



COMMUNICATIONS TECHNOLOGY GROUP

Number 3 Volume I

MARCH 1965

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1. NEWSLETTER FUNCTION

This NEWSLETTER is published Quarterly for the Administrative Committee of the IEEE Communication Technology Group, and serves as a vehicle for the dissemination of news items of current importance and interest to members of the COMTECH Group.

Technical Committees and other operating elements of the Group are invited to use this publication as its NEWSLETTER.

Items covering Committee, Chapter, Call for Papers, Meetings, Personal and Professional, and other appropriate news are solicited and should be submitted to the Editors as follows:

General News, Committee Activities, etc.

Gunther Karger, Editor
IEEE COMTECH Group Newsletter
RADIATION INCORPORATED
725 Rosada Street
Satellite Beach, Florida 32937
Office Phone: 305-723-1511, Home: 305-262-5894

All Chapter Activities

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IEEE COMTECH Group Newsletter
TELETYPE CORPORATION
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Skokie, Illinois 60076
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THE DEADLINE FOR THE JUNE 1965 ISSUE WILL BE:

April 1st. All items must be submitted prior to this date.

2.

CHAIRMAN'S MESSAGE

(Dr. R. K. Hellman)

During the current administrative year, the Administrative Committee of your Group had the opportunity to set rules and procedures that should make things run more smoothly next year. Some of the steps taken by ADCOM at and after its meeting in Chicago (October 19th, 1964) are:

1. The financial situation of the Group was reviewed. It appeared that adequate support for the TRANSACTIONS would not be available from reasonably foreseeable income unless the dues are raised. ADCOM felt that it is essential to maintain the publication effort at a high level (4 issues per year) and voted, by letter ballot, to raise the Group's annual dues from \$4.00 to \$5.00. This increase, which appeared a fair compromise, will become effective July 1st, 1965, and should result in a balanced budget for the 1965 calendar year.

2. Co-ordinating all sessions sponsored by the Group at larger meetings is a must and should be done by a designated member of the Meetings Committee. J. Walsh has undertaken this laborious task for the 1965 International Convention in New York. As a result, our program went to Headquarters on time, with reasonable assurance that the Technical Committees had sufficient time to review the papers. With 16 sessions, our Group emerged as the largest single contributor of papers at the Convention, which will have a total of about 80 sessions.

3. Preparations for the first Annual Communications Convention at Boulder, June 1965, are coming along well. Again we will have an opportunity to test our procedures to solicit, review, preprint and publish papers. It is especially encouraging that the tradition of GLOBECOM will be carried on at this Convention, and that several other Groups have decided to hold sessions at Boulder within the general framework.

4. The future of the Utica Fall Symposium, which for ten years had been known as NATCOM, seems assured through plans to hold it under the auspices of Region 1. With the expected strong support of the Mohawk Valley Section and our Technical Committee on Communication System Disciplines, there is every reason to believe that the 1965 Symposium will again be a technical as well as financial success.

5. Prior to the ADCOM Meeting now scheduled for March 23 at 1:30 P.M., New York Hilton Hotel, the Nominating Committee will announce its slate of candidates for Members-at-Large to be elected for stated terms beginning July 1st. The Nominating Committee consists of L.G. Abraham and D.S. Rau as Co-Chairmen, and Messrs. Slayton, Solomon and Wepler, who will receive suggestions until March 1st. This is the first step to guide the Group from its interim year to regular operation.

With the many technical sessions and committee meetings scheduled for the week of the International Convention, I hope to greet many of you in New York.

RKH:ho
1/12/65

COMMITTEE REPORTS

All committees of the Group are urged to use this Newsletter as their means of keeping the membership informed of their activities. This includes meeting information, business, surveys, membership, technical matters such as progress in technical sub-committees, Standards, (but not technical papers, as they will be considered for the TRANSACTIONS) and any other items of the general membership might find of interest. The importance of these announcements cannot be underestimated as former IRE oriented members are still learning of the Technical and Translation Review Committees.

The Newsletter is published regularly and affords wide publicity coverage without additional cost to the operating committees.
USE IT!

TECHNICAL COMMITTEE
SUPPORT TO THE IEEE CONVENTION
TECHNICAL PROGRAM

Several Technical Committees have selected papers to be presented at the Convention (March 22-26). The Editor wishes to express appreciation for the cooperation of the committee chairmen Meetings Committee member, Jim Walsh, who supplied the necessary information. Rather than listing the program under individual committee reports, it is consolidated in Section 4 of this issue for convenient reference.

