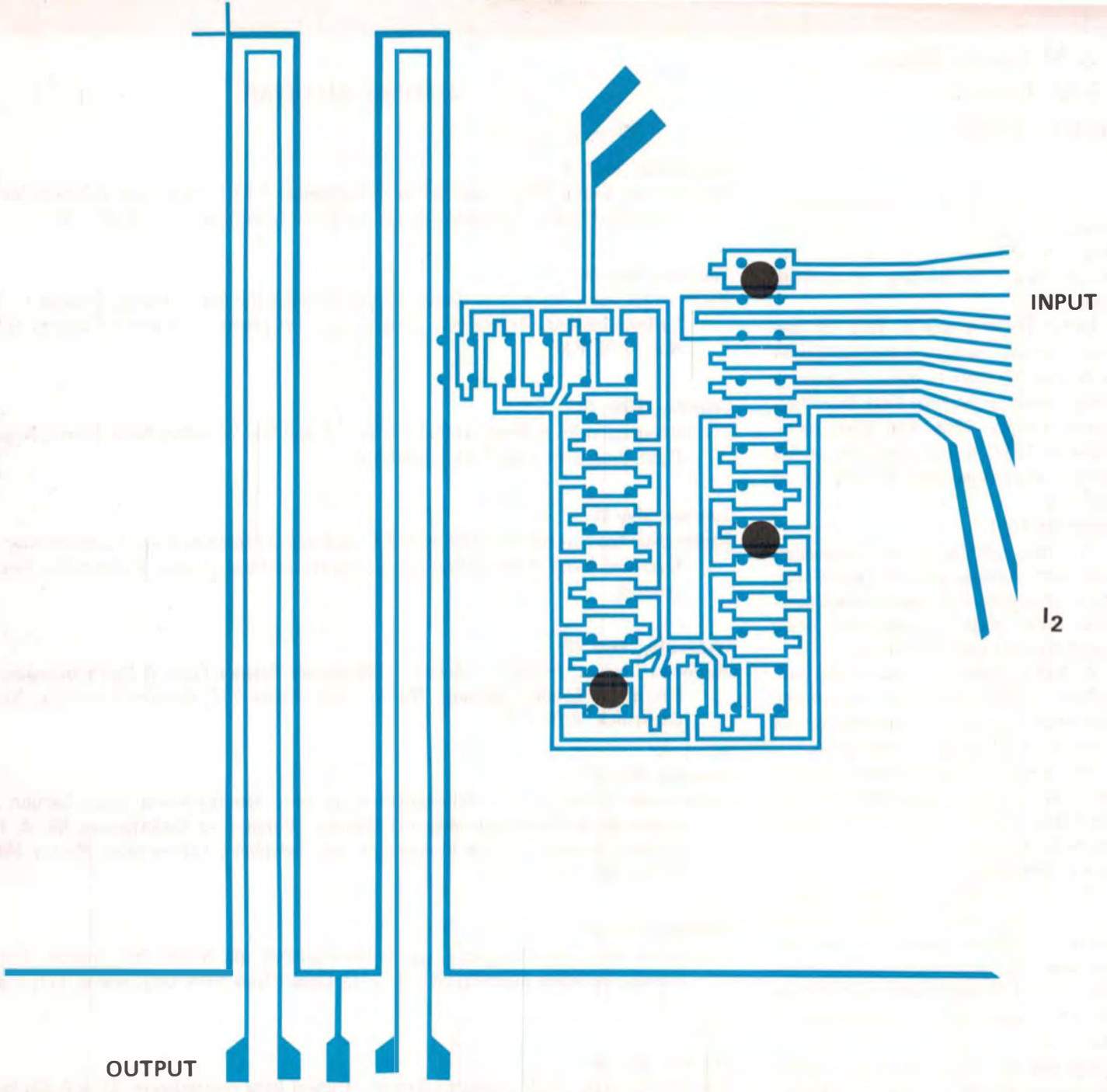

The IEEE
Newsletter
The Magazine of the North Jersey Section

MAGNETIC DOMAIN "BUBBLE" SHIFT REGISTER

Section Meeting On Properties Of Cylindrical Magnetic Domain Bubbles In Orthoferrites

8:00 P.M., May 20
Arnold Auditorium
Bell Telephone Laboratories
Murray Hill

MAY, 1970

I & M Group Plans Field Trip to Indian Point

The Instrumentation & Measurement Group will sponsor a field trip to the Indian Point Atomic Power Plant at Buchanan, New York on May 16 at 10:00 A.M.

