IEEE

The

Newsletter

The Magazine of the Northern New Jersey Section

Volume 9 | MARCH, 1963 | Number 7

MARCH SECTION MEETINGS

ANNUAL SECTION BANQUET

DATE: TUESDAY, MARCH 12, 1963
TIME: SOCIAL HOUR AT 6:15 P.M.
DINNER AT 7:15 P.M.
PLACE: HOTEL SUBURBAN, E. ORANGE

MODERN RELAYING 1963

DATE: THURSDAY, MARCH 21, 1963
TIME: 7:30 P.M.
PLACE: PUBLIC SERVICE ELECTRIC & GAS
NEWARK, ROOM 3171A

NEW TEKTRONIX SPLIT SCREEN STORAGE OSCILLOSCOPE

for storage and non-storage displays

Type 564

- ★ UPPER-HALF STORAGE OR NON-STORAGE
- ★ LOWER-HALF STORAGE OR NON-STORAGE
- ★ FULL-SCREEN STORAGE OR NON-STORAGE
- ★ EASY ERASE
- ★ ONLY 2 CONTROLS

- ★ TRACE-POSITION LOCATER
- ★ REPETITIVE-TRACE INTEGRATER
- ★ RECTANGULAR, CERAMIC CRT
- ★ AMPLIFIER AND TIME-BASE PLUG-IN UNITS

For storage and non-storage displays–The Type 564 has display capabilities for upper-half, lower-half, or full-screen storage or non-storage (with conventional crt operation in the non-storage mode).

The storage capability lends itself to single-shot displays at slow or medium speeds and displays of repetitive waveforms at faster speeds using the integration technique. Single-trace writing speed is faster than 25 centimeters per millisecond. On repetitive traces, the integrate feature provides an increase in stored writing rate. For example, it is possible to increase the stored writing rate by 10 times on 12 repetitive traces.

Storage time can be more than one hour; erase time approximately 250 milliseconds.

The Type 564 has display capabilities for differential, multi-trace, wide-band, delaying sweep, and sampling applications.

Type and degree of performance depend upon 2-Series and 3-Series Amplifier and Time-Base Plug-In Units used.

Type 564 Storage Oscilloscope (without plug-in units) $950

Plug-In Units pictured (in full-screen-storage display):

Type 3A75 50 mv/cm Amplifier Unit $175

Type 2B67 Time Base Unit with single-sweep facility. $175

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

Call your Tektronix Field Engineer for more information or to arrange a demonstration.

Wide operating versatility available through 2-series and 3-series plug-ins

AMPLIFIER UNITS TYPE	*PASSBAND (3-db down)*	*SENSITIVITY*	*PRICE*
2A60	dc—1 Mc.	50 mv/cm—50 v/cm 4 decade steps with variable control.	$105
2A63—Differential (50:1 rejection ratio)	dc—300 kc.	1 mv/cm—20 v/cm 1-2-5 sequence, with variable control.	$130
3A72—Dual Trace (Identical Channels)	dc—650 kc. (each channel).	10 mv/cm—20 v/cm, 1-2-5 sequence, with variable control.	$250
3A74—Four Trace (Identical Channels)	dc—2 Mc (each channel).	20 mv/cm—10 v/cm, 1-2-5 sequence, with variable control.	$550
3A75	dc—4 Mc.	50 mv/cm—20 v/cm, 1-2-5 sequence, with variable control.	$175
3A1—Dual-Trace (Identical Channels)	dc—10 Mc. (each channel).	10 mv/cm—10 v/cm 1-2-5 sequence with variable control.	$410
3S76—Dual Trace Sampling (for use with 3T77)	equivalent dc-to-875 Mc. (0.4-nsec risetime)	2 mv/cm—200 mv/cm, 1-2-5 sequence, with variable control.	$1100

TIME-BASE UNITS TYPE	*SWEEP FEATURES*	*TRIGGERING*	*PRICE*
2B67	1 μsec/cm to 5 sec/cm, 1-2-5 sequence, variable between rates. 5X Magnifier. Single Sweep.	Internal, External, Line; Amplitude-Level Selection; AC or DC-Coupling; Automatic or Free-Run; ± Slope.	$175
3B1	Normal and Delayed Sweeps—0.5 μsec/cm to 1 sec/cm, 1-2-5 sequence 18 calibrated delay settings, 0.5 μsec to 10 sec, variable between rates uncalibrated.	Internal or External; AC or DC Coupling; Automatic; ± Slope Same features for Normal and Delayed Sweep Modes, except automatic.	$475
3B3	Normal and Delayed Sweeps—0.5 μsec/cm to 1 sec/cm, 1-2-5 sequence. Continuously variable calibrated delay from 0.5 μsec to 10 sec. Single Sweep for main sweep.	Internal or External; Line; AC or DC-Coupling; Automatic; ± Slope; for Normal Sweep Mode; Same features (except no Line or Automatic) for Delayed-Sweep Mode.	$525
3T77 Sampling Sweep (for use with 3S76)	Equivalent to 0.2 nsec/cm to 10 μsec/cm, 1-2-5 sequence, variable between rates. 10X Magnifier.	Internal or External, ± Slope.	$650

Tektronix, Inc. *UNION FIELD OFFICE*

400 CHESTNUT STREET • UNION, N.J. • Phone: MUrdock 8-2222

EDITORIAL NOTES

WELCOME

With this issue, the **Newsletter** becomes the magazine that serves the I.E.E.E. Section in the northern part of New Jersey. By way of introducing the New Jersey Division of the A.I.E.E., we present on this page J. F. Schwanhausser, Chairman of that group. Chairman Parkes of the NNJ IRE reports on merger progress in his regular monthly column.

A.I.E.E. CHAIRMAN SPEAKS

If, a dozen years ago when I became active in A.I.E.E. affairs, a fortune-teller had predicted I would be the last chairman of New Jersey Division, I would have been startled indeed to think that I would preside at the funeral of a dead organization. But New Jersey Division has grown and prospered in these years, continuing to serve the Engineering Community through programs and educational courses.

As a geographical Division of New York Section A.I.E.E., New Jersey Division has participated jointly with the Technical Divisions in a broad spectrum of activities. Partly because of this diversification there often has been motivation to become a separate New Jersey Section. This urge is now being satisfied as we take the initiative and merge with Northern New Jersey Section I.R.E.

At this writing, details are being worked out, but it is with distinct pleasure that I report that points of difference are few, and are outnumbered by points of similarity and agreement. Elsewhere in these pages is a report of our progress which we hope will be satisfactory to all.

The key to ultimate success is fuller participation by both former groups in all I.E.E.E. activities, so that we may understand each other's wants and preferences. As we work to better know each other, we move with faith and reassurance to become a strong Section of I.E.E.E.

The
Newsletter

Published monthly by the Northern New Jersey Section of the Institute of Electrical & Electronics Engineers

Volume 9 **MARCH, 1963** **No. 7**

Deadlines for all material are the first of the month preceding each month of publication.