RADIO COMMUNICATIONS COMMITTEE

Chairman: C. R. Kraus
Bell Tel. Co. of Penna.
One Parkway
Philadelphia, Pennsylvania 19102

Ray Kraus urges all members to plan to attend the First Annual Communication Convention and GLOBECOM VII which will be held in Boulder, Colorado, June 7-9. The Radio Committee will sponsor at least four outstanding sessions. They are as follows:

Low Noise Amplifiers (5 papers)
Reliability of Microwave Systems (3 papers and a panel)
New Microwave System Development
Varied Radio Matters

This will be the big Communications get-together of the year.
MARK YOUR CALENDAR NOW!

WIRE COMMUNICATION

Wm. C. Burnett, Chairman, has announced that the organization meeting of the new Task Force on Longitudinal Balance will be held at 9 A.M. on Wednesday, March 24th in Room 510 of the New York Hilton Hotel, during the International Convention. The Chairman of the Task Force is J. N. Petrie of Automatic Electric. The formation of the Task Force is a result of recent recognition of the many different ways of measuring longitudinal balance in communication equipment and circuits. The development of uniform methods will be sought. It is likely that seminars or panel discussion will be held at future national meetings. All persons who are interested in longitudinal balance will be welcome at the organization meeting on March 24th.

The Wire Committee has arranged three sessions for the International Convention. The first session, jointly sponsored by Data and Telegraph, is concerned with impulse noise - measurement, effects, and correction. The papers are by authors of high experience.

The second session primarily will treat transmission design objectives for communication services and trunks. The third session will deal primarily with carrier systems.

Plans are nearly complete for two sessions on Wire Communications at the first Annual Communication Convention in Boulder in June.

The Wire Communication Committee will meet in Room 540 of the New York Hilton Hotel on Wednesday, March 24th, from 2 to 5 P. M.

REGION III MEETING IN WINSTON-SALEM

Plans have been completed for the Annual Region III Meeting in Winston-Salem, North Carolina, April 6-8.

Technical sessions will cover communications, electronic broadcasting, education, and power.

The sessions on communications will cover new features in telephone circuitry, aerospace telemetry, and cable for CATV systems.

Winston-Salem is a progressive, interesting city. The 30-story Wachovia Building is the tallest in North Carolina. Reynolds Tobacco, the world's largest cigaret manufacturer, has huge factories that are open to visitors. Old Salem, the restored Moravian Village founded in 1766, provides a fascinating insight into early days.

1-28-65 --- WCB

4. CHAPTER REPORTS

Beginning with this issue, Ray Bogdan is assuming responsibility for all COMTECH Group Chapter publicity in this Newsletter. He wishes to serve all Chapters, not just a few, and is really trying his best to provide this service. The Newsletter offers chapters free local and international publicity, provides a means for interchanging ideas on meetings and other activities. It is only required that the information is provided. Each chapter has since long received reminder letters, telephone calls, and this time, Ray even sent Telegrams to each chapter. He has done a fine job.

Enable us to serve you, the members better, by requesting your elected officers to respond to Ray Bogdan, who may be contacted as follows:

Ray Bogdan, Associate Editor
IEEE COMTECH Group Newsletter
Teletype Corporation
5555 Touhy Avenue
Skokie, Illinois 60076
PHONE: 312-676-1000

CHAPTER'S COMMITTEE REPORT

We are listing again the 22 COMTECH Chapters for new members and any of you who may have missed the December issue.

COMTECH CHAPTERS

Baltimore	Long Island	Philadelphia
Boston	Los Angeles	San Francisco
Canaveral	Mohawk Valley	Seattle
Chicago	Monmouth	Syracuse
Connecticut	North Jersey	Toronto
Dallas	Oklahoma City	Twin Cities
Denver-Boulder	Omaha-Lincoln	Washington, D.C.
Florida West Coast		

Mr. McSweeney advises that the IEEE Executive Committee at its meeting on January 6th approved the petition for the establishment of a COMTECH Chapter within the New York Section.

As noted in our last issue, engineers interested in the activity of this Chapter should contact:

G. Spiro
Bell Telephone Laboratories
Holmdel, New Jersey
PHONE: 201-949-2277
(Mr. Spiro can also be reached by local telephone call in New York City at CHelsea 3-1000.)

We also have word from Mr. McSweeney that the Toronto Chapter has co-sponsored two meetings since last September and that they expect to co-sponsor two more before next June.