Indian Point is one of four big new electric power plants built by Con Edison in the past 15 years to meet the growing energy needs of the New York City-Westchester County Area. The plant, completed in 1962, is now operating at full capacity and can generate 275,000 KW of electricity.

About the Tour

The tour will start at the Observation Deck with a presentation by plant engineers concerning all phases of plant operation with particular emphasis being placed on plant instrumentation.

A "behind-the-scene" tour of the Indian Point facilities will follow the presentation where Instrument applications and installations will be seen in operation.

The nature of this tour makes it necessary to limit the attendance to the first 50 registrants. So fill out and mail the registration form early.

How to Get There

Driving from New York City, allow 1 hour and 20 minutes. Come north on Route 9 to Welcher Ave. Exit. Take that exit and turn west (left) onto Welcher Ave. to the first traffic light--that's Route 9A. Turn south (left) on Route 9A for about 1/2 mile and you will see the orange and blue Indian Point sign. Follow the sign (it directs you west on Bleakley Avenue) for about 1 mile to Indian Point. Once inside the gate, signs point the way to the Observation Building.

Mail to: *H. Otzmann*
c/o Westinghouse Elec. Corp.
95 Orange St.
Newark, N. J. 07101

Please save a place for

.....
Name

.....
Company affiliation

at the May 16, 1970 Field Trip to the Indian Point Power Plant.

MEETINGS CALENDAR

Wednesday, May 6
Metropolitan Group PMP – **Corona in Components,** AT&T Long Lines Building, Main Floor Auditorium, 32 Avenue of the Americas, New York City, 10:00 A.M.

Thursday, May 14
Multi-Group Joint Chapter – **Some Speculations on the Moon Rocks, Edward F. X. Lyden, Speaker.** Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J., 8:00 P.M.

Saturday, May 16
The Instrumentation & Measurement Group – **Field Trip to Indian Point Atomic Power Plant,** Buchanan, New York, 10:00 A.M.

Tuesday, May 19
Philadelphia Section for the IEEE and the Chapter on Electromagnetic Compatability – **Electrical Noise And Its Control,** University of Pennsylvania, Philadelphia, Pennsylvania.

Wednesday, May 20
Magnetics Chapter, Princeton Section – **Microwave Ferrites From A User's Viewpoint, Mr. N. R. Landry, Speaker.** Murray Hall, Room 217, Rutgers University, New Brunswick, 8:00 P.M.

Thursday, May 21
North Jersey Computer and Reliability Groups Joint Meeting/North Jersey Section – **Properties of Cylindrical Magnetic Domain "Bubbles" in Orthoferrites, Mr. A. H. Bobeck, Speaker.** Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J., 8:00 P.M.

Thursday, May 21
Engineering Management Group – **Career Development, Mr. Arthur Pell, Speaker.** Engineering Societies Building, 345 E. 47th Street, New York City, Room 111, 7:30 P.M.

Tuesday, May 26
New York Chapter, IEEE Computer Group – **Optical Data Transmission, Allen P. Worley, Speaker.** Auditorium, Second-floor, National Cash Register Company, 50 Rockefeller Plaza, New York City, 7:45 P.M.

Wednesday, May 27
New York New Technical and Scientific Activities Committee – **Graphic Displays–Present Needs and Future Applications; Morning–four paper presentations. Afternoon–Panel Discussion.** Burchard Building, Stevens Institute of Technology, Hoboken, New Jersey, 9:30 A.M.

Thursday, May 28
A Seminar – Recent Highlights In Microwave Engineering, G. C. DiPiazza, Dr. B. E. Berson, Dr. A. A. Oliner, H. Seidel, Dr. Leon Ricardi, A. M. Briana, C. E. Barnes, Newark College of Engineering, 1:00 P.M. to 5:30 P.M.

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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.

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1969-1970

M.M. Irvine

H.E. Blaicher, Jr.