All communications concerning The Newsletter, including editorial matter, advertising, and mailing, should be addressed to:

THE NEWSLETTER
P.O. Box 241 - Morristown, N. J.
Telephone: JEfferson 9-4909

MEET THE STAFF

Bernard Meyer is now an Associate Editor on the Staff of the Newsletter, and is also Chairman of Publicity on the Executive Committee of the Northern New Jersey Section of the Institute of Radio Engineers. Last year he was Student Activities Editor.

Bernard Meyer received both a BA (1942) and a BEE (1950) from New York University. Now employed as an Electronic Engineer at Picatinny Arsenal in the Quality Assurance Division—Nuclear Weapons Inspection Branch, he has held positions with RCA and Lockheed Electronics.

He has recently been elected to membership in Trigonon, Honorary Society of Washington Square College, NYU, for outstanding service in the evening student and alumni organizations.

THE COVER

The emblem of the IEEE retains the four-cornered shape of the old AIEE emblem while the symbol itself is a modification of the IRE symbol representing electric current and magnetic force.

AROUND THE PG CIRCUIT

The annual luncheon meeting of the national Professional-Technical Group on Aerospace and Navigational Electronics (PTGANE) will be held on March 26, during the International IEEE Convention. The meeting will be sponsored by the Metropolitan Chapter of PTGANE.

A nationally prominent speaker, to be announced, will address the luncheon.

This event constitutes the highlight of PTGANE activities for the year and all are cordially invited.

The cost for the luncheon is $5.00 and you are asked to send your remittance and request for tickets to:

Mr. Gus Stavis
Treasurer, Metropolitan PTGANE
General Precision Laboratories
63 Bedford Road
Pleasantville, New York

Lunch will commence at 12:30 P.M. and will terminate in time to permit attendance of the afternoon sessions of the Convention.

The luncheon will be held at the Collonades Room of the Essex House, on Central Park South, just a short walk from the Coliseum.

Please send your requests in **EARLY!**

Dean Brown of MIT To Be Honored

Dean Gordon S. Brown of the Engineering School of the Massachusetts Institute of Technology will address a luncheon meeting jointly sponsored by Eta Kappa Nu and the Professional Technical Group on Education on March 25 in conjunction with the IEEE Convention in New York City.

He will receive Eta Kappa Nu's highest award of "eminent member" at the meeting and will talk on the subject "Technical Frontiers vis-a-vis Present Engineering Practice—Closing the Gap."

Tickets will be sold at the door, but advance registration will be helpful to the Arrangements Committee. Reservations may be made with Prof. John A. Lyon, Eta Kappa Nu president, Department of Electrical Engineering, University of Michigan, Ann Arbor Mich. The cost of the luncheon will be $5 per plate, and checks should be made payable to Eta Kappa Nu Association.

COMMUNICATIONS TOPIC AT BANQUET

Fourteen members of the Northern New Jersey Section, 12 new Fellows and two award winners, will be honored at the Annual Section Banquet on March 12th at the Hotel Suburban, 141 South Harrison Street, East Orange. The Fellows and Award winners, along with other section members and their guests, will hear A. M. Greg Andrus of NASA Headquarters discuss Communication Satellites.

Gala Affair

The Program Committee has arranged a program that should appeal to most members. A social hour at 6:15 P.M. will be followed by a dinner beginning at 7:15. The formal award program and the talk by Mr. Andrus is scheduled to start at 8:30.

Wives of Section members are cordially invited. It may be the first time that some of these ladies will hear an engineer using laymen terms to describe the likes of Telstar and Relay.

As Acting Chief of Communications Satellite Technology, Mr. Andrus is in a position to discuss present and future programs of NASA.

Fellows Cover Wide Range

The 12 Fellows honored by the Section have made significant contributions in widely differing areas of electronics. Cited for contributions in such fields as communications, circuit design, component part development, theory, and electronic publications; the Fellows represent the last group of IRE Fellows. Next Year's banquet will honor the first Fellows elected by the new IEEE.

Two Award Winners

The two awards winners from the Northern New Jersey Section are George Clark Southworth and Ian Munro Ross.

Southworth received the Medal of Honor for pioneering contributions to microwave radio physics, to radio astronomy, and to waveguide transmission. The Medal of Honor is given annually for outstanding scientific or engineering achievement.

The Memorial Prize Award in Memory of Morris Liebmann is made annually to that member of the IRE who has made the most important contribution to the radio art recognized not earlier than three calendar years preceding the award. Dr. Ross received the award for contributions to the development of the epitaxial transistor and other semiconductor devices.

ABOUT THE SPEAKER

A. M. Greg Andrus is Acting Chief of Communications Satellite Technology, reporting directly to Leonard Jaffe, Director, Communications Systems, Office of Applications, at NASA Headquarters. He is primarily concerned with the planning, programming, and technical review of the supporting research and advanced technical development program on communications satellites, and with preparation and coordination of future plans and programs. Andrus joined the Headquarters Staff of NASA in February 1962.

A native of Louisiana, he was an honor graduate from Bunkie High School in 1941; helped build Liberty ships in New Orleans until mid-1943; awarded the Distinguished Flying Cross and Air Medal (three clusters) for service in the Marianas with the 20th Air Force; returned to civilian life and began undergraduate studies at Tulane University in February 1946; and switched from chemical engineering to electrical engineering at Louisiana State. He was among the first group of students to join the newly established IRE Student Chapter in 1949, at L.S.U.

Following completion of undergraduate work, he accepted a job as a junior engineer with the Wright Air Development Center, Dayton, Ohio. The first couple of years were spent in the electron tube laboratory working with all types of vacuum tubes used by the Air Force, followed by an assignment as Project Engineer for Power and Gas Discharge Tubes. Andrus accepted a job with the Bureau of Ships and began his law studies at Georgetown University in February 1953.

From 1953 to April 1957, he was in charge of research and development for electron tube techniques and solid-state devices for BuShips. After completion of his studies at Georgetown, he became a member of the Virginia State Bar and a registered patent attorney. From 1958 until he joined NASA, Andrus was assigned staff responsibility over radar techniques, data processing, and machine language translation research, and all electronic components power sources, and miniaturization R & D in the Office of the Chief Signal Officer.

Andrus is married and has three daughters. He is active in civic and school organizations, a member of the IRE and IRE-PGED, and the Virginia State Bar.

ANNUAL SECTION BANQUET

Please reserve ..... tickets for The Annual Section Banquet to be held at the Hotel Suburban, 141 So. Harrison Street, East Orange, N. J., on Tuesday, 12 March, 1963. Tickets are $4.50 per person.

Enclosed is $.....

Name .....

Address .....

.....

Reservations and checks to be sent to:

CHARLES W. VADERSON
ITT Communications Systems S60 Route 17, Paramus, N. J.

