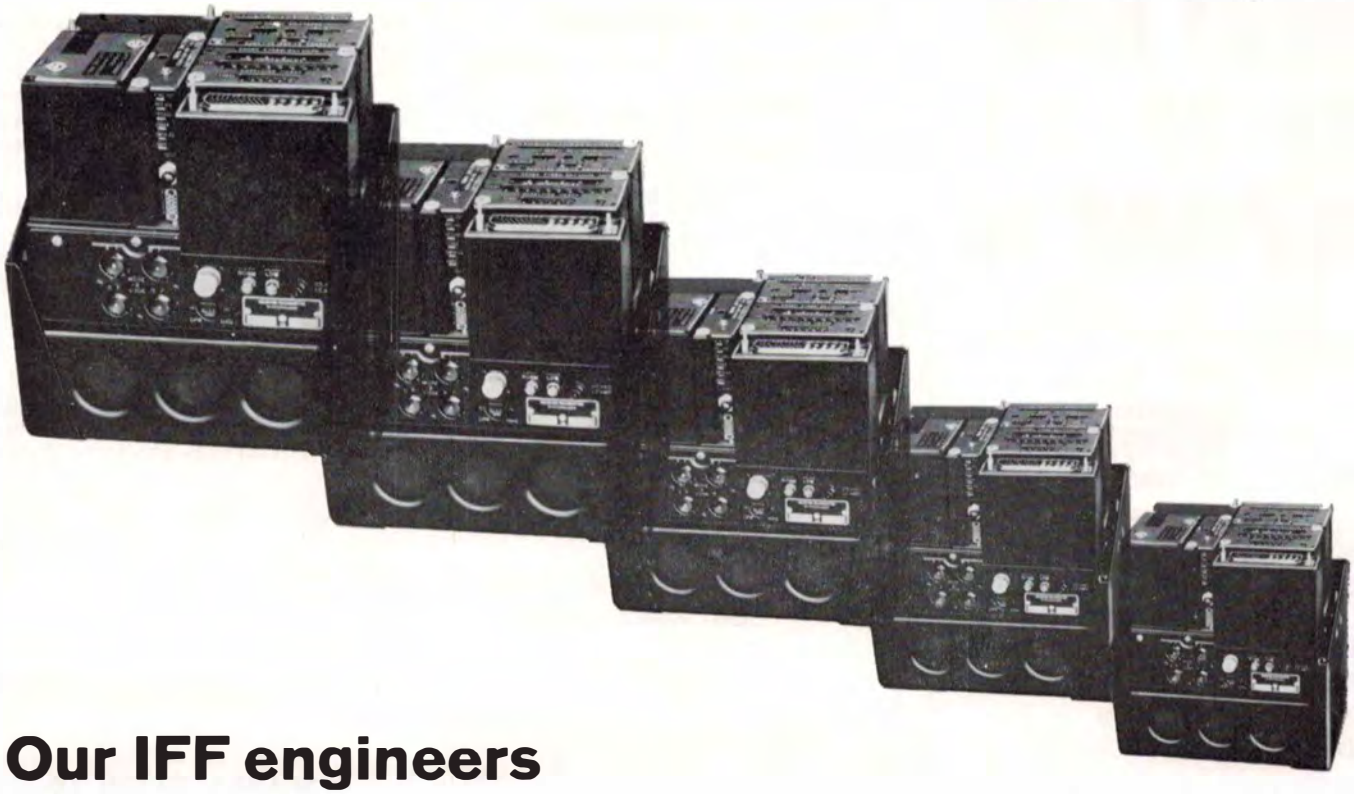
Dinner tickets will cost $4.00 each. Non-members are welcome — including wives.

COUPON COUPON COUPON

Yes! I want to attend the IEEE North Jersey Section's annual dinner meeting on Wednesday, June 8, at the Robin Hood Inn, Clifton, N. J. Enclosed is my check for $ ....., representing payment for ..... dinner tickets at $4 each. (Make checks payable to IEEE North Jersey Section.) *I am enclosing a stamped, self-addressed envelope.*

I understand that if I mail my check after June 1, my tickets will be waiting for me at the Robin Hood Inn.

Mail your check to the dinner committee chairman: Mr. M. M. Irvine, Bell Telephone Laboratories, Whippany, N. J., Room 3E127.



Our IFF engineers put on weight as fast as our transponders lose it.

Hazeltine engineers are known to be electronics heavyweights. Take this transponder as a case in point. Under the government's AIMS (civil and military ATC program), intended to perform the functions of tactical IFF and air traffic control, microelectronics techniques are one of the key areas of exploration. Right now the engineering work has miniaturized this piece of hardware down to the size of a shoebox. By 1970, it will be only cigar box size. The long-term goal is to knock it down to pocket size.

Our electronics engineers are equally talented in other areas. Their work in Radar Systems and Displays, ASW and Sonar Systems, Data Processing Systems, and Spacecraft Imaging Devices is on the leading edge of the state of the art.