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Cylindrical Magnetic Domain "Bubbles"

The North Jersey Computer and Reliability Groups will sponsor a joint meeting with the North Jersey Section on May 21 at 8:00 P.M. at Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J. Mr. A. H. Bobeck of Bell Telephone Laboratories will discuss magnetic domain "bubbles," which have received substantial attention in recent months, including articles in newspapers and popular news magazines.

The minute magnetic domains offer the potential of storing large amounts of information in single orthoferrite crystals, and manipulating the information by externally applied magnetic fields. Although still a laboratory device, the bubble memory device could have a very substantial influence on computer systems within a few years.

An incidental added advantage of the phenomenon is that the information storage and manipulation may be observed visually, by transmitting polarized light through the material. The movie which accompanies the lecture provides ample evidence of why the bubble device has aroused such interest.

The cover shows an actual photograph, made using polarized light, illustrating a magnetic domain "bubble" shift register. The bubbles are moved through an orthoferrite crystal under the control of magnetic fields generated using the conductor pattern etched on the surface. In the last stage of the shift register shown, the magnetic domain is expanded much like a soap bubble to provide an amplified, more easily sensed output signal. The stored binary information is made visible by the Faraday effect.

About the Talk

The properties of orthoferrites, in particular those properties which make orthoferrites suitable for use in domain wall devices, were discussed at the 1969 Intermag Conference. Since that time interest in orthoferrites and the cylindrical magnetic domains "bubbles" that exist in these materials has constantly increased.

Cylindrical magnetic domains can exist in a variety of single crystal magnetic oxides. It is possible to transmit, annihilate, replicate and interact cylindrical domains to demonstrate many storage, logic and switching functions. A color movie, which supplements the oral presentation, will show cylindrical domains in motion in a variety of useful circuits.

About the Speaker

The speaker, Andrew H. Bobeck, joined the technical staff of Bell Telephone Laboratories in 1949. His early work concerned the design of communication and pulse transformers, and later the development of one of the first solid state digital computers. Since 1956, he has specialized in the development of magnetic logic and memory devices.

He was responsible for the conception and development of the twistor memory device and most recently has been investigating the properties of cylindrical domains found in uniaxial magnetic materials, such as the orthoferrites. He has been granted 34 patents with 32 patents pending and is the author of 10 published technical articles.

Born in Tower Hill, Pa., Mr. Bobeck was graduated from Rayen High School in Youngstown, Ohio. He received B.S. and M.S. degrees in electrical engineering from Purdue University in 1948 and 1949, respectively. He was honored by Purdue as a Distinguished Engineering Alumnus in 1968.

He is a member of the Institute of Electrical and Electronics Engineers, Tau Beta Pi and Eta Kappa Nu.

Guests and IEEE members are cordially invited.

Time: Thursday, May 21, 8:00 P.M.
Place: Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N.J.
Pre-Meeting Dinner: 6:00 P.M., Wally's Tavern on the Hill, Bonnie Burn Road, Watchung, N.J.
For Further Information, contact: Richard R. Shively, Bell Telephone Laboratories, Whippany, N.J. (201) 386-4715.

Joint Chapter Born

Sometimes belonging to an IEEE Group does not guarantee a member anything more than an occasional publication. In fact, many members question the desirability of belonging to a Group which does not have a local chapter and nearby technical meetings. One solution to this frustrating situation is the formation of a joint chapter within a section comprised of members from a few Groups with common interests. This venture is now underway in the North Jersey Section by some members of the following Groups: Engineering in Medicine and Biology; System Science and Cybernetics; Geoscience Electronics; Nuclear Science.

Some months ago, the membership of these groups was polled to determine if there was any interest in the formation of a local Multigroup chapter. The poll revealed that some members of these groups were indeed interested. In January of this year a hearty group of seventeen people braved one of our worst storms to attend an organizational meeting at Newark College of Engineering. Before the night ended, it was decided that the need existed to get the Multigroup underway.

The Multigroup organizing committee felt that the main goal of the group was to provide a source of information to the members which would enable them to hear about different approaches to familiar problems. The need for a common denominator among the groups was deemed necessary so that meetings of interest to all the members could be planned. So, the Multigroup is now conducting meetings which cover the areas of common interest within the fields of nuclear science, geoscience electronics, engineering in medicine and biology, and system science and cybernetics.