We are advised that only a limited number of engineers in Syracuse Section expressed an interest in COMTECH activities. This chapter will, therefore, be considered inactive, however, Mr. Hansen will be retained on record as Chairman.

CHAPTER REPORTSBaltimore

No activity reported.

Canaveral

No report.

In September, a guided tour of the Systems Research Laboratory at the Mitre Corporation in Bedford, Massachusetts, was jointly sponsored by this Chapter and the Boston Chapter of the Military Electronics Group. Mr. James H. Burrows described the Mitre Corporation's USAF Design Laboratory. Eighty-four attendees participated.

On December 10th, 1964, the Chapter co-sponsored with the local Chapters of the Military Electronics and Electromagnetic Compatibility Groups, a talk by Arnold B. Bailey, Staff Scientist of the Mitre Corporation. Nuclear EMP and Transient Lightning Effects on Communication Equipment were discussed at this meeting which was held at the Raytheon's Executive Offices in Lexington.

Chicago

No report.

Chicago

On October 22nd, 1964, the Chicago Groups on Communication Technology and on Component Parts co-sponsored a tour of United Airlines Headquarters. Travel and technical movies were shown. The tour covered the main operational functions of the entire United Airlines system, in particular:

Briefing Room--Center of all flight planning for entire airline system. Here teams of experts meet each morning to schedule system-wide operations and to review flight performance.

High Altitude Flight Planning--Best routes for long range jet flights are determined by electronic computers.

Weather Center--Here major forecasts for flight operations are compiled by meteorologists in continuous, system-wide weather analysis, using Tiros Satellite, radar and U.S. Weather Bureau reports. Teleprinters and electronic facsimile machines are used.

Overhaul and Maintenance Operations--Integrated into daily planning is periodic scheduling of aircraft for overhauling and refurbishment, as well as any immediate action necessary for maintenance of on-line aircraft.

Communications Equipment--Some 70,000 miles of private telephone lines and 38,000 miles of Teletype weather circuits as well as the electronic facsimile machines, keep the system operating.

Education and Training Center--Each year 800 young women are trained as stewardesses, and special management courses are taken by 1800 people as part of an executive training program.

An interesting program was presented by Mr. R. J. Woolsey, Data-Phone and Teletypewriter Engineer, Illinois Bell Telephone Company, on November 12th. His subject was "Picturephone."

Some of the questions answered by Bob Woolsey were:

How far away is Picturephone as a standard Telephone Company offering? What are some of the practical and technical obstacles to be overcome? How about the demand for such a service -- is there real interest? Why was such a development undertaken in the first place? What is some of the history and future planning of Picturephone?

Bob has been with the Illinois Bell Telephone Company for 37 years, the last 18 years of which were spent in the engineering department. His experience with Picturephone is firsthand, since he was transferred to the Bell Telephone Laboratories to work directly on its development and on the development of video transmission through microwave channels. He is responsible for the Picturephone installations at both the Prudential Building and at the Museum of Science and Industry.

Bob attended Lewis Institute and the Illinois Institute of Technology and has many advanced mathematics courses to his credit. He retired from the military reserve as a Major. His hobbies are optics and astronomy.

The following article appeared in the IEEE Chicago Section of SCANFAX. Perhaps other groups should consider publicizing their COMTECH Chapter through similar local IEEE publications. If you are now doing this, please advise us of the results.

Joint Group on Communication Technology Now

IEEE Groups offer the individual engineer the advantages of a small society in his specialized field, while IEEE provides him with the advantages of the only integrated professional society covering the entire field of electricity and electronics, from biology and medicine to space technology. A Group is concerned with the detailed technical knowledge of its field and promotes cooperation and exchange of such technical knowledge among its members, all of whom have common professional interests.

The newly organized Group on Communication Technology (Com Tech or G-19 for short) covers the entire technology of communications (theory and applications) including telephony, telegraphy, and transmission of other data; point-to-point radio and television; treatment of systems and subsystems using any one, or a combination, of the means of transmission. This Group is a merger of the former Professional Group on Communications Systems of the IRE and the Communications Committee of the AIEE.

Within the Group on COMTECH, there are eight specialized technical committees: Communication Switching, Communication Theory, Communication System Disciplines, Data Communication and Telegraph Systems, Radio Communication, Telemetering, and Wire Communication. Anyone with an interest in communications technology can find his particular interest in one of these specialized technical committees.