STUDY GROUP

MODERN SOLID STATE CONTROL FOR INDUSTRIAL PLANTS

The electrical industry has been gradually transistorizing a major portion of its control apparatus, and it is, therefore, of primary importance that we obtain better knowledge and understanding of this new technique. Many metropolitan area plants already have transistorized controls on order or in operation now. A study group intended to give the proper background to men in industry to enable them to apply, utilize and service such equipment efficiently is being presented by the IEEE section.

The course will not be of a highly complex nature involving advanced physics or mathematics, but rather it is our intention that these sessions enable those attending to read transistor elementary diagrams and logic circuits with the same proficiency as conventional elementary diagrams. Our aim is to explain the performance of transistor circuits as applied to such control modes as speed, tension, and position, and to provide a thorough background of available solid state control devices.

The course will consist of six (6) two-hour sessions, held weekly at Vail Hall in the New Jersey Bell Telephone Company building at 540 Broad Street, Newark 2, New Jersey, starting Thursday, March 7, 1963 at 6:30 P.M.

The text material for the study group is entitled, "Transistors in Radio, Television and Electronics, 3rd Ed." by Milton S. Kiver, price $6.50, McGraw-Hill Book Company, Inc.

Instructors will be General Electric Company engineers, who have devoted the major part of their experience in the application, design or service of this type equipment.

The registration fee for those who register in advance of March 6, 1963 will be $20.00 to members of IEEE, ASME, ASCE and AIME, and $25.00 to non-members. After March 6th, the registration fee will be $25.00 to members and $30.00 to non-members. The text is included in the registration fee.

REGISTRATION FORM

MAIL TO:

Mr. J. A. Miller
General Electric Company
26 Washington Street
East Orange, N. J.
TEL - 674-3600

Please register me for the study group "Modern Solid State Control for Industrial Plants."

Enclosed is check in the amount of

$.....

I am a member of:

.....IEEE .....ASCE .....ASME

.....AIME .....None

NAME .....

COMPANY .....

ADDRESS .....

.....

TITLE .....

Section Merger Near

First steps in the merger of the former N. J. Division of the A.I.E.E. and the NNJ Section of the I.R.E. have been taken. Under the present time table, formal merger should be completed by July 1st.

To members of the former IRE Section, the changeover will probably be just a matter of a change in the section's name and a new set of by-laws and procedures. On the other hand, the merger will require many members of the old AIEE to make some decisions.

A.I.E.E. Members Must Decide

Because the new group doesn't cover all the area of the old N.J. Division and because the N.J. Division was part of the old New York Section of the A.I.E.E., members of the A.I.E.E. must decide what Section of the I.E.E.E. they wish to belong to.

Each member whose address for mailing purposes is in Bergen, Essex, Hudson, Morris, Passaic, Sussex and Union counties will be in the new northern New Jersey group.

The National By-Laws permit a member to hold Section Office only if he has an address within the geographical boundaries of that Section. It will be possible, of course, to participate in PTG activities and cross such boundaries particularly if the PTG is jointly sponsored. But, to hold office in Section Administrative or Operating Groups such as the Executive Committee, a member must have an address within the geographical boundaries of that section.

Each New Jersey resident member of A.I.E.E. will be informed that if he has or obtains a New York address he can choose to be considered a New York Section member by using the New York address.

Similarly, present A.I.E.E. Members who have addresses in Warren, Mercer, Somerset, Middlesex and Hunterdon Counties or Monmouth and Ocean Counties will be limited to activity in other sections unless they use a northern New Jersey mailing address.

Additional Information

A progress report on merger activities at the Executive Committee level is contained in this month's Chairman's Corner.

CHAIRMAN'S CORNER

A. W. PARKES

MERGER PROGRESS. The first joint section meeting of the merged N. J. Division of the N. Y. Section A.I.E.E. and the N.N.J. Section of I.R.E. was held on Jan. 9, 1963 at the Friar Tuck Inn, Cedar Grove. The speaker was Dr. John E. Kunzler on a subject chosen to be of growing value to both groups, **Cryogenics.** The program chairmen from the two groups will complete the season with programs already independently planned and will make recommendations for program management for the '63-'64 season at the two Executive Committee meetings in April 1963. We believe that the wide diversity of interests between the A.I.E.E. and I.R.E. members is not much greater than between some of the members within the I.R.E., and that acceptable programs can be worked out for joint section meetings. We also believe that it will be of value to each group to indulge in a bit of cross-fertilization — and this may have been one of the effects envisaged by those who recommended merger.

The NEWSLETTER distribution will be expanded, beginning with this issue, to include the 2000+ A.I.E.E. members in this area. The total distribution will then exceed 6500. News of both groups and of all Professional Technical Group Chapters will be included in order to make the NEWSLETTER a competely merged activity and the one place to which all members can refer for all activities. The NEWSLETTER staff has been enlarged to include both groups but will remain under the Editorship of M. M. Perugini at least for the remainder of this season.

The Awards Committees of the two groups will work together starting immediately, as will Membership, Nominating, and Publicity. It is expected that the offices of Treasurer will be merged in mid-1963 or as soon thereafter as all financial records can be completed for '62-'63.

The first joint Executive Committee meeting was held Jan. 23, 1963 at which the writer presided. Subsequent meetings for the remainder of the season will be joint, and alternately presided over by the two section chairmen. Mr. John Schwanhausser is currently Chairman of the A.I.E.E. Section. It is expected that there will be but one Chairman, Vice-Chairman, Treasurer and Secretary beginning with the 1963-64 season. You will be kept informed of our progress in this column.

AWARDS AT ANNUAL SECTION BANQUET. Please reserve **Tuesday,** March 12 for the Annual Section Banquet. This will be a cocktail party and dinner followed by the presentation of our highest compliments to Dr. George C. Southworth and Dr. Ian M. Ross who will receive awards the following week at the International Convention of I.E.E.E. in New York. We will have the honor of presenting certificates signifying election to the grade of FELLOW OF THE INSTITUTE OF RADIO ENGINEERS to twelve members from our section. They are:

Mr. Robert T. Adams
Dr. Maurice Arditi
Mr. Joseph T. Cimorelli
Dr. Edward E. David, Jr.
Mr. Elwood K. Gannett
Mr. Alexander J. Grossman
Dr. Arnold M. Levine
Mr. William A. Malthaner
Mr. Robert L. Mattingly
Mr. David A. McLean
Dr. Samuel P. Morgan
Mr. Arthur C. Peterson

IRE AWARDS

MEDAL OF HONOR: GEORGE CLARK SOUTHWORTH

For pioneering contributions to microwave radio physics, to radio astronomy, and to waveguide transmission.

George C. Southworth, the recipient-elect of the 1963 IRE Medal of Honor is perhaps best known for his early work on guided electromagnetic waves. From his fundamental study, there followed rather naturally, not only the waveguide transmission line, but the electromagnetic horn and many of the microwave circuit techniques now used extensively in radar, radio relay and Telstar. His citation reads: "For pioneering contributions to microwave radio physics, to radio astronomy and to waveguide transmission."