Although the Multigroup is conducting meetings, it is not yet an officially recognized local chapter within the section. The Section Executive Committee has been petitioned by the organizing committee to grant recognition and official chapter status to the Multigroup. The Executive Committee has encouraged the aims of the Multigroup but official chapter status awaits approval of the Executive Committee and the four parent Groups. Approval of status for the Multi-Group will depend upon the caliber of its meetings.

The Multigroup wants to provide meaningful discussion of common interest to its members. However, the subjects of the Multigroup meetings should foster interest within other groups. An example is the Multigroup's March meeting which considered the subject of instrument safety from three viewpoints; medicine, law, and nuclear power. The April meeting of the Multigroup also heard three approaches to the general subject of network analysis in regard to highway planning, communications systems, and power systems.

The meeting to be held on May 14 will deviate from the "three-approach" method and will be devoted entirely to the investigations of moonrocks.

This summer will find the Multigroup membership polishing its organization and formulating plans for the coming year. As with any new creation, growing pains are expected but the membership is confident that a well developed program of meetings will be scheduled and that interest in the Multigroup will grow.

To further help the Multigroup, the organizing committee requests anyone interested to offer his ideas, talents and time to make the Multigroup an effective means of communication for the North Jersey Section membership. People make a local chapter work and chapter activity can be rewarding to its people. New organizations such as this one depend upon people for success. The Multigroup has room for people to contribute to this end by serving on committees, attending technical meetings, and by contributing ideas. Volunteers will not be turned away. Anyone who feels that he would like to be part of this venture should contact: *Charles Lundeen, Hewlett Packard, West 120 Century Road, Paramus, N.J. 07652, 265-5000 X340.*

Meeting Report
North Jersey Com Tech

A talk entitled "Western Union's Plans for an All Digital Network" was given on March 10, 1970 by Russell G. DeWitt, the Manager of Transmission Systems Engineering for Western Union located in Mahwah, N.J. Because of the exceptionally good turnout of 76 people and the large number of requests for information about the talk by people who were unable to attend, a post talk summary follows.

The numerous advantages of a digital transmission network were given in the pre-talk summary in the March 1970 issue of the Newsletter. As a consequence of these advantages, the Western Union approach for the long term is that all traffic (both analog and digital) will be transmitted via digital channels on cable pairs, coaxial cable, waveguides and/or lasers. The two types of traffic will be indistinguishable on the transmission media and there will be economy in that a common facility is used for both. In the near term, Western Union's primary long haul transmission medium will be its terrestrial microwave radio network. Using radio, Western Union intends to carry analog traffic in analog channels (FDM) and digital traffic in digital channels (TOM). Since digital traffic is growing faster than analog traffic at Western Union, long haul TOM is needed immediately.

Two basic rules will be followed in introducing TOM on the microwave radio network. First, where a route exists it will be overbuilt using the same towers, antennas, waveguides, etc., to provide a separate radio channel for the TOM. Here again there is significant economy because both types of traffic use common facilities. Second, when the beam is extended with new construction a hybrid system will be installed which will provide both analog and digital transmission simultaneously in one and the same radio channel.

One thing is clear for the future and it is that at Western Union the 70's will be a digital decade.

Corona In Components Subject of Parts Meeting

The May meeting of the Metropolitan Group PMP (Parts, Materials and Packaging) will study Corona and its problems related to parts, materials and packaging.

The topics to be discussed at the May meeting include the following:

"Effects of Corona in Insulating Materials"–Murray Olyphant–3 M Co.

"The Physical Nature of Corona"–H. Feilius – Bell Telephone Labs

"Measurement of Corona"–O. X. Heindrich – The Biddle Co.

"Packaging of Corona Free Devices"–D. M. Lisbin – Norden Division of United Aircraft.

Time: Wednesday, May 6, 10 A.M.
Place: AT&T Long Lines Building, Main Floor Auditorium, 32 Avenue of the Americas, New York City, N. Y.

Moon Rocks

The Multi-Group Joint Chapter of the North Jersey Section of the IEEE will present a talk by Mr. Edward F. X. Lyden of the Bell Telephone Laboratories on "Some Speculations on the Moon Rocks."