The new Group on COMTECH will publish a TRANSACTIONS of the Group on Communication Technology. This will be one of the first publications in the field and will be published instead of the previous TRANSACTIONS on Communications and Electronics (AIEE) and TRANSACTIONS of the Group on Communications Systems (IRE). A Newsletter, published quarterly, covers chapter activities, publicity, committee actions, personal and professional items, and other news materials. Group members receive copies of all regularly published material as a part of the annual fee.

Connecticut

Welcome and Congratulations on your progress.

Mr. John M. Schamberger, Chairman of the Connecticut Section, IEEE, appointed the following Steering Committee to establish procedures for operation of a vigorous Connecticut Chapter and to serve as a Nominating Committee: Raymond A. Fletcher, presently Chairman of the Connecticut Section IEEE Communications Subcommittee; David E. Ostrom, past Section Chairman, AIEE; Dr. Leslie S. Radnay; Samuel C. Wadhams, past Section Chairman, IRE.

The Steering Committee immediately went into action and agreed upon the following policies:

1. Bylaws

Operate without formal bylaws, at least during the first year of operation. Instead, the model bylaws printed in the Manual for Chapters should be used as a guide.

2. Officers

The officers shall be:

Chairman
Vice-Chairman
Secretary and Financial Officer
(one office)

The three officers should serve as a Chapter Steering Committee.

Additional committees should be appointed as required. A program Committee is essential, the Chairman of which should be appointed by the Chapter Chairman.

3. Duties of Officers

Duties of officers shall be as outlined in the IEEE suggested Chapter Bylaws.

4. Nominations

The following slate of officers has been selected.

Chairman: Mr. A. Alfred Gogolen, The Southern New England Telephone Company

Vice-Chairman: Dr. Leslie S. Radnay
Litton Systems, Inc.

Secretary and Financial Officer: David E. Ostrom
The Southern New England Tel. Co.

The slate will be presented to a Section meeting sponsored jointly by the Section Communication Subcommittee and the Connecticut Chapter COMTECH Group to be held April 6th, 1965. Nominations from the floor will, of course, be in order.

Transfer of Functions

Immediately after submission of its annual report to the Section Executive Committee (but no later than the Section Annual Meeting to be held May 8th, 1965) the functions of the 1964-1965 Section Communication Subcommittee shall transfer to the Connecticut Chapter, COMTECH Group.

The initial meeting of the newly established Connecticut Chapter will be held jointly with the IEEE Connecticut Section Communication Subcommittee April 6th, 1965 at 8:00 P.M. The meeting is to be held in the auditorium of The Southern New England Telephone Company, 300 George Street, New Haven, Connecticut.

Election of officers for the newly formed Connecticut Chapter will take place at the meeting. Also policies as formulated by the Chapter Steering Committee will be aired.

Another interesting feature of the meeting will be illustrated talk, sponsored by the Communications Subcommittee, on Lasers.

All readers of this NEWSLETTER are cordially invited to attend. Especially urged to attend are those of you who are COMTECH Group members residing in Connecticut.

Dallas

William A. Sullivan of Collins Radio discussed "Some Considerations in the Design of a 960 Channel Multiplex System." The meeting was held on October 27th, and thirty-eight persons attended.

Denver-Boulder

"Linear Integrated Circuit Applications" was the subject of an illustrated lecture by Mr. John J. Robertson of the Motorola Corporation, Phoenix, at a chapter meeting January 20th held at the University of Colorado.

Mr. Robertson received his B.S. degree at Texas A & M and his M.S. at New York University, and was on the technical staff of Bell Telephone Laboratories until he joined Motorola in 1962 to do integrated circuit research and development. He is presently Section Head over linear integrated circuit applications.

Mr. Robertson reviewed integrated circuit technology by discussing characteristics of components available for both monolithic and hybrid construction. With this as background, the design of a 1-watt audio amplifier and of an 90-db 60-Mc IF amplifier was presented.

The next Chapter meeting is scheduled for April.
Subject: Detecting Signals in Noise by Sensors
Speaker: Dr. N. M. Abramson, Stanford University
Time: 7:30 P.M., Monday, April 19th, 1965
Place: University of Colorado, Boulder, Colorado

Florida West Coast

No report.

