Communications
For The National Political Conventions

Pre-Meeting Dinner: 5:45 P.M.
Wally's Tavern on the Hill
Watchung, N. J.
Make Reservations by Sept. 21

Meeting: 7:45 P.M.
Arnold Auditorium
Bell Telephone Laboratories
Murray Hill, N. J.
You could make this "system" yourself with a 1.5-Mc counter, a sensitive preamplifier, a digital/analog converter, and an analog readout . . . at a cost of a few thousand dollars. Or, you can get it ready-made in the GR Type 1142-A Frequency Meter and Discriminator, for $525.

While you can't beat a counter for absolute accuracy, the accuracy of the 1142-A is ±0.2% when used to best advantage, more than adequate for many frequency measurements. It is, as its name implies, both a sensitive frequency meter and an extremely low-noise fm discriminator for the measurement of incidental fm and fm deviations (residual fm is at least 100 db below full output). The analog dc outputs, available directly at the terminals of the 1142-A, make this an excellent instrument for the recording of frequency drift and stability. Its usefulness is still further extended by the availability of photocells, tachometers, geiger tubes, magnetic pickups and other transducers.

Make your own Evaluation — Ask for a Demonstration

SPECIFICATIONS:
Frequency Range — 3 cps to 1.5 Mc in five decade ranges.
Input Sensitivity — 20 mv from 20c to 150 kc, rising to 200 mv at 3c and 1.5 Mc (except for very short pulses). Impedance: 100 KΩ, dropping to a minimum of 5 KΩ above 500 kc.

As a Frequency Meter — Logarithmic meter maintains constant accuracy; calibrated interpolator effectively expands meter scale by a factor of 10. Higher frequency measurements can be made by heterodyne techniques — permits drift measurements to at least one part in 10⁷ when used with frequency standards; readings independent of waveform.

As a Discriminator — Output is 15v, full scale. Low noise; residual fm is down more than 100 db.

Accuracy — In the "direct" mode, 1% of reading. In the "interpolate" mode, 0.2% of full scale.

Recorder Outputs — Adjustable from 1-ma to 5-ma; interpolator output for high-Z recorders. Voltage is proportional to frequency deviation.
Editorial Notes

If not now! When?

As you can see in this issue, activities for 1964-65 have started. The Executive Committee has labored diligently to present a program for your interest. You will be requested, invited, and exhorted to attend these sessions, and in turn questioned (not directly) if you don't. When less than one percent of the membership turns out for meetings, doubts arise whether the program is the kind you want.

This recalls a statement attributed to Hillel who lived from 30 B.C. to 3 A.D. He said:

"If I am not for myself, who will be for me? If I am for myself only, what am I? If not now, when?"

Our potential advertisers and non-attending members might consider this. For, after all, if they do not take care of their own professional self-interest, there is no one to protect them. However, if they make no provision to take care of others (not social benefits) then there will be no one around to carry on their functions in the future.

It seems to us that professional performance is both cumulative and sequential. We build upon the past in order to project into the future, and what we do now is a basis for what others will accomplish in the future, when we are no longer active.

Now, how does this apply to you? As a member, you have spent years in preparation for your profession, both scholastically and work-wise. During this period, you have been led, directed, and inspired as you accumulated knowledge so that you are now able to perform your function. In order to make our profession continuous, you must lead, direct, and inspire your contemporaries and followers. This you may achieve within your professional societies, schools, and at work by writing, speaking, and teaching. The font of knowledge that is drawn upon is not a bottomless well; new soundings must be continuously taken to keep the supply fresh.

We don't believe that you want to see the drying up and disappearance of your professional society. Rather, we believe that you wish to see it prosper and expand its many functions. If it doesn't do what you want it to do, it is your prerogative to alter this. You can effect change by participating in its activities. Modification has never been accomplished by will only, you must stop sitting on your hands or ideas.

So, if not now, when?

Calendar

Saturday, September 12
All-Day Conference
"Quality Control & Statistics in Industry"
Rutgers University, New Brunswick, N. J.

Tuesday, September 22
Joint Meeting:
North Jersey Section and Communications Technology Group
James D. Parker, CBS
5:45 P.M. — Dinner — Wally's,
Watchung, N. J.
7:45 P.M. — Meeting
Arnold Auditorium, Bell Labs., Murray Hill, N. J.

Wednesday, September 23
North Jersey Section Lecture Series starts:
"Overall Communications Systems Planning"

Thursday, September 24
Engineering Writing and Speech
"Symbols for Electricity and Electronics"
Howard L. Cook, RCA
6:00 P.M. — Dinner — Pomptonian,
Cedar Grove, N. J.
8:00 P.M. — Meeting
Kearfott Auditorium, Little Falls, N. J.
NY Computer Group
"Hardware or Software"
Dr. J. P. Mauchly and S. Lubkin

OCTOBER

Electronic Computer Group
"Project MAC"
Richard G. Mills, MIT

Tuesday, October 6
NY Section-Communications and Electronics Division
Start Lecture Series:
"Engineering Applications of Computer Programming"

Monday, October 19
Start Lecture Series:
"Electronic Switching Communications Systems"

Wednesday, October 21
Reliability Group
"Components Industry in Transition"
Start Ist of 6 Meetings

The Cover

CBS photograph of the recent Republican National Convention at San Francisco.

The IEEE Newsletter

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The Newsletter
C/o Staff Associates
P.O. Box 275 — Morris Plains, N. J.
Telephone: FOxcroft 6-1580

Subscription: 75¢ per year through dues for members; $1.50 per year for non-members. Second Class Postage Paid at Morris Plains, N. J.

ABOUT ADDRESS CHANGES

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.

REPORT ALL ADDRESS CHANGES TO:
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, BOX A, LENOX HILL STATION, NEW YORK 21, N. Y.