The return to earth and subsequent study of samples of the lunar surface material have given answers to many old questions, and given rise to more new ones. One subject that seems to have been answered, at least partially, deals with the origin of the Moon. There have been several theories offered in the past. These will be considered and another possibility will be presented. Comparison of earth rocks and meteorites with the composition of the lunar rocks will be considered.

One difficulty with various lunar origin theories has been the lack of evidence for the event in the geologic record. A possible verification for the proposed lunar capture is offered.

Mr. Lyden received his B.S. degree in Geology from Columbia University (1954). In 1956 he joined Dr. J. A. Arnold at Princeton University to study naturally occurring radioactive isotopes, which research eventually led to the proof of the existence of natural Be^{10}. From 1958 to 1966 he was a research geologist in the Geology Department at Princeton, working with the late Prof. Harry H. Hess, who was a member of the National Space Advisory Committee. Through this association Mr. Lyden became involved in early considerations of the possibility of x-ray diffraction by the "surveyor" lunar landers.

He has specialized in x-ray diffraction, and at the present time is an Associate Member of Technical Staff at Bell Laboratories, Murray Hill, working in the field of x-ray scattering from liquids, and x-ray small angle scattering, in association with Dr. G. W. Brady.

Time: Thursday, May 14, 8:00 P.M.
Place: Arnold Auditorium, Bell Telephone Laboratories, Murray Hill, N. J.

Optical Data Transmission

Allen P. Worley, Vice-President, Transmission Engineering for the Data Transmission Co. (Datran), subsidiary of University Computing Corporation, will be the featured speaker at the Tuesday, May 26, 1970 meeting of the New York Chapter of the IEEE Computer Group. Mr. Worley will talk about Optical Data Transmission of digital information.

Datran is presently planning a microwave communications network for long-haul service, and has applications pending with the F.C.C. Local interconnections into the microwave network would be via optical line-of-sight data links, which provide secure and economical data transmission over distances of a few miles using laser beams or other light sources. Mr. Worley will discuss the present and future of optical data transmission methods, as well as equipment presently available or planned.

Optical data links are interesting because they are cheap to build and maintain, have wide bandwidths, require no licensing, provide relatively high security and immunity from interception or jamming, and are not susceptible to interference from other links.

The meeting will take place Tuesday evening, May 26, 1970, at 7:45 p.m. in the auditorium of the National Cash Register Company, second-floor at 50 Rockefeller Plaza (at 51 Street between 5th and 6th Avenues).

Time: Tuesday, May 26; 7:45 P.M.
Place: National Cash Register Company, Auditorium-Second-floor, 50 Rockefeller Plaza.
Pre-meeting Dinner: Schrafft's Restaurant, 21 West 51 Street.

Graphic Displays Seminar

A one-day seminar on Graphic Displays will be held on Wednesday, May 27, at Stevens Institute of Technology at 9:30 A.M. in the Burchard Building.

The introduction will be made by F. Y. Murad of Ebasco Services Incorporated. Papers to be presented in the morning session are: "An Introduction to Graphic Displays" by S. Davis, Hughes Aircraft Company, Culver City, California; "New Dimensions in Computer Graphics" by R. S. Anderson, Dresser Systems, Inc., Houston, Texas; "Application of Graphic Display in the Electric Power Industry" by S. J. McMurray, III of Ebasco Services Inc., New York, N. Y.

After the luncheon break L. M. Green of Information Displays Inc., Mt. Kisco, New York, will present a paper, "Modern Application for Graphic CRT Displays."

A panel discussion will be held on "Graphic Displays–Present Needs and Future Applications."

The seminar is sponsored by the IEEE New Technical and Scientific Activities Committee, New York Section, and the Electrical Engineering Department of Stevens Institute.

Advance registrations should be mailed to: *Mr. J. R. Bilton, Ebasco Services Incorporated, 2 Rector Street, New York, N. Y. 10006.*

Pre-Registration is $25 for IEEE Members, $30 for Non-IEEE Members. Registration at Door is $30 for members, $35 for non-members. Registration fee includes Proceeding and Luncheon.

Please submit your name, address and phone number.

Make checks payable to NTSAC.