We have openings in our Greenlawn, Plainview, and Little Neck, Long Island, laboratories for engineers experienced in:

Circuit Design
BS in EE (MS preferred) with 2 or more years experience in the design and development of solid state circuitry for military electronics systems. Assignments in diversified programs working from specification to prototype.

Radar Engineering
Senior openings in Radar and ECM Systems design. Intermediate and junior openings in RF and IF solid state circuit design. Junior openings in general solid state circuit design.

Signal Processing Research
Investigation of problems in advanced pulse compression wave-forms and signal processing, optimum filtering, multistatic radar data association. Both experimental and analytical backgrounds desirable.

Advanced Communications Research
Synthesis and advanced development of ECCM communications, navigation and IFF, including AJ, secure and concealed systems. Strong theoretical background with substantial experience in analysis and/or synthesis required. Additional background in circuit design and hardware development desirable.

Reliability Engineering
BSEE, with 3 to 5 years experience in reliability programs for military electronics equipment, including design reviews, test procedures, parts failure analysis and reliability predictions.

RFI Engineering
Graduate EE with experience in RFI analysis and design. Must be familiar with Military RFI specifications, design practices, evaluation equipment and evaluation methods.

Electronic Imaging & Displays
Graduate EE with experience in the design of analog and digital circuits for camera tubes, scan converters and display devices, for military and space applications.

Write in confidence to Mr. W. Speer

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NEXT JUNE 21-22-23 NEP/CON'66

THE PACKAGING/ PRODUCTION EVENT OF THE YEAR!

. . . the Fourth Annual National Electronic Packaging and Production Conference, sponsored by ELECTRONIC PACKAGING and PRODUCTION Magazine, will be held at the New York Coliseum on June 21-23, 1966.

NEP/CON, the first and only show designed exclusively for the users of circuit-packaging and production materials and equipment, will be bigger than ever this year, with 250 exhibitors displaying the widest range of circuit packaging/production products ever assembled anywhere.

If you are concerned with any facet of designing the internal or external structure of electronic equipment, or any facet of production, NEP/CON is your show.

For qualified packaging/production personnel, admission to the NEP/CON '66 Exhibit is free. To get your free admission badge, just fill in the form below, and mail it in.

Note that the complimentary badge you will receive is also worth $4.00, against the price of technical sessions, workshops or Proceedings.

Please send me my free Admissions Badge to NEP/CON '66

Name_____

Title_____

Company_____

Address_____

NORTH JERSEY SECTION MEETING

SPONSORED BY THE COMPUTER GROUP

Computer-Assisted Instruction (CAI)

Speaker:	Ralph E. Grubb
Date:	Wednesday, May 25, 1966
Time:	8:00 P.M.
Place:	Arnold Auditorium Bell Telephone Laboratories Murray Hill, New Jersey
Pre-meeting	WALLY'S TAVERN ON
Dinner:	THE HILL 154 Bonnie Burn Road Watchung, New Jersey
Time:	6:00 P.M.
Pre-meeting	"TEACHING MACHINES
Film:	AND PROGRAMMED LEARNING" Arnold Auditorium 7:30 P.M.

The various categories of "teaching machines" will be surveyed, followed by a description of the recent promising developments in computer-assisted instruction.

In the CAI concept, a central computer is shared with a number of students more or less simultaneously. Each student has the illusion that he has full access to the computer. An electric typewriter connected to a telephone line provides the means by which the student carries on a conversational interaction with the course materials in the computer's memory. Disk files store curriculum materials and student's records. Because of the logic of a stored program computer, the student not only has a responding environment, but one that is *dynamically* adjusting course material as a function of the student's response history.

Elements of the system, research experience gained to date and an account of ongoing programs at various educational institutions will be described. The meeting should be especially interesting to teachers.

About the Speaker:

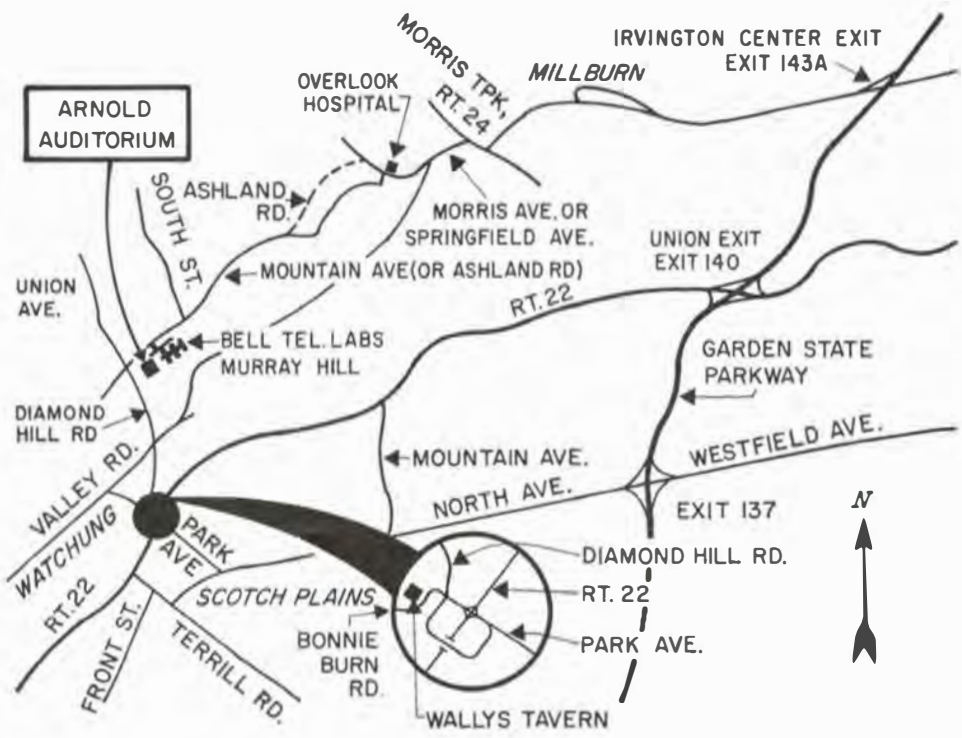
Mr. Ralph Grubb is an educational psychologist with IBM and a Research Associate with Columbia University. He was one of the three psychologists who founded the CAI project at the Thomas J. Watson Research Center. He has given numerous papers on the subject at national and international conventions. He recently returned from a United Nations mission to Israel on the subject of educational technology.

Refreshments will be served after the meeting.

WIVES AND OTHER NON-MEMBERS ARE WELCOME

SPARKS, FAVIN TO RECEIVE AWARDS

An additional feature of this meeting will be the special recognition of two members of the North Jersey Section. Dr. Morgan Sparks will receive the award of Fellow of the IEEE, and Mr. D. L. Favin will receive the Group on Audio Electroacoustics Senior Award for 1965.



SEMINAR ON ELECTROLUMINESCENCE AND SEMICONDUCTOR LASERS

Wednesday, May 11, 1966

Stevens Institute of Technology

IEEE Basic Sciences — Electron Devices

9:00 A.M. to 4:30 P.M.

Regular $10.00
Student $ 5.00 } (Includes lunch)

PAPERS TO BE PRESENTED

9:00 A.M.—Registration
9:30 A.M.—Introduction: Dr. G. J. Herskowitz
9:35 A.M.—Welcome address: Dr. P. R. Clement, Head EE Dept., Stevens Institute
9:45 A.M.—Invited paper session: Dr. K. Konnerth, Chairman, IBM, Yorktown Hts., N. Y.
Introduction to Luminescence and Semiconductor Lasers, Dr. H. F. Ivy, Westinghouse, Pittsburgh, Pa.
State of the Art in GaAs Lasers and Application, Dr. M. I. Nathan, IBM, Yorktown Hts., N. Y.
State of the Art in GaP Electroluminescence Junctions and Applications, Dr. M. Gershenzon, Bell Telephone Labs., Murray Hill, N. J.
11:15 A.M.—Coffee break
11:30 A.M.—Second invited paper session: Mr. E. Schlam, Chairman, EE Dept., N. Y. U.
Research and Narrow-Band-Gap Lasers and the Optical and Electron Beam Stimulation of Lasers, Dr. R. Rediker, MIT Lincoln Labs.
Defect Chemistry and Injection Electroluminescence in Wide-Band-Gap II - VI Compounds, Dr. M. Aven, GE, Schenectady, N. Y.
Spontaneous Emission in GaAs and GaP diode arrays, Dr. J. Biard, TI, Dallas, Texas.
1:00 P.M.—Lunch
2:00 P.M.—Panel discussions between audience and invited paper speakers on their current areas of research

REGISTRATION FORM

Mail form and fee to Mr. Elliot Schlam
Dept. of EE, N. Y. U., Bronx, N. Y. 10453

NAME .....

ORGANIZATION .....

CITY ..... STATE .....

NORTH JERSEY COMTEC

FOR COMTEC ELECTION OF OFFICERS

New officers were elected for the 1966-67 term of the North Jersey Chapter of COMTEC at the meeting held on Tuesday, April 19, 1966. The following gentlemen, whose biographies appear below, have been elected.

Chairman ..... R. C. P. Hinton
Vice Chairman ..... D. R. Campbell
Secretary ..... F. E. Willson
Financial and Facilities Officer ..... M. Westheimer

Raymond C. P. Hinton was born in Hereford, England on January 25, 1925. He received the degree of B.Sc. from the University of Bristol in 1944, with honors in mathematics.

From 1944 to 1946 he served as Junior Scientific officer in the Royal Radar Establishment in Malvern, England, where he was concerned with radar circuit development and applications. From 1946 to 1953, he was an engineer with Standard Telecommunication Laboratories in London, where his principle activity involved the development of PTM telephone switching and cryptographic equipment, computing and telemetering devices. He came to the United States in 1953 as an engineer for Intelex in New York.