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Executive Committee Meetings

at Verona Public Library

September 2, 1964
October 7
November 4
December 2
January 6, 1965
February 3
March 3
IEEE Convention March 22-25
April 7
May 5
June 2

The Newsletter, September 1964
NEW! BALLANTINE SENSITIVE DC VOLT/AMMETER

MODEL 365

Measures

$1 \mu V$ to $1,000 \text{ V}_dc$

$0.001 \mu A$ to $1 \text{ A}_dc$

EXTREMELY WIDE VOLTAGE AND CURRENT RANGE

UNMATCHED ACCURACY FOR ALL INDICATIONS

BUILT-IN CALIBRATION STANDARD

Price $650

DC voltages with the extremely wide voltage range of $1 \mu V$ to $1 \text{ kV}$ and currents from $1 \text{ nA}$ to $1 \text{ A}$ can now be displayed on an analog indicator and measured with unmatched accuracy. The Ballantine Model 365 Sensitive DC Volt/Ammeter, with a single logarithmic scale and range selector, will measure voltages above $1 \text{ mV}$ with a constant accuracy of $1\%$ of indication. Currents above $0.1 \mu A$ are measured with an accuracy of $2\%$ of indication.

The accuracy of the Model 365 is supported by a high order of stability gained by both ac and dc feedback techniques and conservative operation of all components. For further assurance of accuracy, a simple and reliable internal standard is available to check calibration accuracy and panel controls can correct the calibration, if necessary, in seconds.

Signal-ground isolation allows floating measurements to 500 volts above panel ground, and ac rejection is provided to reduce the effects of common-mode signals.

The new 365 is available in both portable and rack versions.

PARTIAL SPECIFICATIONS

Voltage: $1 \mu V$ to $1 \text{ kV}$

Current: $1 \text{ nA}$ to $1 \text{ A}$

Accuracy .... 1\% of indication above $1 \text{ mV}$

Impedance ....... $1 \text{ M}\Omega$ above $1 \mu V$;

5 $\text{ M}\Omega$ above $0.1 \mu V$; 10 $\text{ M}\Omega$ above $0.1 \text{ V}$

Impedance Between Signal and Panel Grounds: $R \gg 100 \text{ M}\Omega$, $C = 0.1 \mu F$, $500 \text{ V}$ Peak Max

Usable as DC Amplifier: $100 \text{ db}$ max gain, 0.1 to 1 V output for each decade input range

Write for brochures giving many more details

Ballantine Laboratories, Inc.

Boonton, New Jersey

Choice of Proper Symbol is of Practical Interest

This talk should be of most interest to those members of the IEEE who have to write or otherwise communicate on Engineering subjects — Engineers, Technical-Report Writers, Technical Editors, Publications Engineers, Standards Engineers, Standardization Engineers, Technical-Advertising Copywriters, etc. Any person, though, who has need to speed communication to a world audience will find this subject of vital interest.

Questions and Controversy Welcomed

At the conclusion of the talk, a question and discussion period will open the way for comments on the proposed standard. It is hoped that as many possible will actively participate by raising controversial questions and problems in the use of symbols (For example: Which is preferred — Mc or Mc/s? Is NF for Noise Factor an abbreviation or a quantity symbol? Should ma or mA be used for milliampere or milliamperes?). Visitors to this meeting are especially invited.

Meeting Notice

Date: Thursday, Sept. 24, 1964

Dinner: 6:00 P.M.

Place: Pomptonian Restaurant

1041 Pompton Avenue

(Route 23, opposite The Meadowbrook,

2 Miles South of Route 46)

Cedar Grove, New Jersey

Meeting: 8:00 P.M.

Kearfott Auditorium

Kearfott Division G.P.A.

1225 McBride Avenue

Little Falls, New Jersey

Continued on Page 5
Joint Meeting:
North Jersey Section and Communications
COMMUNICATIONS FOR THE NATIONAL POLITICAL CONVENTIONS

Mr. James Parker, Director of RF Engineering of the CBS Television Network will be the discussion leader at the September joint meeting of the North Jersey Section of the IEEE and the North Jersey Chapter of the IEEE Group on Communications Technology. He will lead a group discussing the communications provided for the recent national political conventions held in San Francisco and Atlantic City. Communications include those internal to the convention hall, outside communications on the common carriers and other communications for TV and radio. Representatives of groups providing these communications will be the speakers.

The meeting will be held at 7:45 P.M. on Tuesday, September 22, 1964 at Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, New Jersey. The pre-meeting dinner begins at 5:45 P.M. at Wally’s Tavern on the Hill, Watchung, New Jersey.

Following one and a half years of graduate study at Massachusetts Institute of Technology, where he majored in electrical engineering as an undergraduate, Mr. Parker joined the Engineering Department of CBS in February, 1937. While an undergraduate he was elected to Tau Beta Pi, the national engineering honor society. Except for two military leaves of absence (World War II and the Korean War) he has been with CBS continuously since that time, and was appointed to his present position in August, 1954. In this capacity, his responsibilities encompass transmitter station installation, station coverage studies, and FCC activities including allocation matters.

He has maintained a continuous association with the military, currently holding a commission as Colonel in the Air Force Reserves, and from 1954 until 1960 was in command of an active Air Force Reserve organization in New York City. On October 1, 1960 he was made Mobilization Assistant to the Commander, ROAMA Griffiss Air Force Base.

Meeting Notice
Subject: Communications for the National Political Conventions
Discussion Leader: James Parker, CBS Television Network
Place: Bell Telephone Laboratories, Incorporated, Murray Hill, New Jersey Tuesday, September 22, 1964 at 7:45 P.M.
Pre-Meeting Dinner: Wally’s Tavern on the Hill, Watchung, N. J.

For Reservations Contact (by September 21):
G. K. HELDER
Bell Telephone Laboratories, Incorporated
Murray Hill, New Jersey 562-6669

The 16th Annual All-Day Conference
"Quality Control and Statistics in Industry" offers an opportunity to visit the Rutgers Campus on Saturday, September 12, 1964. You have your choice of topics: Accounting, Inspection, MIL-Q-9858A, Experiment design, etc. Send your advance registration to: Reginald F. Johnson, Chairman of Registration, Ethicon, Inc., U.S. Highway #22, Somerville, N. J. Early registration $7.00. Door Registration $7.50.

From Page 4
The Speaker
(See attached photo) Page 4.

Howard L. Cook is extremely active in the field of Symbols Standardization. At present, he is Secretary of the IEEE Symbols Committee; the representative of the Symbols Committee on the Editorial Committee of the ASA Y32.2 Task Group on Graphic Symbols for Electrical and Electronics Diagrams; an alternate on the ASA Y32.2 Task Group on IEC (International Electrotechnical Commission) Affairs; and has been active in the work of the JT-8 Committee on Mechanical Standardization Task Group on Electron-Tube Terminal Diagrams.