Time: Wednesday, May 27, 9:30 A.M.
Place: Burchard Building, Stevens Institute of Technology.

Power Group Election

A short meeting will be held for the purpose of electing officers of the North Jersey Chapter–Power Group for 1970-71 prior to the scheduled May 20th presentation. The 1970-71 Nominating Committee consisting of P. E. Watson, R. Stys, J. Gill and C. Torell have presented the following slate for 1970-71:

K. Rice – Chairman
P. Jackson – Vice Chairman
D. Anderson – Program Chairman
P. Drehek – Co-Program Chairman
H. Youngster – Secretary and Membership Chairman
J. Stolle – Treasurer

Student News

Fairleigh Dickinson University

Once again the Fairleigh Dickinson University Chapter of the IEEE was actively involved with many functions for engineering students on the Teaneck campus. The formal meetings for the Spring semester included speakers from Lockheed Electronics, Automation Devices, and the Naval Air Test Facilities. To better understand the operations of an industrial instrumentation plant, a trip to Hewlett Packard in Rockaway, N.J. was held in April.

On a more informal basis, the group recently sponsored with success a "Coffee Hour" for both faculty and students. This is planned to be a continuing activity. Following discussion at a recent meeting, the F.D.U. IEEE is also sponsoring a contest to redesign the school's Electrical Engineering decal. A monetary award and certificate will be given to the winner of the contest as judged by the students of the entire department. Some of the other social activities held included a series of softball games between juniors and seniors, and also one against the Fairleigh Chapter of the ASME. The F.D.U. engineering societies also held a joint picnic.

Possibly the most important function of the Spring semester was the Metropolitan Student Council sponsored "Student Activities Day" held at the Teaneck campus on April 26th. The day began with morning registration for guests and representatives of the metropolitan schools followed by presentation of papers in the early afternoon. A two-hour break allowed time for conference attendees to tour the campus, watch a slide show and movies, enjoy the snack bar, use the game room facilities, and just relax in the lounge in the new Student Center. The day-long activities concluded with a roast beef dinner and presentation of awards. With these and many other activities the Fairleigh Dickinson University Chapter continues to provide many professional and social opportunities for the electrical engineering major.

Congratulations to Chairman Bob Asdal for leading Chapter activities!

Stevens Institute of Technology

The Stevens Institute of Technology IEEE Student Branch recently sponsored a two-part lecture series on electronic instrumentation. For the first lecture the branch was privileged to have Mr. Don Gann and Mr. Frank Carretta of Hewlett-Packard give a lecture-demonstration on basic electrical measurements. During the lecture they discussed how each type of equipment performs its particular function, and the application, accuracy, and limitations of the device. For the second meeting, Mr. Gann gave a lecture on oscilloscope operation and limitations.

Both lectures were followed by question and answer periods, following which, the members were invited to examine and utilize the equipment.

Newark College of Engineering

The Newark College of Engineering Student Branch of the IEEE, in conjunction with the heads of the E.E. Department, and with the cooperation of students in the department, has established a "Feedback" committee in an attempt to provide the student with an active role in E.E. policy and to solve student problems through prompt and direct communication with the heads of the department.

The "Feedback" committee chairman is Mr. Eric Mueller and faculty representatives are the Chairman and Vice-Chairman of the department, Or. Frederick A. Russell and Professor Robert E. Anderson. Each E.E. student section is represented. Representatives and alternates for each section volunteer when notified, through the IEEE at the beginning of each semester. Meetings are announced at the beginning of the semester and take place every three or four weeks. When feasible, free coffee is provided through the courtesy of the E.E. department.

Dr. M. Kurland

The committee has existed for several years and has proved to be most successful. Success lies in results and the spirit of student-faculty relations has brought results. The student has found that he does have a voice in his Department. Among many other things, "Feedback" has been directly responsible for the foundation of a "general computing center departmental library" to provide students with programs of use in his own field of specialization, the opening of laboratories for student use between semesters, the lengthening of time between the issuance of elective choice forms and their final submittal, the clarification of departmental policy on specific course work, the clarification of the acceptability of various Senior projects, and the foundation of a smaller Course Evaluation Committee, which will report more frequently to the Department. Success also lies in interest and the growing amount of students contributing to the "Feedback" meetings has provided a good sounding board for gripes present in the electrical engineering student body.