Later in 1953 Mr. Hinton became Associate Laboratory Director for ITT Laboratories where his responsibilities included among other things, the design of electronic toll ticketing equipment, automatic message relay centers, and semi-conductor circuit development. Since 1960, he has been Division Manager in the Analysis and Network Engineering Division of Communication Systems, Incorporated at Paramus, New Jersey. He is responsible for the Operations Research and Telecommunications at both the Paramus and Washington, D. C. facilities of Communication Systems, Incorporated.

Frank E. Willson (A '46-M '55) was born in Fargo, N. D. on June 23, 1922. He received the degree of B.S. in E.E. from Purdue University in 1944. After serving two years in the Army Signal Corps, he returned to Purdue and received the degree of M.S. in E.E. in 1947.

In September 1947, Mr. Willson joined the Long Lines Department of the American Telephone & Telegraph Company, Chicago, Illinois, where he worked on transmission engineering problems relating to cable carrier and microwave radio relay systems. He transferred to the Bell Telephone Laboratories in 1951 where he has been engaged in the engineering of tropospheric radio and data transmission systems for the military services.

In 1961, he was put in charge of group studying techniques for using global belts of orbiting dipoles in a military communications systems. More recently he has been working on developing techniques for transmitting high speed data on troposcatter systems and is now in charge of a group doing studies for the NIKE-X missile defense system.

Donald R. Campbell was born on October 9, 1931 in Roaring Springs, Pennsylvania. He received the BSEE degree in 1957 from Pennsylvania State University. Since that time he has been with ITT Federal Laboratories in Nutley, New Jersey.

At ITTFL he is responsible for system engineering and analysis of satellite communication for ITTFL's Space Communication Laboratory.

He is a member of the IEEE and the American Astronautical Society. He is currently technical group coordinator for the North New Jersey Section.

Manfred Westheimer was born in Karlsruhe, Germany. He received his BEE degree from Pratt Institute, Brooklyn, N. Y. in 1951 and his MEE degree from the Polytechnic Institute of Brooklyn in 1955.

In November 1955 he joined Microwave Services, Inc., then of New York, N. Y., as a staff consultant. He worked on various communications projects and, in 1960, became project engineer. In 1962 he became chief engineer of MSI. In November 1962 Mr. Westheimer joined Communication Systems Incorporated, Paramus, N. J., formerly ITT Communication Systems, Inc. and since January 1965 a subsidiary of Computer Sciences Corporation. At CSI he has worked on system engineering aspects of point-point as well as ground/air/ground communication systems, and has held the position of task manager on a long-haul communications project.

Mr. Westheimer has been active in the PTGMTT and has been on the Facilities Committee of the North Jersey Chapter of the Communications Technology Group since 1952. In 1964 he served as Financial and Facilities Officer of that Chapter.

N. Y. INFORMATION THEORY GROUP

Error Control — Theory and Practice

The Metropolitan New York Chapter of the INFORMATION THEORY group (which includes the New York, North Jersey and Long Island sections of the IEEE) is sponsoring a panel discussion entitled *Error Control for Digital Data Transmission — Theory and Practice.*

The members of the panel are:

Dr. N. Abramson
Harvard University, Cambridge, Mass.

Dr. A. H. Frey
IBM Federal Systems Division
Bethesda, Maryland

Dr. E. J. Weldon, Jr.
Bell Telephone Laboratories
Holmdel, New Jersey

Dr. A. D. Wyner
Bell Telephone Laboratories,
Murray Hill, New Jersey

The panel members will discuss both the theoretical and practical aspects of the use of coding for improving the reliability of communications systems.