Mr. Cook (M’59) received the B.S. (Ch.E.) degree from the Columbia University School of Engineering in 1950, after which he joined the Radio Corporation of America, and was assigned to the Cathode-Ray-Tube Activity of the Electron Tube Division at Lancaster, Pa.

In 1954, he transferred to the Commercial Engineering Activity, RCA, Harrison, New Jersey and, as an Engineer, has specialized in the preparation, editing, and production of technical data for electron tubes and semiconductor devices.

IEEE Group on Engineering Writing and Speech
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Annual All-Day Conference
The 16th Annual All-Day Conference on "Quality Control and Statistics in Industry" offers an opportunity to visit the Rutgers Campus on Saturday, September 12, 1964. You have your choice of topics: Accounting, Inspection, MIL-Q-9858A, Experiment design, etc. Send your advance registration to: Reginald F. Johnson, Chairman of Registration, Ethicon, Inc., U.S. Highway #22, Somerville, N. J. Early registration $7.00. Door Registration $7.50.

The Newsletter, September 1964
Chairman's Column

by

John Redmon

As your Chairman for 1964-65, I want to express my appreciation to the membership for their confidence in electing me to serve the Section. I will try to carry out the duties of the office in a proper manner.

Many steps forward were taken during 1963-64 and we hope to take more forward steps during the next year.

The second year of the merger requires your Executive Committee to review all operations of the Section in the view of the needs of the membership and to determine how these needs can best be fulfilled. Some of these include: Our past Program operations versus more Section Co-Sponsorship with the Groups of the monthly meetings; a strengthening of the Section-Student Chapter relationships started under Chairman Vadersen; a review of our Educational-Lecture Series program to insure a maximum service to the membership; a further up-dating of the Section Operating Procedures as necessary; membership approval, early in October, of the Section By-Laws; and many other ideas not yet formalized.

Some of our Fall plans are being implemented as you can see from the publicity in this issue of the Newsletter. More activities will be planned and scheduled and you will hear of these in a later Newsletter.

We are very much concerned by the fact that only a small percentage of the over 5000 members of the Section actually take part in the Section activities in any way. We want to know why this condition exists and what we should do to improve this situation. If you have any ideas or suggestions, why not sit down and drop me, or any member of the Executive Committee, a note giving us the benefit of your thinking. My address is:

Newark College of Engineering
Department of Electrical Engineering
323 High Street, Newark, N. J.

You are also encouraged to take part in the services and activities of the Section and to make our institute truly a professional society and to make our profession truly professional.

Your 1964-65 Executive Committee is (as of this writing in July) almost complete and a final listing will appear in an early Newsletter.

We are all striving to take, in 1964-65, another stride forward for your organization and to build on the good foundation passed on to us by our predecessors.

North Jersey Section
IEEE Executive Committee

Section Officers

Chairman - John K. Redmon
Vice Chairman - Walter L. Glomb
Treasurer - Stephen A. Mallard
Secretary - James W. Gordon
Member-at-Large - John P. Van Duyne
Member-at-Large - Roger McSweeney
Past Chairman - Charles W. Vadersen

Standing Committee Chairmen

Education - C. G. Gross, Jr.
History and Procedures - F. Polkinghorn
Membership - A. Paparozzi
Nominations - A. W. Parkes
Programs - J. O'Grady
Publications - Bernard Meyer

IEEE Group Chairmen

Group Coordinator - Raymond Kudigh
Group Automatic Control (AC) - Dr. Andrew Meyer
Group Communications Technology (CT) - R. D. Chipp
Group Engineering Writing & Speech (EWS) - L. G. Lee
Group Electronic Computers (EC) - D. Perry
Group Microwave Theory & Techniques (MTT) - B. Mindes
Group Power (P) - Herbert Blaicher

N. Y. IEEE GROUP ON RELIABILITY

1964-65 Meetings

For the coming 1964-65 professional group activities, the Metropolitan New York Chapter of PTGR is joining with the Metropolitan New York Chapter of PTGC in co-sponsoring a series of six panel discussions and lectures. The general theme for these meetings shall be "The Components Industry in Transition".

The six meetings are scheduled for October 21, November 18, December 16, and January 27, February 24, April 28, and May 26, 1965.

The meetings will take place at Schweiber Electronics facility in Westbury, L. I. beginning at 7:30 P.M. Dinner will precede the meeting at 6:30 P.M.

"Hardware or Software"

The Metropolitan N. Y. Chapter of the Computer Group has scheduled a major meeting on September 24th as its first of the 1964-65 season. The theme of the meeting is "Hardware or Software: How to Fix the Mix."

Dr. J. P. Mauchly, president of Mauchly Associates, Philadelphia, will present the case for trading-off in favor of software. Dr. Samuel Lubkin, chairman of the board of Digital Electronics Corp., Westbury, will discuss the merits of hardware.

The presentations will be followed by organized discussion led by two other distinguished computer authorities. Further details will be announced in a letter to metropolitan-area members of the IEEE Group on Computers. For specific information the new chairman of the chapter is Dr. Larry Jones at 16 Bonny Brook Road, Westport, Conn. or call (203) 227-6758. The Secretary-Treasurer A. Corneretto may be called at (212) P.Laza 1-5530.

The newly elected officers of the North Jersey Section are, left to right: Mr. John Van Duyne — Member-at-Large; Mr. Walter Glomb — Vice-Chairman; Mr. John Redmon — Chairman; Mr. Roger McSweeney — Member-at-Large; (Mr. Steven Mallard (Treasurer) and J. W. Gordon (Sec'y.) not present.)

The Newsletter, September 1964
EDUCATIONAL PROGRAM — FALL — 1964

REVIEW STUDY GROUPS — FOR PROFESSIONAL ENGINEER EXAMINATIONS

ENDORSED BY NYSSPE

This program is designed to prepare candidates for Professional Engineer License examinations in New York and New Jersey. The N. Y. State Board permits graduates of approved schools to take Parts I and II and qualify for “Engineer-in-Training”.

COURSE NO. 5

STRUCTURAL PLANNING AND DESIGN (IEEE-ASME)

Review for Part I, N. Y. Exam., Part II, N. J. Exam. Planning, design, construction of buildings and similar structures in timber, steel and concrete, including beams, columns, foundations, piles, girders, riveted and welded sections. Intensive work in problem solving techniques with emphasis on the AISC and ICI codes. Printed notes available.