Recently other departments have shown an interest in "Feedback" based on the success of the E.E. Department. Basically, feedback is provided by student incentive and by departmental cooperation. Hopefully, other IEEE student branches and other professional societies can benefit through feedback in the active participation in matters of mutual concern to students and faculty.

As part of continuing chapter-sponsored activities, a presentation was made on March 18 by Or. M. Kurland on Analog Computers and Their Applications.

Professor Dickey discussed with both the Day and Evening Branch the EE-86 project concept, whereby a state-of-the-art design from conception through demonstrated product is required as a course requirement under close faculty advisor tutelage.

Career Development

"Career Development" will be the topic at the May 21 meeting of the Engineering Management Group. Mr. Arthur Pell, Professor at New York University and Vice President of Harper Associates, will be the speaker.

About the Talk

Is your career following the plans you have outlined? Do you have career plans? How closely should they be followed, and how do you develop them? What techniques are used to alter the plans, and at what point does one consider changing a career? Are there other areas within the engineering field, or related to engineering, where your skills may be better used?

These are some of the questions that will be discussed at this meeting, with indications on how to guide yourself as well as how to help your subordinates.

A discussion period will follow the talk.

About the Speaker

Arthur Pell has been an active personnel executive for twenty years. Currently and since 1953, he has been Vice President of Harper Associates, one of the country's leading personnel agencies. At the same time, he is Professor of Personnel and Business Management at New York University.

He has both a B.A. and an M.A. from New York University and has a professional diploma in Personnel Psychology from Cornell University. He is a member of the American Society of Personnel Administrators, National Employment Association, and several others. He has been appointed consultant on Education for the National Employment Association.

He is the author of 6 books, of which the latest two are "How to Get the Job you Want After 40" with Maxwell Harper, and "Recruiting and Selecting Personnel," which was published by Simon & Schuster this spring.

Time: Thursday, May 21; 7:30 P.M.
Place: Engineering Societies Building, 345 E. 47th Street, N.Y.C., Room 111.

EARLY REGISTRATION
FOR
"RECENT HIGHLIGHTS
IN
MICROWAVE ENGINEERING"
SEMINAR
SEE PAGE 8

One Day Seminar
Electrical Noise And Its Control

May 19, 1970
University of Pennsylvania, Philadelphia, Pennsylvania

Sponsored by the Philadelphia Section for the IEEE and the Chapter on Electromagnetic Compatibility. Full morning and afternoon sessions followed by a regular evening Chapter meeting will feature a series of presentations addressing the many aspects of electromagnetic interference, its diverse effects, and means for its effective control. Papers will be presented by renowned educators and leaders in the field of electrical noise control.

Morning Session: Welcome Address; These Conditions Called Electrical Interference, Susceptibility, and Compatibility–*Dr. O. M. Salati, University of Pennsylvania;* Electrical Noise Reduction in Industrial Control Systems–*W. Schmidt, Reliance Electric Company;* Graphical Evaluation of Electrical Noise Conditions–*A. W. DiMarzio, Fairchild Electro-Metrics Corporation;* Measurement of Electrical Noise–Panel discussion: *S. Burruano, Bur. Assoc.; W. Prysner, USN/USL.*

Luncheon: The luncheon address will be presented by Dr. Heinz Schlicke of Allen-Bradley Company on: *The Profession of Electrical Noise Control Engineering.*

Afternoon Session: Biomedical Electronics Installation Noise Control–*F. Kugler, Temple University;* The FCC Policing Function and RF Spectrum Users–*S. Marti-Volkoff, FCC;* The Key to Inter-Disciplinary Communication–*Rex Daniels, Interference Consultants;* Prevention and Treatment of Noise in Control Systems–*F. G. Willard, Westinghouse Electric Company.*

Evening Session (Regular Chapter meeting): Electrical Noise Standards–Panel discussion: *Members of industry groups: NEMA, ANSI, EIA, etc.*

Place: LRSM Hall, University of Pennsylvania, 3231 Walnut Street, Philadelphia, Pa.