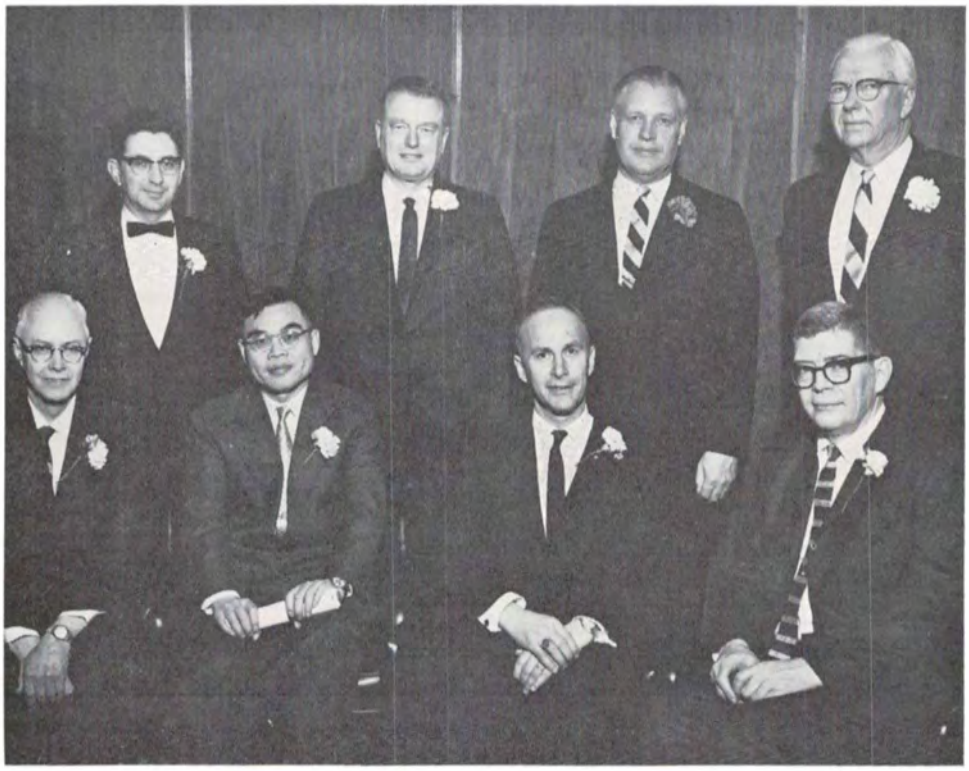
The meeting will be held in the Auditorium of the Bell Telephone Laboratories, Murray Hill, New Jersey, on Wednesday, June 1, 1966, at 3:00 P.M. A dinner is also being planned at a local restaurant following the panel discussion.

For further details regarding this panel discussion or to make reservations for the dinner, please contact:

JACK K. WOLF
Polytechnic Institute of Brooklyn
333 Jay Street, Brooklyn, N. Y.
Phone: 212 - 643-3843

HONORS BESTOWED ON NORTH JERSEY MEMBERS

Honors were bestowed upon North Jersey members of the Institute of Electrical and Electronics Engineers at the society's annual banquet and dinner at the Governor Morris Hotel, Morristown. *Seated, left to right:* Stephen O. Rice of Summit, recipient of IEEE Mervin J. Kelly Award; Dr. P. K. Tien of Chatham Township, Hans K. Jenny of Mountain Lakes and John C. Lozier of Short Hills recipients of IEEE Fellow Awards. *Standing, left to right:* Louis Pollack of Livingston and Sven H. Dodington of Mountain Lakes recipients of IEEE Fellow Awards; Rodney D. Chipp of Bloomfield, chairman of the awards committee, who made the presentations, and Edwin H. Snyder, president of Public Service Electric and Gas Company, principal speaker of the evening.



N. Y. GAES

The National Airspace System for Air Traffic Control

Speaker: Mr. J. W. Rabb
Chief, Engineering Management
National Airspace System
Special Projects Office
Federal Aviation Agency

Date: April 6, 1966 — 7:30 P.M.

Place: Room 125
United Engineering Center
345 E. 47th Street
New York, New York

Pre-meeting Dinner: 6:00 P.M.
Old Seidelburg Restaurant
626 Third Avenue
(between 40th & 41st Street)

The FAA is pursuing a program to automate the Nation's Air Traffic Control facilities by the application of Computer Control Technology in this service. The nature of the Air Traffic Control problem and the overall design of the Command and Control System to be used will be briefly reviewed. The main emphasis will be placed on describing what has been accomplished to date, the future plans, and a detailed discussion of the Central Computer Complex (the IBM 9020) and the Computer Program.

About the Speaker:

Mr. Rabb has held various positions with FAA since July 1959, and has been in his present position since July 1965. He is Chief of the Office in the development and adaptation of data processing systems and techniques for Air Traffic Control. He has previously been employed by the Naval Air Development Center as Chief, Maintenance and Development Division and by the Naval Research Center as Associate Branch Chief and Section Head and was Assistant Professor of Engineering at Louisiana Polytechnic Institute. He is particularly suited to discuss the National Airspace System because of his direct involvement with all phases of the development and installation of the equipment which will implement this system.

STUDENT AFFAIRS

NCE Finishes Strong

Along with job recruiting, senior projects, and what have you, the Day and Evening Branches at Newark College of Engineering has continued to be active. This column's work has been lightened by the creation by the students of a weekly newsletter, "IEEE News." Two issues have been printed. Some excerpts follow.

—All EE students' Wednesday classes were suspended during the IEEE Convention so that the students might attend.

—The senior project judged best by a panel of professors in the EE Department will win for its originator a prize of $75. Two runners-up will receive $25 prizes each.

—A new slate of officers for each of the Branches has been elected by the students. Their names will be printed in our next issue.

Group Memberships Are Available

For those students who have not availed themselves of the opportunity, membership in any one of the IEEE Groups at a reduced rate of $1 is available. Included for this annual fee are any publications of the group including transactions and newsletters. This presents a marvelous chance for each student to involve himself so much more with the particular discipline of electrical engineering in which he is interested. It also presents another means by which to get to know better the engineers with whom he will be associated upon graduation.