MONDAYS, Starting Sept. 14, 1964, 6:15-8:30 P.M., 18 Sessions
Auditorium, 19th fl., Con Edison Co., 4 Irving Place, N. Y. C.

Instructor: O. Ondra, Professor in Civil Engineering
Manhattan College

COURSE NO. 6

BASIC ENGINEERING SCIENCES (ASME-IEEE)


TUESDAYS, Starting Sept. 8, 1964, 6:30-8:30 P.M., 19 Sessions
Auditorium, 19th fl., Con Edison Co., 4 Irving Place, N. Y. C.

Instructors: A. Paullow, Senior Engineer, Consolidated Edison Co., Inc.
and R. Jacobs, Assoc. Professor, Newark College of Engineering

COURSE NO. 7

MECHANICAL ENGINEERING (ASME)

Review for Mechanical Engineering Section of Part III, N. Y. Exam. Application of mechanical engineering principles to modern practice, shafts, flywheels, springs, gears and other machine elements, steel and heat treatment, internal combustion engines, air compressors, gas turbines, steam power plant cycles and equipment, refrigeration, heat transfer, air conditioning and other special subjects.

WEDNESDAYS, Starting Sept. 9, 1964, 6:30-8:30 P.M., 18 Sessions
Rm. 240, Elbasco Bldg., 2 Rector St., N. Y. C.

Instructor: E. Stampler, Assoc. Professor
Newark College of Engineering

COURSE NO. 8

ELECTRICAL ENGINEERING AND APPLICATIONS (IEEE)


WEDNESDAYS, Starting Sept. 9, 1964, 6:30-8:45 P.M., 18 Sessions
Rm. 1421, Con Edison Co., 4 Irving Place, N. Y. C.

Instructors: P. Zahnkas, Engineer, Consolidated Edison Co., Inc.
and J. F. Bates, Electrical Engineer, Gibbs & Hill, Inc.

COURSE NO. 9

ENGINEERING ECONOMICS AND PRACTICE (IEEE-ASME)

Review for Engineering Economics Section of Part III, N. Y. Exam. Economic comparisons, fixed and operating costs, accounting and cost analysis, valuations, contracts, etc.

THURSDAYS, Starting Sept. 10, 1964, 6:30-8:30 P.M., 18 Sessions
Auditorium, 19th fl., Con Edison Co., 4 Irving Place, N. Y. C.
COURSE NO. 1
RELAYING AND SOLID STATE CONTROL

MONDAYS, 6:30 to 8:30 p.m. Starting Sept. 28, 1964

Elbasco Auditorium, 2 Rector Street, New York 6, New York

Course Coordinator: K. BRUCKWELL, Elbasco Services, Inc.
Tel. Dblhy 4-4400, Ext. 524

This course is designed to introduce Solid State Control and to demonstrate the application, utilization and service of transistorized circuits for protective, regulating, auxiliary and verification relaying.

1. Sept. 28. General Introduction to Protective Relaying
   The role of protective relaying in electric power-system design & operation. Fundamental principles and characteristics and evaluation of its services.
   Speaker: C. R. MASON, General Electric, Schenectady, N. Y.

2. Oct. 5. Fault Current Calculations
   Phasors, per unit and polarity review, symmetrical components, sequence networks and short circuit calculations.
   Speaker: J. L. BLACKBURN, Westinghouse

   Basic philosophy and principles, review of the relays and systems available.
   Speaker: J. L. BLACKBURN, Westinghouse

   Evaluation of acceptance and trends for the future.
   Speaker: J. L. BLACKBURN, Westinghouse

   Modern practices in protection of machines, transformers, busses and distribution circuits.
   Speaker: H. G. EROMAN, Jr., Public Service Electric & Gas Co.

6. Nov. 2. Protection of Transmission Lines
   Impedance relays, carrier current microwave and pilot-wire schemes. Transferred tripping in line and transformer protection. Effect of system design on solid state relays.
   Speaker: H. G. EROMAN, Jr., Public Service Electric & Gas Co.

7. Nov. 9. Transistor Theory and Applications
   Basic transistor theory & applications in amplifier & switching circuits.
   Speaker: Prof. E. J. ANGELO, JR., Polytechnic Institute of Brooklyn

8. Nov. 16. Transistors as Negative Resistance Elements
   Description & analysis of basic semi-conductor negative resistance devices and circuits.
   Speaker: Prof. K. K. CLARKE, Polytechnic Institute of Brooklyn

   Fundamentals of feedback control systems as applied to process control.
   Speaker: L. R. HULLS, Leeds & Northrup

    Theory and description of automatic control components.
    Speaker: L. R. HULLS, Leeds & Northrup

COURSE NO. 2
ELECTRICAL DESIGN FOR MODERN BUILDINGS & PLANTS

TUESDAYS, 6:30 to 8:30 p.m. Starting Sept. 29, 1964

Port of New York Authority — Room 206
111 3rd Ave. (between 15th & 16th Sts.)
New York 11, New York

Course Coordinator: M. ISAACS, Ammann & Whitney,
111—Rth Ave., New York 11, New York, Tel. W.ATkins 4-8282

This course will introduce new methods and developments in electrical design of interest to Engineers, Designers, Draftsmen and Architects. The registration fee will include a copy of the 1962 National Electrical Code and an excellent text: “Constructing Electrical Systems” by J. F. McParrand and editors of Electrical Construction and Maintenance. This book is a new issue correlating requirements and recommendations of the 1962 National Electrical Code with many special illustrations to clarify code points.

1. Sept. 29. General Considerations
   Discussion of the accumulation of data for estimating and design, the coordination of information from mechanical, structural, etc., and the scheduling of the project to meet a specific completion date.
   Speaker: M. ISAACS, Ammann & Whitney

2. Oct. 6. Feeders and Branch Circuits
   Lecture covering voltage regulation and allocation of voltage drops; calculation of loads for branch and feeder circuits and the selection of equipment required.
   Speaker: A. J. KLEINHEINRICH, Consulting Engineer

   Talk will cover load calculation, the factors involved in the selection of distribution voltages and the types of networks to be used in buildings and plants.
   Speaker: A. H. MOORE, General Electric Co.