Registration: Advance registration, IEEE members, $10.00; non-members, $12.00, $2.00 additional at door. Includes luncheon and parking. Dinner reservations are optional. For advance registration form or additional information, write to Miss Helen Yonan, IEEE Office, Moore School of Electrical Engineering, 33rd & Walnut St., Philadelphia, Pa. 19104, or phone (215) 594-8106.

A Seminar
RECENT HIGHLIGHTS IN MICROWAVE ENGINEERING

DATE: THURSDAY, MAY 28, 1970
PLACE: NEWARK COLLEGE OF ENGINEERING
TIME: 1:00 P.M.–5:30 P.M.

AGENDA

Introduction *1:00–1:10*	*G. C. DiPiazza* *Chairman, GMTT/AP*
Trends in Solid State Devices and Circuits *1:10–1:50*	*Dr. B. E. Berson* *Group Leader* *Solid State Devices–RCA*
Acoustics and Microwaves *1:50–2:30*	*Dr. A. A. Oliner* *Chairman, Electrophysics Dept.* *Polytechnical Inst. of Brooklyn*
Feed Forward Amplifiers *2:30–3:10*	*H. Seidel, Supervisor* *Solid State Device Studies Group* *Bell Telephone Laboratories*
Coffee Break: 3:10–3:30	
Spacecraft Antennas *3:30–4:10*	*Dr. Leon Ricardi, Group Leader* *Antenna & Site Group* *Lincoln Laboratory, MIT*
Solid State Radar – Fact or Fancy *4:10–4:50*	*A. M. Briana, Manager, Technical Staff, Missile Systems Division* *Raytheon Company*
Miniature Lumped Element Circulators *4:50–5:30*	*C. E. Barnes, Supervisor* *Microwave Ferrite Devices Group* *Bell Telephone Laboratories*

REGISTRATION FEES	ADVANCE REGISTRATION	LATE REGISTRATION
Members	$ 6.00	$ 8.00
Non-Members	8.00	10.00
Students	1.50	1.50

ADVANCE REGISTRATION FORM – MICROWAVE SEMINAR

Send to: Dr. C. P. Wu
Bell Telephone Laboratories, Room 2B-222A
Whippany, New Jersey 07981

Name _____
Technical Society _____
Address _____

Check or Money Order Enclosed:

Member:	$ 6.00.....	$ 8.00 after May 15.....
Non-Member:	$ 8.00.....	$ 10.00 after May 15.....
Student:	$ 1.50.....	

Please make check or money order payable to: North Jersey Section IEEE

Microwave Ferrites From a User's Viewpoint

Mr. N. R. Landry, RCA, Moorestown, N. J., will speak on "Microwave Ferrites from a User's Viewpoint" at the May 20 meeting of the Magnetics Chapter, Princeton Section.

About the Talk

The talk will describe some of the microwave properties of polycrystaline ferrites and garnets to device performance. Emphasis will be on remanent devices and material parameters that are important in their design. Techniques for fabricating specialized ferrite shapes at low cost and with close electrical and mechanical tolerances will be discussed. In addition, several areas of future growth and material requirements will be explored.

About the Speaker

Mr. N. R. Landry is presently Design Engineer in the Missile and Surface Radar Division of RCA at Moorestown, N. J. He received his B.S.E.E. from Worcester Polytechnic Institute and the M.S.E.E. from the Drexel Institute of Technology.

Time: Wednesday, May 20; 8:00 P.M.
Place: Murray Hall, Room 217, Rutgers University, New Brunswick, N. J.
Pre-Meeting Dinner: 6:00 P.M. Alumni-Faculty Club, 199 College Ave., New Brunswick, N. J.
Reservations for dinner should be made with: Mrs. Helen Yefko, Dept. of Electrical Engineering, Rutgers University, phone 247-1766, Ext. 6325.

Staff Openings

There are presently a number of openings on the editorial staff of the Newsletter. The Newsletter is the official publication of the North Jersey Section of the IEEE and is received by approximately 6000 people. The work involves editing material submitted for publication by various IEEE groups and generally takes about 5 hours per month. Additional information on these openings can be obtained by writing to Alan Stolpen, 2037 Balmoral Avenue, Union, New Jersey, 07083, or by telephoning (201) 981-0100, Ext. 467, or in the evening, (201) 687-9226.

Emil C. Neu
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