He was born on a western-Pennsylvania farm in 1890 and after completing a rather primitive country high school, he entered Grove City College following with graduate work at both Columbia and Yale. It was from Yale that he received his Doctorate in 1923. Following 1923 and until 1955, he was a member of the technical staff of the American Telephone and Telegraph Co., and the Bell Telephone Laboratories Inc. More recently, he has been a radio consultant to a number of organizations.

Dr. Southworth has been the recipient of several prior awards, including in particular, the Morris Liebmann Prize of IRE for 1938 and the Ballantine Medal of the Franklin Institute for 1947. For his discovery of radio waves coming from the sun, he was awarded the Levy Medal of the Franklin Institute in 1946.

MEMORIAL PRIZE AWARD IN MEMORY OF MORRIS N. LIEBMANN: IAN MUNRO ROSS

For contributions to the development of the epitaxial transistor and other semiconductor devices.

Ian M. Ross is Director of the Semiconductor Device and Electron Tube Laboratory at the Bell Telephone Laboratories branch in Allentown, Pa.

His organization was responsible for final development, reliability evaluation and aging tests of all the transistors, diodes and other semiconductor active devices used in the communications circuits of the Telstar satellite.

Dr. Ross, a native of Southport, England, received the B.A. degree in engineering in 1948 from Gonville and Caius College, Cambridge University, and M.A. and Ph.D. degrees in 1952 from Cambridge.

Since joining the Bell Telephone Laboratories technical staff in 1952, he has specialized in research and development on a wide variety of semiconductor devices. Prior to assuming his present post in April of this year, he had been Director of the Semiconductor Device Laboratory at Bell Telephone Laboratories' Murray Hill, N. J., location.

Dr. Ross is a Senior Member of the Institute of Radio Engineers. He has been granted nine patents on semiconductor devices and has written numerous technical articles on his work on semiconductors.

Dr. Ross and his wife Christina, now live at 13 Lehigh Parkway North, Allentown, Pa. They have three children.

NEW FELLOWS OF THE IRE

For contributions to over-the-horizon communications.

Robert T. Adams

Robert T. Adams was born in 1915 at Sparkill, New York. His education was at Cornell University in Electrical Engineering. Prior to joining Sichak Associates in September 1961, he was with ITT Federal Laboratories (a division of International Telephone & Telegraph Corporation) for 16 years. His last position there was Senior Scientist. Before ITT, he was employed by the Western Electric Co. as a radar and test equipment engineer, and by the National Rayon Dyeing Co. as an engineer in the design of automatic process control systems.

Mr. Adams' experience is in the fields of research and development of advanced circuit studies, receivers, antennas, frequency synthesizers, diversity combiners, troposcatter equipment, spread spectrum modulation, microwave logic, satellite communications and multistatic radar.

He has served on a number of classified government-industry scientific committees and has participated in the work of ARPA and Navy Ad Hoc Committees. Among these, for example, were the NSIA committee on anti-submarine warfare and the subcommittee on new means of communication. He was a member of the South Lincoln Study at MIT Lincoln Laboratories, conducted for the Polaris Communication Committee.

Mr. Adams is the holder of 25 patents, with 14 others pending, for inventions in antennas, antenna tuners, computer logic elements, diversity systems, helical antennas and resonators, magnetostrictive filters, electronics circuits, and communication systems.

For contributions to development of gas cell atomic clocks.

Maurice Arditi

Dr. Arditi has been prominent for many years in the electron tube field and at ITTFL directed research in collaboration with Professor T. R. Carver of Princeton University that led to the development of an atomic frequency standard (atomic clock) that may prove to be stable to less that one second variation in 1,500 years. He has also made significant contributions in the areas of microwave techniques.

A native of France, Dr. Arditi joined the ITT System in 1939 with the Laboratoire Central de Telecommunications, Paris and, in 1944, joined the staff of ITT Federal Laboratories. Holder of more than 35 patents, including two granted and three pending for his atomic clock work, he has two degrees in electrical engineering and a Ph.D. in physics from the Sorbonne, Paris.

A member of the New York Academy of Sciences and American Physical Society, Dr. Arditi is a frequent contributor to trade magazines and learned journals.

For contributions to the development of electron tubes.

Joseph T. Cimorelli

Joseph T. Cimorelli was born in Catskill, New York, in 1912. Mr. Cimorelli graduated from MIT with the BSEE in 1932 and the MSEE in 1933. In 1935 Mr. Cimorelli joined RCA in Harrison, N. J., where he worked on tube-application problems. In 1940 he was transferred to the company's Chicago office. Here he worked as the field engineer of the tube application section, assisting local receiver manufacturers in their design problems. In 1942 Mr. Cimorelli returned to the Harrison laboratories to continue field engineering work with government agencies, and laboratories. In 1944 he was appointed Manager of the Receiving Tube Application Engineering Laboratory of the Tube Department at Harrison.

Mr. Cimorelli transferred to Camden in 1953 as Assistant to the Vice President and Director of Engineering, RCA Victor Division, and later became Administrative Engineer on the Staff of the Vice President, Product Engineering. On September 1, 1956, he returned to Harrison as Manager, Engineering, Receiving Tube Operations, Tube Division. From 1958 to 1960, he was Manager of Manufacturing, Receiving Tube Operations. At present, he is Manager of Engineering, Receiving Tube Operations, and is responsible for the engineering development of electron tubes, thermoelectric and superconducting materials and devices.

Mr. Cimorelli, who has served on several committees of I.R.E., was Secretary-Treasurer of the New York Section in 1945, and Chairman in 1946. He became a Senior Member in 1945, and a member of the Professional Group on Engineering Management in 1952. He is also a Fellow of the Radio Club of America.

For contributions to the understanding and exploitation of speech and hearing in communication.

Edward E. David, Jr.

Edward E. David, Jr. is Director of the Visual and Acoustics Research Laboratory of the Bell Telephone Laboratories, Inc. As such he is concerned with sensory communication and, in particular, with the perception and coding of visual and auditory information.

He was trained as an electrical engineer and received the B.E.E. degree from Georgia Institute of Technology. His graduate work culminated in the Sc.D. degree which he received at the Massachusetts Institute of Technology in 1950. He joined Bell Laboratories at that time and worked subsequently in underwater sound and communication acoustics. He has authored numerous technical publications and two books, on the physics and physiology of speech and hearing, MAN'S WORLD OF SOUND (Doubleday and Company, 1958) and WAVES AND THE EAR (Anchor Books, Doubleday and Company, 1960.)