4. Oct. 20. Selection of Switchgear and Fault Coordination
   Discussion will cover short circuit currents in low voltage systems, the application of available protective devices and the coordination of these protecting devices.
   Speaker: H. W. REICHENSTEIN, Port of N. Y. Authority

5. Oct. 27. Selection and Application of Conductors
   Lecture covering types of available cables, insulation levels and cable construction and terminations.
   Speakers: R. KEITI & E. CARROTT, Kaiser Aluminum, Bristol, R. I.

6. Nov. 10. Lighting Systems
   Quick review of lighting calculation by standard methods with emphasis on new applications and design for lighting systems in buildings and plants.
   Speaker: B. C. COOK, Electrical Construction & Maintenance

   Code requirements and refinements in application of signal and communication systems in buildings and plants.
   Speaker: J. L. NOVAK, Electrical Construction & Maintenance

8. Nov. 24. Heating and Air Conditioning
   Basic calculations for determining heating and air conditioning requirements in buildings and plants with emphasis on electric heating.
   Speaker: W. J. NOVAK, Electrical Construction & Maintenance

   Discussion of recent changes in N.E.C. including changes now under discussion or study.
   Speaker: C. W. SCHaad, State Supt. of N.Y. Board of Fire Underwriters

10. Dec. 8. Electrical Design of World Trade Center
    Application of Electrical Design to a new building complex.
    Speaker: J. JORING, Joseph Loring Associates
COURSE NO. 3

DESIGN ASPECTS OF HV AND EHV

OVERHEAD TRANSMISSION

WEDNESDAYS, 6:30 to 8:30 p.m.  Starting Sept. 30, 1964

Con Edison Co., Room 1101S, 4 Irving Place, New York 3, New York

Course Coordinator: E. KAMLA, Burney Corp., Norwalk, Conn.
Tel. 203 Temp. 8-4444

This course is designed to aid in the resolution of problems experienced in the design of modern H.V. and E.H.V. overhead transmission lines.

1. Sept. 30. Introduction
   Historical and future developments of HV and EHV transmission lines, including the role of DC.
   Speaker: L. O. BARTHOLOM, General Electric Co., Schenectady, N.Y.

2. Oct. 7. Planning I
   HV and EHV transmission in the overall design of an electric power system.
   Speaker: G. VASSELLI, American Electric Power, N.Y.C.

   HV and EHV transmissions' role in interconnections and power pooling.
   Speaker: G. VASSELLI, American Electric Power, N.Y.C.

   System requirements, Conductor design, clearances, sags, plan and profile etc.
   Speaker: EARL HAZAN, Kaiser Aluminum, Newark, Ohio

5. Oct. 28. Vibration
   Vibration problems and solutions.
   Speaker: R. E. LARSON, Rome Cable Division of ALCOA, Rome, N.Y.

6. Nov. 4. Lightning & Switching Surges
   Phenomena and protection.

7. Nov. 18. Tower Design

8. Nov. 25. Insulators
   Suspension hardware, corona and radio noise protection.
   Speaker: D. C. FIENI, Lapp Insulator Co., Leroy, N.Y.

   Clearing methods, tower erection, conductor stringing, etc.
   Speaker: CLEMENT STREHUS, Ebasco Services, Inc., N.Y.C.

10. Dec. 9. 500KV Line Design
    Design of Keystone 500kv Transmission System.

COURSE NO. 4

SYMMETRICAL COMPONENTS

THURSDAYS, 6:30 to 8:30 p.m.  Starting Oct. 1, 1964

Con Edison Co., Room 1101S, 4 Irving Place, New York 3, New York
Course Coordinator: J. KEELER, Con Edison Co., Tel. 460-4280

This course covers fundamentals and applications of symmetrical components. Lectures will include fault calculations and the effects of equipment characteristics.

1. Oct. 1. The Per Unit System of Notation
   Calculation of short circuit currents. Common KVA base, conversions to per unit values. Short cut calculations.
   Speaker: LAWRENCE J. HOLLANDER, New York University

   Speaker: LAWRENCE J. HOLLANDER, New York University

3. Oct. 15. Resolution of Phasors into Symmetrical Components
   Speaker: LAWRENCE J. HOLLANDER, New York University

4. Oct. 22. Sequence Current & Voltage Components During Faults
   Sequence network connections to represent faults. Faults through impedance and open conductors.
   Speaker: LAWRENCE J. HOLLANDER, New York University

   Data preparation for power system fault study. Cable characteristics and transmission line impedances. Fault calculations by analytic method.
   Speaker: H. Y. TSIEEN, Public Service Electric & Gas Co.

   Sequence current and voltage components during faults. Examples.
   Speaker: H. Y. TSIEEN, Public Service Electric & Gas Co.

   Large system fault study with computers, and by Analog and Digital methods.
   Speaker: H. Y. TSIEEN, Public Service Electric & Gas Co.

   Fundamental equation and vector diagram, phase shifts through transformer banks. Auto transformers.
   Speaker: MR. J. L. BLACKBURN, Westinghouse

9. Dec. 3. Rotating Machinery Characteristics
   Generator characteristics, transient, subtransient, synchronous and negative sequence reactances.
   Speaker: MR. J. L. BLACKBURN, Westinghouse

10. Dec. 10. Symmetrical Components Applied to Relaying
    Use of zero sequence currents, voltages and combinations of both. Directional ground relaying.
    Speaker: MR. J. L. BLACKBURN, Westinghouse
INDIVIDUAL IMPROVEMENT STUDY GROUP

COURSE NO. 10
Effective Speaking for Engineers

WEDNESDAYS, 6:30-8:30 p.m. Starting Sept. 9, 1964
Room 1806-S Con. Edison Co., 4 Irving Place, N. Y. C.

Instructor: Prof. Wm. Walter Duncan
Dept. of English and Speech
Bronx Community College of the City University

A Study Group designed for engineers who desire training in the fundamentals of the art of addressing and influencing audiences.

1. Stage fright and how to control it; basic principles of effective speech. Each man will introduce himself.
2. How to use the voice to express thoughts and feelings in a dynamic, communicative manner. Drills with the use of a tape recorder.
3. Good articulation for effective speech. Drills with the use of a tape recorder.
4. Vocabulary and the use of words with precision. Reports on word study.
5. How to express ideas clearly and vividly. Reports.
6. 7. 8. How to use visual aids effectively. Carefully prepared visual aid speeches.
9. 10. 11. The subtle art of persuasion: Selling ideas, products and services. Carefully prepared, persuasive speeches.
12. An introduction to General Semantics. The analysis of language and communication with applications from the engineer's professional environment. Guest lecturer: George M. Bernard, Past Chairman, Metropolitan Section.