CAN YOU HELP?

Junior: Can you use my three years of engineering training in a 3-4 month summer job?

Recruiter: Gee, I'm terribly sorry, but we just don't have the openings we would like to have.

. . . and next year . . .

Recruiter: What type of engineering experience have you had?

Senior: Well, actually very little. I wasn't able to find any openings last year nor the summer before.

Situations like this happen each year. So many of our college seniors cannot report having held even one engineering position despite the demands of prospective employers.

YOU CAN HELP

If you are an employer, rely upon some students for temporary assistance in filling the "vacation gap." If you are a progressive employer, utilize the up-to-date academic training of an engineering student to update your in-house procedures. Hire a student and charge him or her with reviewing your operations — overall or in a specific area — and recommending means of increasing production, reducing costs, or creating more cohesiveness in the organization. It might cost you $2,000 in salary to update your thinking.

If you are an employee, encourage your boss or personnel man in your firm to hire an engineering student. It could save a company money for senior recruiting if one or two juniors were given an opportunity to "show their stuff." They might prove to be so good that the company would want them back; and they, having already become familiar with the company and having no apprehension, would be anxious to return.

Engineers to Host Conference

The 1966 Conference and Exhibits of the New Jersey Society of Professional Engineers will convene at the Deauville Hotel in Atlantic City on Thursday, May fifth. A seminar on the problem of air pollution will commence the series of formal programs. This will start at 2:30 P.M. Sixty of the states engineering firms will exhibit their latest developments and products.

For the young engineers and college seniors in our state's colleges, two talks will be given in a special Saturday morning program beginning at 10:00 A.M. Mr. Herb Niedhammer, P.E. immediate Past President of the Society will discuss professional registration and the engineering societies as they affect the young engineer. Mr. James Lubin, the Director of Placement at NCE, will discuss salary administration and prospects for engineers.

The social aspect will not be overlooked. Special programs for the ladies, the Annual Awards Dinner, a luncheon talk by the noted commentator Walter Kiernan, and the Annual Banquet with professional entertainment will be included.

Two keys for the Playboy Club will be given as gifts to two lucky engineers in attendance. One of these will be eligible to only those who attend the Saturday morning Young Engineers Conference. And remember: STUDENTS ARE INVITED!

N. Y. COMPUTER GROUP

Hardware Design for Software Facilitation to be Explored

Current computer hardware design is based on ease of implementation rather than on programming needs. Dr. Ivan Flores, will examine several inexpensive hardware features which enable computer design to be best adapted to softwear performance and problem solution at the May 19 meeting, 7:30 P.M. at the IBM Building, 590 Madison Ave. Premeeting, Dutch-treat dinner at Schrafft's, 58th St. and Madison Ave., at 5:45.

Dr. Flores is currently Associate Professor of Electrical Engineering at Stevens Institute of Technology and has authored several books on computers.

N. Y. RELIABILITY CONFERENCE

The 1966 New York Reliability Conference, sponsored by the IEEE, will be held on Friday, May 20 at the City Squire Motor Inn (7th Ave. between 50th and 51st St., New York City). Morning sessions, 8:30 A.M. to Noon; afternoon sessions, 1:30 P.M. to 5:30 P.M.

The program will consist of Seven sessions on the topics listed below. Nationally prominent speakers, selected by the moderators will present papers on these topics.

A.M. Sessions	Topic	Moderator
A	"Tutorial Session"	Dr. G. R. Sandler Grumman Aircraft
B	"Screening the Burn-in Techniques for Reliability"	I. J. Ross NASA
C	"Maintainability"	G. H. Allen L. G. Hanscom Field
D	"Failure Mechanism"	Dr. K. O. Otley Harry Diamond Lab.
P.M. Sessions		
A	"System Effectiveness"	H. J. Kennedy ARINC
B	"Acrospace Materials and Parts"	John Condon NASA
C	"Microcircuits"	W. D. Moyers Airborne Instruments Lab.

As an added feature this year, an interesting, informative, entertaining and inexpensive women's program has been arranged by Tressa Houck. After an informal "Coffee with Tony (Finocchi)" talk on what reliability is about from the woman's viewpoint, the program includes a shared taxi ride to the Guggenheim Museum of Art, luncheon (possibly including a fashion show) and then the feature at the Radio City Music Hall. Contact the chairmen shown below for complete Conference details.

General Chairman—Robert Gauger, Hazeltine Corp.

Program Chairman—Anthony Finocchi, ITT Federal Telephone Labs.

N. Y. COMTEC GROUP

The Engineer and Law

An unusual and informative discussion on "The Engineer and Law" will be featured at a dinner-meeting sponsored by the Communications Technology Group of the New York Section IEEE to be held at the Brass Rail Restaurant, 40th Street and Park Avenue, on Wednesday, May 11, 1966. The banquet room will be open for a social hour at 5:00 P.M. and dinner will be served promptly at 6:00 P.M.