He is a Fellow of the Acoustical Society of America and the Institute of Radio Engineers. He has acted as advisor to the National Science Foundation and is a member of the Executive Committees of the Commission on Engineering Education and the Acoustical Society of America. In 1954, he was selected by Eta Kappa Nu as one of the country's outstanding young engineers. In 1958 he received the George W. McCarty Award from Georgia Institute of Technology as the outstanding young alumnus of the year. In 1959 he was designated by the Summit, New Jersey, Junior Chamber of Commerce as its outstanding young man of the year.

For unremitting and effective management of the procurement, editing, and production of the many publications of The Institute of Radio Engineers.


Elwood K. Gannett

Elwood K. Gannett was born in New York City on August 26, 1923. He attended the University of Michigan where he received the Bachelor of Science degree in Electrical Engineering in 1944. Following this, he was commissioned an Ensign in the U. S. Naval Reserve. After attending navy radar schools at Bowdoin College and MIT, he served in the Pacific as electronics officer aboard a seaplane tender.

Mr. Gannett joined the headquarters staff of the Institute of Radio Engineers in August, 1946, as Assistant to the Executive Secretary and became Assistant Secretary in 1947. In 1949, he was appointed Technical Editor of the PROCEEDINGS OF THE IRE and became Managing Editor in 1954. He is a Senior Member of the Society of Technical Writers and Publishers, and a member of the American Association for the Advancement of Science.

For contributions to circuit design.


A. J. Grossman

Alexander J. Grossman (M'45) was born on September 1, 1904, in New Rochelle, N. Y. He received the degree of Electrical Engineer from Rensselaer Polytechnic Institute in 1925. Since that time he has been a member of the technical staff of Bell Telephone Laboratories, engaged in the development of transmission networks. For several years, his main activity was the application of contributions in the field of network theory to practical problems and the development of the associated design techniques. At present, he is Head, Transmission Networks Department at Murray Hill, New Jersey. His responsibilities include the development of networks for Submarine Cable Systems, Data Systems, Transistor Circuits for Short Haul Carrier on Cable Systems, Microwave Networks for Relay Radio Systems.

Mr. Grossman has served on the Administrative Committee of the Professional Group on Circuit Theory.

For contributions to missile guidance.


Arnold M. Levine

Dr. Arnold M. Levine is presently vice president, communications at ITTFL. Prior to appointment to his present position, Dr. Levine headed the company's Missile and Space Systems where he gained extensive experience in the field of missile guidance and flight control, as well as satellite systems.

Dr. Levine directed groups which were responsible for the design, construction, and instrumentation of Eglin Gulf Test Range, a 450-mile "scoreboard" off the west coast of Florida used to evaluate the effectiveness of Air Force interceptor missiles, the Meteor, Talos, Lacrosse and SD-2 guidance systems.

He is the author of numerous technical papers and holder of more than 20 patents with several others pending. Dr. Levine received his B.S. in electrical engineering from Tri-State College, Angola, Ind., in 1939 and an M.S. in electrical engineering from the State University of Iowa in 1940. He was granted a D.Sc. (hon.) degree from Tri-State in 1960.

For contributions to electronic switching.

William A. Malthaner

William A. Malthaner heads the Exploratory Development Department of the Local Switching Laboratory at Bell Telephone Laboratories in Holmdel, N. J. He is responsible for exploratory development projects for the modernization of existing electromechanical switching systems, using recently developed solid state technology.

He joined the Laboratories shortly after receiving his B.E.E. degree from Rensselaer Polytechnic Institute. He was first engaged in the development of commercial telephone switching centers and subsequently in research for automatic telephone offices.

During World War II, Mr. Malthaner was concerned with development of fire-control systems and fire-control radar for the military. He then returned to research on new automatic telephone central-office systems, customer dialing and supervisory arrangement, and inter-office signaling systems. He has also directed investigations on systems for digital data transmission and integrated data processing. Just prior to assuming his present responsibilities he was in charge of wire communication systems research.

For contributions to radar and weapons systems.

Robert L. Mattingly

Mr. R. L. Mattingly received a B.S. in E.E. from the University of Maryland in 1938 and a M.S. in E.E. from the Stevens Institute of Technology in 1942. He left the graduate school of the university of Maryland to enter the U.S. Army Signal Corps where he served from 1941 to 1946.

After his discharge from the Signal Corps in 1946 with the rank of Major, he joined the Bell Telephone Laboratories at Whippany, New Jersey. His work there has been largely identified with the development of military radars. He is currently Head, Radar Equipment Department at the Bell Telephone Laboratories.

He is a member of Tau Beta Phi. He is a Fellow Member of the IRE Professional Group on Antenna and Propagation, and the current chairman of IRE Technical Committee 2, Antennas and Waveguides.

For contributions to the fields of capacitors and dielectric material.

David A. McLean

David A. McLean received the degree of bachelor of science in chemical engineering from the University of Colorado in 1929, shortly before joining the technical staff of Bell Telephone Laboratories, where he is currently Head, Film Components Department.

After several years of work on materials physics, he became interested in dielectrics and dielectric applications. This interest led to development work on capacitors and other passive components. His principal contributions relate to chemically stabilized dielectrics; metallized paper, tantalum solid, and lacquer film capacitors; and tantalum film microcircuitry. Mr. McLean received the 1959 Miniaturization Award for the tantalum microcircuitry concept.

He holds a number of patents and is the author of several technical articles. He is a member of the Institute of Radio Engineers, the American Chemical Society, the Electrochemical Society, the American Vacuum Society, Alpha Chi Sigma (professional chemical), Phi Lamda Epsilon (honorary chemical), Tau Beta Pi (honorary engineering) and Sigma Xi (honorary scientific).

For contributions to electromagnetic theory.


Samuel P. Morgan

Samuel P. Morgan, a native of San Diego, California, studied at the California Institute of Technology where he received the B.S. degree in 1943, the M.S. in 1944, and the Ph.D. in Physics in 1947.

He joined the technical staff of Bell Telephone Laboratories in 1947. A research mathematician, he has specialized in electromagnetic theory. He has been particularly concerned with problems of waveguide and coaxial cable transmission and antenna theory. As Head, Mathematical Physics Department, he now supervises a research group in various fields of mathematical physics.

Dr. Morgan has written several technical articles and holds several patents relating to waveguides and coaxial cables. He is a Fellow of the Institute of Radio Engineers, and a member of the American Physical Society, the American Association for the Advancement of Science, Tau Beta Pi, and Sigma Xi.

For contributions to short-wave telephony.


Arthur C. Peterson

Arthur C. Peterson, Head, Radio Engineering Department of Bell Telephone Laboratories in Murray Hill, N. J., is responsible for groups concerned with the engineering and planning of all types of radio systems used by the Bell System.

He received the B.S. degree in electrical engineering in 1928, and the E.E. degree in 1937 from the University of Washington.

He began his telephone career in 1928, with the American Telephone and Telegraph Company's Development and Research Department, which later joined Bell Laboratories. Prior to assuming his present position in 1950, he was primarily concerned with problems dealing with radio transmission and development. He is the author of numerous technical articles on these subjects.