Each man will have an opportunity to speak at each session. Constructive criticism will be presented by the instructor. Those enrolled in the course will be encouraged to participate in the critique sessions, thus allowing each person to know the instructor's opinions as well as the reaction of his peers regarding his speech, his ideas and overall effectiveness.

All students registered for the Effective Speech course are automatically invited to participate in the activities of the Engineers' Forum, a division of our Metropolitan Section Program Committee. The Forum, a discussion group, organizes monthly meetings. They are selected from subjects of current interest, usually of a non-technical nature. Some times there are informal round-table discussions, other times lectures followed by group participation in questions and answers. The Engineers' Forum provides our Section with a unique workshop for continued practice in self-expression.

REGISTRATION

FEES:
For all courses except course No. 10
$30. — to all others.

For course No. 10
$30. — to members (as above).
$40. — to all others.

For Advance Registration (mailed at least one week before 1st session) deduct $5.00 from approp. fee.

Registration: Fill out form below & mail with your check or money order to the following:

For courses No. 1 to 4
make checks or money order payable to:
"POWER & IND. GROUP, N.Y. SECT., I.E.E.E." and mail to: A. Starone, Vice Chairman Educational Committee, I.E.E.E.; Public Service Electric & Gas Co., 80 Park Place, Newark, N. J.

For courses No. 5, 8 & 9
make checks or money order payable to:
"POWER & IND. GROUP, N.Y. SECT., I.E.E.E." and mail to: N. M. Moreira, Vice Chairman Educational Committee, I.E.E.E., Con Edison Co., 4 Irving Place, New York 3, N. Y.

For courses No. 6, 7 & 10
make checks or money order payable to:
"ASME METROPOLITAN SECTION" and mail to: R. G. Trabulsi, Vice Chairman Educational Committee A.S.M.E. Factory Mutual Engr. Div. 355 Lexington Ave., New York 17, N. Y.

ADVANCE-REGISTRATION FORM

Name (printed) ............................................................
Firm ............................................................ Position ............................................................
Business Address ............................................................ Phone No ............................................................
Home Address ................................................................
Course No. & Study Group ............................................................
Member of: □ IEEE □ ASME □ AIME □ ASCE
□ OTHER □ NON-MEMBER
I intend to apply for membership in ............................................................

(Do Not Write In This Space)
Admission Card No. ............................................................
Refund Certificate No. ............................................................
Fee Paid $ .............. (Cash, Check, M.O.)
Date ............................................................ By ............................................................
By-Laws to be approved at October Section Meeting

BY-LAWS OF THE
NORTH JERSEY SECTION
Institute of Electrical and
Electronics Engineers, Inc.

1. OFFICERS
The officers of the Section shall consist of:
Chairman
Vice-Chairman
Secretary
Treasurer
Junior Past-Chairman
Member-at-Large 1
Member-at-Large 2

2. EXECUTIVE COMMITTEE
The Executive Committee of the Section shall consist of the officers, the Chairmen of all standing committees listed in the Section Operating Procedures, and the Chairmen of the Professional Technical Group Chapters.

3. COMMITTEES
The chairmen of the various committees represented on the Executive Committee shall be appointed by the Section Chairman with the approval of the Executive Committee.

4. DUTIES OF OFFICERS AND COMMITTEE CHAIRMEN
The duties of the officers and committee chairmen are as listed in the Section Constitution and Section Operating Procedures.

5. CONDUCT OF MEETINGS
The conduct of business at the general meetings of the Section and the Executive Committee shall be governed by Roberts' Rules of Order, revised, when not incompatible with the Constitution of the Institute, the By-Laws, or the Section Constitution.

6. ELECTION OF OFFICERS
The Nominating Committee shall present at least one nomination for each Section office (with the exception of Junior Past-Chairman) and the nominations shall be announced in the March issue of a Section publication. Additional nominations may be made by a petition signed by not fewer than 25 voting members of the Section and transmitted to the Secretary for submission to the Executive Committee not later than April 30th. The petition must certify that the persons nominated have agreed to serve, if elected.

7. TERMS OF OFFICE
The officers of the Section shall take office on July 1st and their term expires on the June 30th following with the exception that the outgoing Treasurer shall be responsible for his record until they are audited and the audit has been approved.

8. AUDITING AND BONDING
The Treasurer shall be bonded at the expense of the Section in an amount determined by the Executive Committee. His books shall be audited at the close of his term of office by an auditor approved by the Executive Committee.

9. REMOVAL OF APPOINTED MEMBERS
Any appointed member of a committee may be removed from his position by a two-thirds majority vote of the entire voting membership of the Executive Committee. Prior to such vote being taken, the member in question shall be notified in writing of the pending action and requested to present himself before the Executive Committee at a time and place, not less than 15 days in advance, designated in the notice for the purpose of showing cause why he should not be removed from the position.

10. AMENDMENT OF BY-LAWS
These By-Laws may be amended by a two-thirds majority vote of the full membership of the Executive Committee provided a written notice including the proposed amendment has been given to all members of the Executive Committee at least ten days in advance.

Automatic Control
Officers 1964-5
Chairman Dr. A. U. Meyer, BTL
Vice-Chairman R. G. Sokalski, Kay Electric
Secretary L. E. Sutton III, Gibbs & Cox

Electronic Computer

NEW OFFICERS
The Computer Group begins its second year of existence in North Jersey with the following newly elected officers:
Chairman: DAVID P. PERRY
ITT Communication Systems Inc.
Vice-Chairman: EDWARD R. BYRNE
Bell Telephone Laboratories Inc.
Secretary: LOUIS M. SMALL
ITT Communication Systems Inc.

A vote of thanks is due last year's officers who guided the group through a successful first year: David P. Perry — Chairman, Thomas H. Crowley — Vice-Chairman and Harry Clark — Secretary.

FALL PROGRAM
The program for this year will begin in October with a description of Project MAC by Richard G. Mills of M.I.T. Project MAC is an experiment to program a digital computer through remote input consoles using teletype machines and data links. Such a real-time link will be set up to demonstrate the system at the meeting. Further details will be in next month's Newsletter.