Mr. F. M. Gibson, Patent Coordinator, American District Telegraph Company, will present practical and interesting information on inventions, trade secrets, and the engineer's responsibility to an employer in regard to these. Some popular myths about methods of protecting an invention will be exploded. Ample time for open discussion will follow.

Members are urged to attend and enjoy this social evening. Election of officers for the year 1966-67 will also be held. Turkey dinner will be served. Cost for members of the Communication Technology Group will be $2. To all others, to whom a cordial invitation is extended, the cost will be $4.

In order to make arrangements, reservations must be received before May 9, 1966. Please make your check payable to Communications Technology Group and mail to:

F. G. HILL
A.D.T. Co. Inc.
155 - 6th Avenue
New York, N. Y. 10013

Enclosed please find my check for $..... for my reservation for the May 11, 1966 Dinner-Meeting.

Please list name, etc., for each reservation requested.

Name .....

Company Affiliation .....

Telephone .....

Member ....., or Non-Member .....

of Communications Technology Group. (Please Check One).

NEWARK COLLEGE OF ENGINEERING

Integrated Circuits Seminar

Session: Friday, May 6

Field Trip: To Western Electric
Allentown, Pa.
Thursday, May 12

For details, contact Miss Van Demark, NCE — 624-2424.

JOINT N. Y. ENGINEERING MANAGEMENT GROUP

Management Information Systems

Management Information Systems may be defined as the means whereby the computer truly becomes a management tool. Mr. Fritz Wanzenberg, Principal in Charge of MIS, The Diebold Group and Mr. Sam Matsa, Manager of Advanced Engineering, IBM Corporation will discuss the most timely aspects of this rapidly developing field at a jointly sponsored meeting. This meeting is scheduled for 7:30 P.M. in Room 125 of the United Engineering Center, 345 E. 47th Street, N. Y. C. on May 19, 1966. The speakers will also answer questions from the audience.

The technical meeting will be followed by a short business meeting during which elections for officers of both the N. Y. Section and the Engineering Management Group will be held.

In his talk entitled "New Concepts in Developing Management Information Systems," Mr. Wanzenberg will stress how the very nature of this new tool requires a rethinking by managers of traditional terms and problem solution areas.

Mr. Matsa will show how graphic outputs are one of the most valuable modes of information retrieval in a MIS in his talk on "Graphics and Man/Machine Communications." The introduction of graphic data processing into industry and its significance to MIS will be stressed. Included, a description of the facilities of a graphic Fortran system developed for use with the IBM 2250 display.

Speaker: FRITZ WANZENBERG
Principal in charge of
Management Information Systems
The Diebold Group

Mr. Wanzenberg brings to his present position many years of experience in a variety of management planning and operations analysis activities. He is responsible for the planning of all Management Information Systems at The Diebold Group and has previously been in charge of Management Information System planning for several other large industrial corporations. He holds a BSME with honors from Purdue University, a MBA from the University of Chicago and has done graduate work towards a PhD at Northwestern University. Mr. Wanzenberg has numerous publications and patents to his credit and is a member of Tau Beta Pi and Pi Tau Sigma.

Speaker: SAM MATSA
Manager of Advanced Engineering
International Business Machines
Corporation

Mr. Matsa has been with IBM since 1957, where he pioneered in the development of the Auto Prompt System. In his present position he is responsible for both advanced Engineering applications and Graphic Applications development for the IBM Data Processing Division. He holds the BSEE from Purdue University, MSEE from MIT and has done post graduate work at MIT. He is the Chairman of the N. Y. C. Chapter of the Association for Computing Machinery, a Founding Member of the Numerical Control Society and a Member of both the Society for Information Display and the American Society of Tool and Manufacturing Engineers.

now

Automatic Operation for your Tektronix Type 561A or 564 Oscilloscope

Now, with two Tektronix automatic/programmable plug-ins—a Type 3A5, with included P6030 Probe, and a Type 3B5—you can make DC-to-15 MHz measurements with new ease, and in any of these modes of operation:

AUTOMATIC SEEKING

will operate upon SEEK command from the probe or from the Automatic/Programmable Plug-Ins.

In this mode, upon SEEK command, the oscilloscope automatically presents an optimum display. The SEEK command to the plug-in units automatically controls the triggering settings and the time and amplitude settings, eliminating the need for continuous front-panel adjustments. Indicators on the plug-ins light automatically to show the time and amplitude settings. Measurements can then be made quickly and accurately from the CRT display. In AUTOMATIC SEEKING mode, the deflection factor is 10 mV/div to 50 V/div and sweep range is 5 s/div to 0.1 μs/div.

when plug-ins receive SEEK command

Type 3A5 automatically establishes the optimum deflection factor. Indicators light to show readout with input coupling, such as .5 V/DIV, AC (coupling) WITH PROBE. (Coupling can also be AC or AC Trace Stabilized.)