Mr. Peterson is a member of the American Association for the Advancement of Science. He is a Senior Member of the Institute of Radio Engineers, and has served in many capacities in addition to his chairmanship of the Professional Group on Communications Systems. As a member of the United States delegation he has also attended meetings of the International Radio Consultative Committee held in Europe.

In 1961, he received the PGCS Special Award of the Institute of Radio Engineers, "for his leadership and guidance as national chairman of the professional group on Communications Systems 1955-56."

Mr. Peterson acted as a Consultant to the National Defense Research Council under the Office of Scientific Research and Development from 1942 to 1945.

P. G. C. S.

COMMUNICATION SYSTEMS

OFFICERS NOMINATED FOR 1963-1964

A Nominating Committee consisting of R. McSweeny, ITT Communication Systems, George Wheeler, Bell Telephone Laboratories, and Eugene Becken, RCA Communications, has selected the engineers whose biographies appear below for 1963-1964 officers of the Northern New Jersey Chapter of the PTGCS.

Additional nominations can be made by petition signed by at least ten voting members of NNJ-PTGCS and submitted to T. H. Crowley, Secretary of NNJ-IRE-PTGCS, Bell Telephone Laboratories, Murray Hill, N. J.

It is anticipated that the election of the 1963-64 officers will be held at the PTGCS technical meeting on April 16, 1963.

For Chairman—Gunther Karger

Gunther Karger is a Member of the Technical Staff at ITT Communication Systems, Inc., Paramus, N. J., where he is concerned with the analysis and planning of communication systems for the USAF Strategic Air Command. He also has been involved with the Digital Communication Network of the Air Force— the DATACOM System.

Before joining ICS in June 1962, he was Staff Consultant at Microwave Services International, Denville, N. J., responsible for telecommunication engineering for industrial organizations. He was previously associated with the ITT Federal Laboratories where he helped develop the telementry for the Courier Communication Satellite System. He served the USAF from 1951 to 1955 as an instructor on radar, navigation, and meteorological systems.

Mr. Karger was born in 1933 in Lahr, Germany, and received his BSEE in 1958 from Louisiana State University. He served as the IRE Professional Groups Editor on the Northern New Jersey NEWSLETTER between 1959 and 1962, and has been a member of the Executive Committee of the NNJ-IRE Section as Professional Groups Coordinator since 1960. In-

KARGER

ROETKEN

McANENEY

HARVEY

strumental in the formation of the present PTGCS Chapter, he served as Vice Chairman during the 1962-1963 season.

For Vice-Chairman—A. A. Roetken

A. A. Roetkin has been a Radio Consultant in the Electronics and Systems Research Center of Bell Telephone Laboratories at Murray Hill, N. J. since 1961. He received the BSEE degree in 1927 and the MS degree in 1929, from Ohio State University. In 1929 he joined Bell Telephone Laboratories as a member of the Radio Research Department engaged in problems relating to radio-telephone applications within the Bell System including the development of precision frequency measuring equipment, SSB equipment for transoceanic telephone service and UHF circuits for domestic service.

During World War II Mr. Roetken participated in the development of pulse-multiplex microwave repeater systems for the armed forces. Following the war he took part in developing the wide-band microwave repeater systems which have become a major part of the domestic telephone transmission network. His most recent activity has been in the area of high speed digital transmission over long range HF radio circuits for military systems.

Mr. Roetken is a Fellow of the IEEE(IRE), an associate of Sigma Xi and a member of the Research Society of America.

For Secretary—Duane H. McAneney

Duane H. McAneney has been a Senior Member of the Technical Staff of the RCA New York Systems Laboratory, Defense Electronic Products since August 1961 where he is engaged in activities related to communications problems in military command and control systems. In July 1961 he retired from the United States Air Force as a Lt. Colonel. During his military career he served as a teacher of Management and Statistics, developed automated logistics managements systems and participated in conceptual development of current Air Force systems such as BMEWS and 473L. He was educated at Grinnell College and the University of Denver.

For Financial Officer—Jack Harvey

Jack Harvey (S-'49, A-'52, M-'56 SM-'57), was born in Tarkio, Missouri, on July 26, 1929. He received the BSEE degree in 1951 from the University of Missouri.

In 1951 he joined ITT Federal Laboratories, from which he was on leave from 1952 to 1954 for duty in the U. S. Army Signal Corps. He has worked on the development of numerous types of communication equipment and antennas for both military and commercial use. He has made numerous tropospheric scatter path loss measurements in Mexico, the Caribbean and Mediterranean areas, and has directed site survey and selection activities for a major tropospheric scatter communication system in the Mediterranean area. He is now a Member of the Technical Staff of Sichak Associates, Nutley, N. J.

NEW JERSEY DIVISION I.E.E.E. (A.I.E.E.)
MARCH MEETING

Subject:

Modern Relaying 1963

Time:

March 21, 1963, 7:30 P.M.

Place:

Public Service Electric & Gas Co., Newark, N. J.
Room 3171A

Speaker:

J. Lewis Blackburn
Member AIEE
Section Mgr. Relay & Instrument Engineering
Westinghouse Electric Corp., Newark, N. J.

Mr. Blackburn will describe and evaluate modern protective relaying as applied to power apparatus and systems. Among other things the use of carrier current, pilot wire, and micro-wave channels will be discussed.

UPSALA COLLEGE

A Liberal Arts College — Its Mission Is Higher Education

Now facing the tremendous challenge of meeting the responsibilities of higher education in the "space age," Upsala College bears little resemblance to the Upsala of a few years ago. The East Orange institution was a quiet little college with less than 200 students when it purchased three houses on Prospect Street in 1924 and moved to its present location.

The Swedish immigrants who founded the college in 1893 in Brooklyn, N. Y., were frugal people, and it is a good thing they were. Financial troubles there, and at Upsala's Kenilworth, N. J., site from 1898 to 1924, would have discouraged most people from continuing.

Fortunately, a courageous band of dedicated educators kept the lamp burning, and Upsala College is a flourishing operation today. A development program begun in 1945 is bringing modern facilities for a student body that now numbers 1,500. A new $1,250,000 library is under construction, and a new hall of science, costing considerably more, is already on the architect's drawing board.

New Science Facilities

The new science facilities will be a welcome addition to the campus. The college's four science areas — biology chemistry, geology, and physics — currently are scattered over the campus in buildings originally designed to be private residences or Army barracks. Despite this checkerboard set-up, students get excellent instruction in these sciences, many of them going on to do graduate study. Upsala's geology department is considered one of the finest in the East. All four science departments, along with the mathematics department, will be housed in the new science building, which will feature the latest in laboratories and equipment.