Microwave Theory and Technique

New Group Officers: 1964-5
Chairman: Barry Mindes, ITT
Vice-Chairman: Michael J. Thompson, BTL
Program Chairman: John Vogler, Microlab
Program Committee: Lawrence Varnerin, BTL

Communications Technology

IEEE GROUP ON COMMUNICATIONS TECHNOLOGY
Officers — 1964-65
Chairman: R. D. CHIPP
15 Ward Street
Bloomfield, New Jersey
Vice-Chairman: A. A. ROETKEN
Bell Telephone Labs
Murray Hill, New Jersey
Secretary: J. HARVEY
Sichak Associates
518 Franklin Avenue
Nutley, New Jersey
Financial & Arrangements Officer: M. WESTHEIMER
ITT Communication Systems
Paramus, New Jersey

The Newsletter, September 1964
Executive Committee 1964-5

John K. Redmon
Chairman

John Redmon has been an Associate Professor in Electrical Engineering at the Newark College of Engineering since February, 1960. He is associated with the Public Service Electric and Gas Co. on a part-time basis.

After graduating from NCE with a BS in 1942, he received an MS from Stevens Institute in 1949. Additional graduate work followed at NCE and New York University.

Active in the former AIEE organization since 1953, he has held many positions in that organization, including these in the New Jersey Division: Chairman, Educational Committee, Member-at-Large, Secretary, Treasurer, Member of Merger Committee, and Member Student Guidance Committee.

Professor Redmon holds the rank of Captain in the United States Naval Reserve. He served in both World War II and the Korean conflict. He has over 22 years service in the Naval Reserve including two tours of active duty (World War II and Korean Conflict).

He is a Member of Tau Beta Pi, and the Alumni Association of NCE.

Professor Redmon has most recently served as Vice-Chairman of the North Jersey Section and was chairman of the 1963-64 Annual Section Dinner last March.

Walter L. Glomb
Vice-Chairman

Mr. Glomb received his BS degree in 1946 and his MS in 1948, both from Columbia University. In 1950, following a brief period at Paramount Pictures, Incorporated, where he was concerned with the development of theater television systems, he joined ITTFL. Since that time he has been concerned with communication systems design, integration, and analysis. Since 1959 Mr. Glomb has been directly concerned with integration and analysis of communication satellite system performance.

Mr. Glomb is a member of the Institute of Electrical and Electronics Engineers and of Tau Beta Pi.

Stephen A. Mallard
Treasurer

Stephen A. Mallard received his ME in 1948 and his MS in 1951, both from Stevens Institute of Technology. He was an Instructor in Electrical Engineering at Stevens from 1948 to 1951. Mr. Mallard joined the Public Service Electric and Gas Co. in 1951, and has been serving in a number of positions in the Electric Distribution Department and System Planning Department. He is currently engaged in planning developments of future generation, transmission and interconnections.

Mr. Mallard has been active in the former New Jersey Division of AIEE, serving on its Executive Committee, Program Committee, Education Committee, and Student Guidance Committee. He is a licensed Professional Engineer in New Jersey, a member of the National Society of Professional Engineers, and a member of Tau Beta Pi.

Mr. Mallard is married, has three children, and lives in Nutley, New Jersey.

James W. Gordon
Secretary

Mr. Gordon was born in 1920 in Pine Island, Minnesota. In 1942 he received a BEE degree from the University of Minnesota. He joined the General Electric Test Program in 1942. He then had assignments in the Service Engineering, Control Engineering, and Application Engineering Divisions of the General Electric Company. He is presently employed in the East Orange Sales Office as an Application Engineer.

His work with the AIEE has been as member and Chairman of the Educational Committee, and he was Member-at-Large, Secretary, Treasurer, and Vice-Chairman of the New Jersey Division.

We admit, you can administer...

PRODUCTION CONTROL
MARKET PLANNING
COST ANALYSIS
COST REDUCTION
WAGE POLICIES
PURCHASING
PERSONNEL
INVENTORY

BUT can you stay aware of cash assets, profit level, payroll etc. and still plan your future? Perhaps; until a problem develops in any of these or another area.

Let us explain how STAFF ASSOCIATES can help. Either by assuming administrative responsibility or by solving a specific problem. (Capability Bulletin on request)

PHONE OR WRITE ..........................

STAFF ASSOCIATES
CREATIVE | ADMINISTRATIVE | RESEARCH | STAFF FUNCTIONS
PHONE: AREA CODE 201 366-1580
P.O. BOX 38, FORD ROAD • R.D. 1, DOVER, N. J.
NEW YORK SECTION COMMUNICATIONS AND ELECTRONICS DIVISION
1964-65 Lecture Series
Engineering Applications of Computer Programming

“Engineering Applications of Computer Programming” is the subject of a series of
eighteen lectures being sponsored by the Education Committee of the Communications
and Electronics Division. These lectures are designed to present an up-to-date picture of
the field of computer programming as applied to engineering problems. Computer
demonstrations will be used in conjunction with the lectures to provide a working
knowledge of the subject.

The series is divided into three parts. Each part will be presented by a recognized
authority on the subject.

Part I “Introduction to Programming” will be presented by Professor T. R. Bash-
kow, Professor of Electrical Engineering at Columbia University and Director of Colum-
bia’s Computer Programming Laboratory. Three of Professor Bashkow’s lectures will
cover FORTRAN, a simple programming language for computers. The last three lec-
tures show how this language can be used to solve some typical engineering problem
(e.g. curve plotting). This part serves as the basis for subsequent lectures as it illustrates
the notion of programming.

Part II “Design Applications” will be presented by Mr. R. A. Bragg, Program
Administrator of Engineering Application Development, IBM Data Processing Division.
Mr. Bragg will concentrate on the use of FORTRAN and modifications of that lan-
guage to design circuits and systems and to analyze performance of circuits and systems.

As an example, Mr. Bragg will discuss
 customary transformer design. Methods for
 using computers to convert customer require-
 ments automatically into parts lists and as-
 sembly instructions will be described. As an
 example of system design, a case study of the
 use of a computer to design another computer
 will be discussed. Finally, the use of com-
 puters to analyze DC, AC, and transient
 properties of electrical networks will be
described.

Part III “Special Engineering Applications” will be presented by members of the
Systems Programming Services Department of the Sperry Rand Corporation, Univac
Division. This part will cover representative programs which are used with specially
designed computers intended for one application. Because of the diversity of the topics,
an expert on each specialty will present each lecture.