Type 3B5 automatically establishes optimum trigger settings and automatically selects time per division setting. Indicators light to show readout, such as 2 ms/DIV, and to show NOT TRIG'D condition. (IF X10 or X20 Magnifier operative, readout is automatically corrected and indicates SWP MAG'D condition).

REMOTE PROGRAMMING

overrides the SEEK command and Manual Operation. In this mode, both plug-ins can be programmed using the Type 263 Programmer, which accepts up to 6 plug-in type program cards. Each program card, after initial set-up, establishes the plug-in control functions required for a particular test or measurement . . . with actual measurements made conveniently from the CRT display, as usual. Automatic/Programmable Plug-Ins provide selection of eleven different programmable functions. In REMOTE PROGRAMMING mode, the deflection factor is 10 mV/div to 50 V/div and sweep range is 5 s/div to 10 ns/div.

MANUAL OPERATION

overrides the SEEK command and extends sweep range and deflection factors beyond capability of Automatic Seeking Mode. Both plug-ins are controlled manually, as in conventional operation. Settings are still conveniently indicated. In MANUAL OPERATION mode, deflection factor is 1 mV/div to 50 V/div (5 MHz at 1, 2 or 5 mV/div) and sweep range is 5 s/div to 10 ns/div. Indicators also light to show SWP MAG'D and UNCAL warnings.

Type 3A5 Automatic/Programmable Amplifier Unit	$760
Type 3B5 Automatic/Programmable Time-Base Unit	$890
Type 263 Programmer (complete with 6 program cards)	$325

Oscilloscopes which accept both Automatic/Programmable Plug-Ins:

Type 561A Oscilloscope	$500
Type RM561A Oscilloscope	$550
Type 564 Storage Oscilloscope	$875
Type RM564 Storage Oscilloscope	$960

U.S. Sales Prices f.o.b. Beaverton, Oregon

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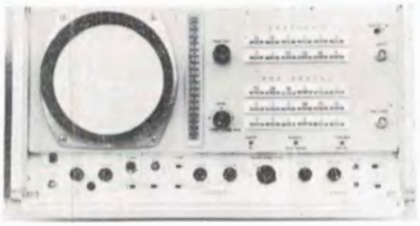
NEW INSTRUMENTS



NEW PROGRAMMABLE NO-DRIFT SCOPE SPEEDS MEASUREMENTS AND CUTS ERRORS.

H-P Model 155A Controlled Oscilloscope is entirely dc drift free. It is a 5 mv/cm, 25 MHz instrument with illuminated push-button controls. Every major function is programmable by external circuit closures. Settings for any desired series of waveform observations may be preselected, displays presented in rapid order, and repeated exactly. With drift eliminated and correct settings assured, testing is fast and errors are reduced. The 155A may be ordered without programming circuitry as option 01.

A companion to the oscilloscope, the Model 1550A Programmer has 18 buttons, each of which will, at one touch, select an entire set-up on the scope. The preset combination will include not only sensitivity, sweep, and offset (i.e., vertical position), but also input coupling (ac or dc), trigger source, and trigger slope. Programs are determined by the position of plug-in diodes in the Programmer's circuit boards. Programmers may be cascaded, extending the number of available programs without limit.

With its Programmer, the Model 155A Oscilloscope is especially useful in test applications where repetitive measurements must be made quickly and unerringly in the same way. Production test procedures may be simplified and testing time reduced, errors and training time minimized. And any of the common programming devices may readily be applied—paper tape, cards, magnetic tape, etc.

H-P Model 155A is priced at $2,450. The Model 1550A Programmer is $600. Without programming, the 155A Option 01 is $2,150.

VECTOR VOLTMETER READS VOLTAGE AND PHASE ANGLE FROM 1 MHz TO 1 GHz.

Hewlett-Packard introduces Model 8405A Vector Voltmeter, a dual channel wideband rf millivoltmeter ***and*** phase meter. It has a frequency range of 1 MHz to 1 GHz, a maximum sensitivity of 100 microvolts full scale, and ± 180-degree phase measurement range with resolution to 0.1 degree.

The Vector Voltmeter directly reads voltage, with one of it's two pencil-size high-impedance probes. With the second, elsewhere in the circuit under measurement, it reads phase angle relative to the first probe.

The 8405A automatically tunes when a single knob is set anywhere within an octave of the signal frequency being measured. The instrument finds and phase-locks to the fundamental signal at the first of the two probes in 10 milliseconds. A fully coherent sampling technique is used, with a search oscillator. Over its entire frequency range, the tuned bandwidth is 1 KHz, tuning out unwanted harmonics or other signals for accuracy in gain and phase measurements.

Maximum sensitivity of either channel, as a voltmeter, is 100 microvolts full scale, with 10 volts maximum input to either; this dynamic range easily accommodates high-gain amplifier response measurements.

Hewlett-Packard's Model 8405A Vector Voltmeter is priced at $2,500. And for complete details on all H-P instruments, call your local FIELD ENGINEER.

HEWLETT PACKARD hp R·M·C SALES DIVISION

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