"It will take considerable time before we will be able to reach the goal required for the projected science building," says Dr. Evald B. Lawson, Upsala president, "but we have a healthy start. We are encouraged by the fact that leading businessmen in this area will assist us in the campaign." The Schering Foundation of Bloomfield has made a $25,000 pledge toward the new science hall, and the Hayden Foundation has announced it will contribute $125,000 toward the project. Bruce Palmer, president of the Mutal Benefit Life Insurance Company, Newark, is chairman of the drive.

Liberal Arts College

Contributing to this new interest in finer science facilities at Upsala is Dr. Roy W. Johnson, who is just completing his first year as chairman of the college's board of trustees. Formerly vice president of the General Electric Company, Dr. Johnson was head of this country's first space and missile development organization, the Advanced Research Projects Agency. Dr. Johnson held this post for two years in the second Eisenhower administration.

Although the science building project has stirred new interest in the science areas of the college's work, Upsala will remain a "liberal arts college." The college feels this is its mission in higher education, and no attempt will be made to go into other areas, expand enrollment considerably, or establish graduate schools. This is not to say that the curriculum will remain unchanged. It is constantly being evaluated to keep pace with new methods and trends, with changes being made accordingly. This is one reason the college received maximum accreditation the last time its program came up for review.

Planned Studies

Upsala offers the Bachelor of Arts and Bachelor of Science degrees. In the sciences, majors are offered in five subjects — biology, chemistry, geology, physics, and mathematics. All students are required to complete a planned sequence of studies in the humanities, the social sciences, the natural sciences, and mathematics, generally referred to as the "core curriculum." The four-year program for a degree consists of a major subject with supporting courses chosen by the student, and elective subjects chosen to supplement either the core or the field of concentration. To qualify for admission to Upsala, high school graduates must have completed at least three years of mathematics study and one year of science.

Twenty courses are given in the mathematics department, covering the subjects of trigonometry, college algebra, calculus, geometry, engineering drawing, vector analysis, methods of numerical analysis, and others. Physics majors choose from 16 courses, including engineering problems, mathematical methods in physics, mechanics, statics, radioisotope technology, electronics, thermodynamics, sound, and atomic physics. Chemistry courses offered include qualitative analysis, quantitative analysis, organic, inorganic, physical chemistry, biochemistry, and literature searches and problems.

Day and Evening Sessions

Many of these courses are offered in the college's Evening Session in addition to the regular day sessions. About 500 students attend Upsala's Evening Session each year. If counted in the total enrollment figure, they bring the college's student population to 2,000. Upsala also conducts two six-week Summer Sessions each year, offering the same basic courses in the liberal arts and sciences.

Upsala can be considered a combination of the commuter college and the resident college. About one-half the student body lives on the campus in modern residence halls. The others commute from nearby towns and cities. The college is just off the Garden State Parkway, and since the completion of this highway, Upsala has noted an increase in the number of students applying from the communities north and south of East Orange, all along the Parkway's route.

Of the resident students, a recent campus survey shows that the largest portion come from the New England States, particularly Massachusetts and Connecticut. Pennsylvania and New York State are next in order, but many of the 50 States are represented in the student body. Upsala also has a foreign student population of about 30.

There are four main residence halls on the West Campus (that part of the campus west of Prospect Street). The largest, Froeberg Hall, was completed in 1958 at a cost of over $2,000,000. It houses 550 students, and includes recreation and study lounges, and a fine dining hall. The other residences were completed in the late 1940's. All classroom buildings are on the East Campus.

WFMU-FM Station

The Upsala FM radio station, WFMU, is one of the most popular extra-curricular activities for students. The station is now in its fourth year of broadcasting fine educational and musical programs throughout the New York-New Jersey metropolitan area. Heard at 91.1 mc., WFMU broadcasts from 6 P.M. to midnight, Monday through Friday. The college now has an application before the FCC to increase the station's power to 1,000 watts. Charles G. Lundgren, who also serves as the Upsala placement office director, is in charge of the station.

Student Activities

Other student activities include a full range of varsity intercollegiate sports, a very active dramatics group, and the college choir, which makes an annual concert tour. There are 33 student clubs, including the Chemistry Club, which is affiliated with the American Chemical Society. Nine national honorary fraternities have chapters at Upsala. They include Kappa Mu Epsilon (mathematics), Sigma Pi Sigma (physics), and Rho Tau Sigma (radio). There are 17 social sororities and fraternities.

Upsala is pronounced Up-sah'-la. It seemed a fitting name to those people from Sweden who decided to establish the college back in 1893. To these new Americans, Upsala, the historic university city in Sweden, represented the noblest ideals and traditions of their ancestry. Dr. Lawson, the college's fourth president, has served in that capacity for 24 years. During his administration, Upsala has taken great strides, both academically and physically, toward its goal of being one of the finest liberal arts colleges in the East.

When he received an honorary degree at Upsala in 1956, the late Dag Hammarskjold, secretary-general of the United Nations, commented, "The name of this college carries with it a responsibility because of what the name symbolizes of human endeavor, of ideals and of their realization. A name with such traditions is a challenge, but it can be for us also a source of pride when we live up to the standard it sets for us."

Accepting the responsibilities referred to by Hammarskjold, Upsala College is doing its utmost to discharge them well, at the same time adhering to the fine traditions and heritage of its name.

OPTIMIZATION IN CONTROL SYSTEM DESIGN

John G. Truxal has chosen the above topic for his talk at the third section meeting sponsored by the N.N.J. chapter of PTGAC. The meeting will take place on April 2 at 7:45 P.M. in the auditorium of Plant 3 of Aerospace Division, General Precision Inc. (Kearfott) at 1225 McBride Ave., Little Falls.

The plant is located just North of Route 46 at the exit after Great Eastern Mills going West, or after the Clifton Lumber Company going East.

Optimization Theory

Recently emphasized, optimization theory leads to satisfactory solutions for a relatively narrow class of control system design problems. The approximations involved in bringing realistic problems within this class result in fundamental questions regarding the validity of the entire optimization procedure.

An alternate design approach is available if the process to be controlled is not simplified to such an extreme extent, but rather the control scheme is modified to optimize in the restricted sense. Into this category fall the model-reference adaptive systems, systems in which the controller dynamics track the process dynamics, and systems in which high-speed switching is used to control the error on a short-time basis.

Dr. Truxal

Dr. Truxal received the BA degree from Dartmouth College in 1944 and the DSc degree from Massachusetts Institute of Technology in 1950. He is the Editor-in-Chief of the well known Control Engineers' Handbook.

He taught at Purdue University, and then at the Polytechnic Institute of Brooklyn, where he has been Head of the Electrical Engineering Department, and is currently Vice President for educational development.

Dr. Truxal is a fellow of the I.R.E. He is Chairman of the American Automatic Control Council Theory Committee and Past Chairman of the I.R.E. Professional Group on Education. A member of the Administrative Committee of PTGAC and PTGE, he serves on the I.R.E. Editorial Board.