The entire lecture series is designed to be logically continuous. This is, Parts II and
III follow and build upon the material presented in preceding parts.

ATTENDANCE INFORMATION:
All lectures will be held in the Western Union Auditorium, 160 West Broadway,
New York City on Tuesday evening from 7:00 to 9:00 P.M. This auditorium is con-
vienient to all public transportation. Abundant parking facilities are available.

Dates for the three-part series are as follows:

Part I: Introduction to Programming  October 6, 13, 20, 27;  November 10 and 17, 1964
Part II: Design Applications January 19, 26; February 2, 9, 16 and 23, 1965
Part III: Special Engineering Applications April 13, 20, 27; May 4, 11 and 18, 1965

REGISTRATION FEES:
Three Part Series:
$25 — IEEE Members
$30 — Non-Members
$5  — Full-Time Students

Individual Parts:
$10 — IEEE Members
$12 — Non-Members
$2  — Full-Time Students

To register, make check payable to: IEEE C. & E. Division. For further information
or registration contact:
JOHN L. VOSSEN
Chairman, Education Committee
Radio Corporation of America
Communications Systems Division
75 Varick Street
New York, New York 10013
(212) 925-3716, Ext. 229

Rates for professional notices (classified advertising): $15 per inch. For ten consecu-
tive insertions rate is $12 per inch. For details write IEEE Newsletter, Box 275, Morris
Plains, N. J.

Biographies of the Members-at-large John Van Duyne and Roger McSweeney
will appear in the October issue.
1. October 19, 1964
Introduction
OSCAR MYERS
Director, Telephone Switching Development
IT&T Co.

2. October 26, 1964
Space Division Switching — Voice
RAYMOND W. KETCHLEDGE
Director, Electronic Switching Laboratory
Bell Telephone Laboratories

3. November 2, 1964
Time Division Switching — Voice
J. G. PEARCE
Principal Engineer, Electronic Switching
Stromberg Carlson Corp.

4. November 9, 1964
Time Division Switching
Data Voice Band
HARTLEY KLEINBERG
Project Engineer, IT&T Federal Laboratories

5. November 16, 1964
Data Switching — Broad Band
ROBERT VANNIMAN
Operating Engineer
Automatic Electric Company

6. November 23, 1964
Future of Electronic Switching
JOHN BEIEKLE
Manager, Electronic Switching Systems Planning
Automatic Electric Laboratories

METHODOLOGICAL CONSIDERATIONS
Lecturer:
MR. WOLFGANG JAKOBSSBERG
Booz Allen Applied Research, Inc.
4815 Rugby Avenue
Bethesda 14, Md.

SESSION 6 — Wednesday, 28 October 1964
COMMUNICATIONS NEEDS VERSUS EXISTING FACILITIES
(Matching of the Capabilities of the Existing Facilities to the Traffic Flow Requirements)
Lecturer:
DR. NOAH KRAMER
Stelma, Inc.
200 Henry Street
Stamford, Conn.

SESSION 7 — Wednesday, 4 November 1964
CONDUCTIVE PATH
(Continued from Previous Page)
Lecturer:
MR. JACK WOLFF
Radio Corporation of America
75 Varick Street
New York 13, N. Y.

SESSION 8 — Wednesday, 18 November 1964
SESSION 9 — Wednesday, 25 November 1964

MULTIPLEX
(FDM, TDM)
Lecturer:
MR. CHARLES D. HANSELL
G.T. & E. Service Corp.
730 Third Avenue
New York City 10017
SESSION 10 — Wednesday, 2 December 1964
SESSION 11 — Wednesday, 9 December 1964

SESSION 12 — Wednesday, 16 December 1964

Lecturer:
MR. E. N. WELLS, AT&T
Mr. W. A. JONES, AT&T

STANDARDIZATION
Lecturer:
MR. HOWARD H. SMITH
ITT Communication Systems, Inc.
Paramus, New Jersey
your Tektronix Field Engineer invites you
to send or phone for this new booklet...
describing the Type 564 Oscilloscope.

With the Type 564, you can:
1 Store and observe single-shot phenomena,
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   with a stored waveform.

The booklet contains information on amplifier and
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half, if desired. Or, you can present
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HARRISON LABS' SCR-3 POWER SUPPLIES ARE COMPACT & EFFICIENT

Harrison Laboratories division of Hewlett-Packard is now marketing a new line of high power, regulated DC Power Supplies. This 3-phase series of Power Supplies offer excellent immunity to line transients. Other advanced features include:

- CONSERVATIVE DESIGN FOR RELIABILITY AND LONG-LIFE;
- SILICON DIFFERENTIAL AMPLIFIER CONTROL CIRCUITRY FOR IMPROVED STABILITY;
- CONTINUOUSLY VARIABLE OUTPUT VOLTAGE & CURRENT;
- AUTO-SERIES, AUTO-PARALLEL, AND AUTO-TRACKING OPERATION.

Voltage regulation is 0.25% and current regulation is 1%. Ripple is less than 0.5% to 1%, depending on model number. Transient load recovery time is less than 50 ms. All Supplies are short-circuit proof.

These three SCR-3 Models, 6453A, 6456A, and 6459A, are Constant Voltage/Constant Current with automatic crossover... Prices range from $1250 to $1435. Call your RMC Field Engineer for full specs and application info on these new Power Supplies.

Model 8551A/851A Spectrum Analyzer is one of the most important new instruments Hewlett-Packard will introduce this year. Features of this new Spectrum Analyzer are 2-gc bandwidth from 10 mc to 40 gc, accurately calibrated 60 db dynamic range, and sensitivity of -100 dbm.

Designed to give a large increase in the scope, speed, and accuracy of spectrum monitoring, spectrum signature identification, and RFI analysis, the entire instrument occupies only 19" of rack space.

By contrast with previous analyzers, all basic functions are fully calibrated. Spectrum width accuracy is ±5% from 100 kc to 3 Mc, ±5% at 10 Mc, and ±4 Mc from 30 Mc to 2 Gc. A significant contributor to performance and operating convenience is a newly-developed rf attenuator which may remain constantly in the circuit without penalizing sensitivity, since it has zero loss at dc, and less than 2 db at 10 Gc.

Price of the 851A Display Section is $2400 while the 8551A RF Section is $7100. Why not call your Field Engineer at RMC for complete specs and a demonstration of this remarkably advanced Hewlett-Packard Spectrum Analyzer?