MACHINE TALKS

A machine spoke and sang at the Verona Library on November 7th. At the NNJ PGEWS meeting, Dr. John L. Kelly of the Bell Telephone Labs explained how it was done.

Dr. Kelly and Dr. Gerstman are working on the production of synthetic speech as a means toward a better understanding of the basic nature of speech. In the future, talking machines may speak for people who are unable to speak or may help in devising more efficient ways of transmitting speech over communication systems.

Analysis of vowel sounds has shown that a pattern of three principal frequencies determines the vowel we recognize. The characteristics of most consonants depend upon their effects on the vowels preceding or following them. The "speaking" part of the machine consists of: a "buzz" generator, a "hiss" generator, and three resonant circuits to produce the vowel sounds.

Punched cards for the sounds corresponding to the International Phonetic Alphabet are fed into a computer. The computer produces nine control signals for the frequency and intensity of the buzz generator, the intensity of the hiss generator, and the frequencies and bandwidths of the three resonant circuits. Proper choice of the information on the punched cards (including variations in the parameters with time) causes the machine to speak or sing. Dr. Kelly demonstrated the results by playing a tape of the computer speaking, reciting a soliloquy from Hamlet, and singing a song. Although the machine sounds as you might expect a robot to sound, it was easily understandable.

Another approach under investigation by Dr. Kelly uses control signals which represent parameters of the human vocal system.

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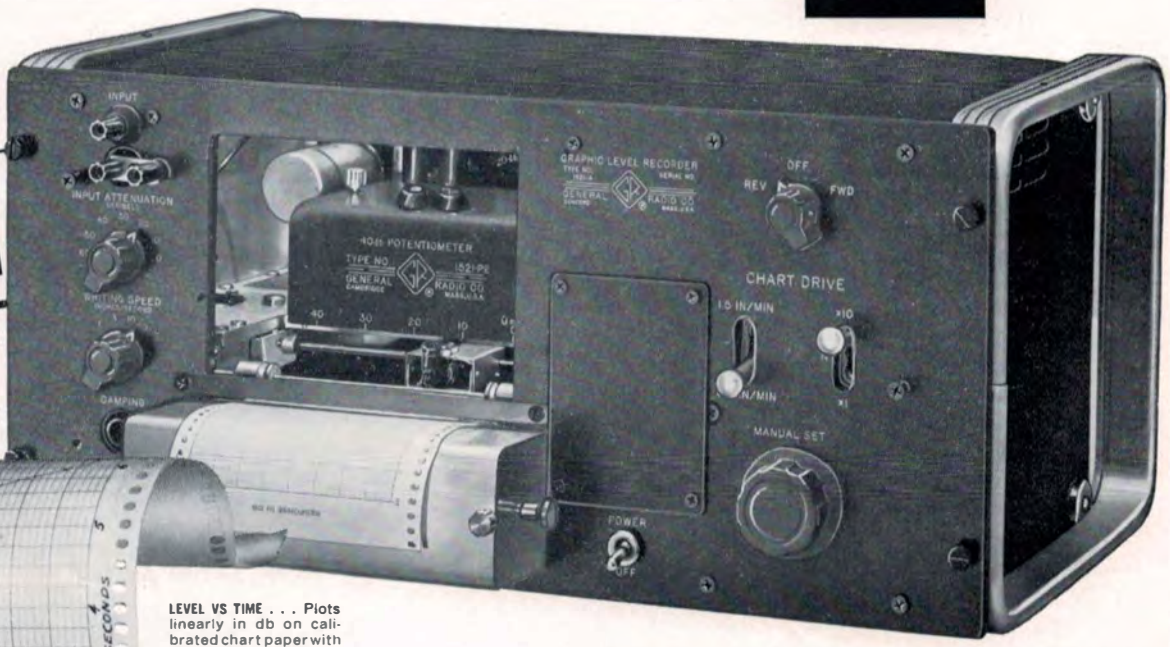

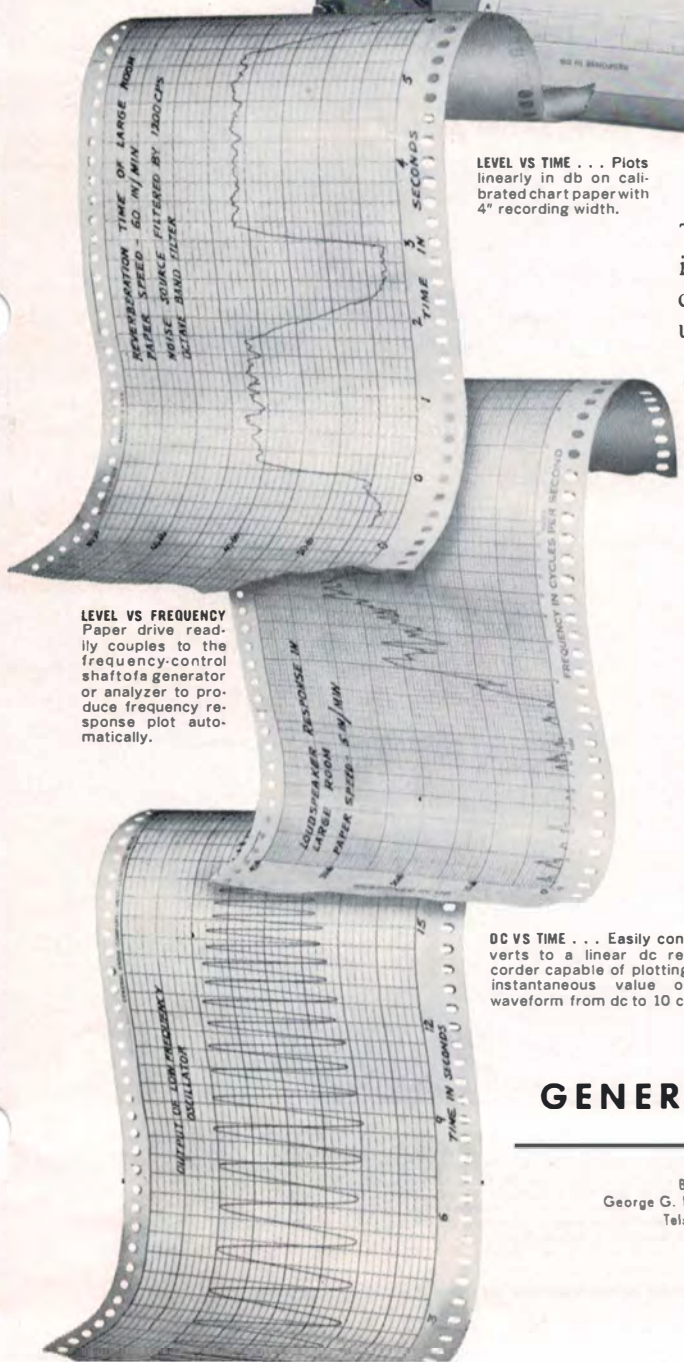

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