Long Island

It has been brought to our attention that Dr. William Miller was incorrectly listed as Vice-Chairman in our last issue. We are advised that he was Secretary-Treasurer of the Chapter until ill health caused him to resign just recently. The corrected list of officers:

Chairman: Prof. Mischa Schwartz
Polytechnic Institute of Brooklyn

Vice-Chairman: James Hepburn
RCA Communications

Publicity Comm. Chairman: Walter Arndt
Airborne Instruments Labs

The first meeting of the Chapter for the current season, held on November 18th, 1964 at the Polytechnic Institute Graduate Center, Farmingdale, Long Island, was well attended. The audience, on the order of roughly 40 people, heard Dr. W. R. Bennett of Bell Telephone Labs discuss digital communications over telephone networks.

The next meeting, planned for February 17th, 1965, again at the PIB Graduate Center in Farmingdale, will hear Professor Mischa Schwartz of PIB discuss analytical techniques of current interest in the communications field.

Mohawk Valley

No report.

Monmouth

No report.

North Jersey

Mr. Edward H. Cooper was the speaker at the December joint meeting of the Communication Technology and Computer Groups. The meeting was held on Tuesday, December 8th, at the Garden State Plaza Auditorium.

Discussion covered the application of digital simulation techniques to defense communications network design and operation. In addition to the history of the DCA simulation development program, application of the developed models to practical problems were discussed. Particular emphasis was placed on "Lessons Learned", cost, and technical support required to staff the DCA simulation program.

The presentation concluded with a discussion of the philosophy of simulation, future plans for simulation of the DCA along with a short discussion of the role of simulation languages.

Oklahoma City

No report.

Omaha-Lincoln

No report.

Philadelphia

A meeting was held on October 13th at the General Electric Co. in Valley Forge, Pennsylvania. A tour of the GE Space Technology Center was combined with the meeting. The group attendance numbered fifty-six.

At a previous meeting on September 15th, Mr. George Strohmeier of Philco discussed "Digital T.V." Attendance at this meeting was forty-four.

The following slate of officers were proposed by the Nominating Committee for the 1965-1966 term:

Chairman: M. K. Wilder, RCA
Vice-Chairman: R. E. Bailey, RCA
Treasurer: R. J. Kern, GE
Secretary: K. F. Ralphs, Bell Tel. of Pa.

Executive Committee proposed by Nominating Committee:

H. Rappaport, One year term	1965-66 - P. R. R.
W. McLaughlin, One year term	1965-66 - RCA
R. J. Gaskell, Two year term	1965-67 - Bell Tel.
T. W. King, Two year term	1965-67 - Bell Tel.

ELECTION will be held at the regular meeting on March 9th.

The next meeting is planned for February 10th, 1965. Mr. R. Kern, Supervising Communications Engineer, General Electric Co., will discuss "MARS CAPSULE TELEMETRY."

San Francisco

On October 28th, Mr. R. A. Isberg, Communications Engineer, University of California, discussed "Communications In The Multi-versity" at the New Physical Sciences Lecture Hall in Berkeley.

Mr. Isberg introduced his talk by presenting slides depicting the actual and future growth of the telephones and private line systems serving the nine campuses of the University of California. Presently there are 13,651 official telephones and by 1966 it is predicted there will be 18,600 telephones in this category. In addition there will be 8,000 telephones in the residences by 1966.

Other communication services of the nine campuses were also described. These were closed circuit TV, PBX tie lines, mobile telephone systems, microwave radio systems, data transmission, and the replacement of the existing manual PBX's with CENTREX, a system that reduces the number of operators that are required. A chart was shown that illustrated a seven percent savings in a three million dollars communication expense after changing over to the proposed CENTREX system.

The New Year was started off with a very interesting and successful meeting on January 27th.

Two engineers from the San Francisco office of the Pacific Gas and Electric Company discussed "The Increasing Importance of Communications For Improving Utility Operations." W. I. Emmons, Supervising Communications Engineer, described the very extensive private communication system of the P. G. & E., and why this power company has such a comprehensive communication system. Two of the reasons given were:

- (1) To provide reliable communications to their plants for the transmission of control, data, telemetry, and supervisory information.
- (2) To provide improved service to their customers.

Donald G. Gregory, Communications Engineer followed with detail information about the network which extends from the Canadian Border to Bakersfield, California. The facilities consist of microwave radio, open wire, power line carrier, and cable. Carrier channelization systems are used extensively. The microwave radio systems have the greatest growth with about 300 percent in the last decade. Employees have increased about 16 percent in the same time.

San Francisco is the hub of the telephone communications network which consists of 56 inter-connected dial office PBX's. In addition, there are automatic call distributor systems which expedite the handling of customer calls. This communication network permits the P. G. & E. to operate most of the 57 hydro-electric plants and gas plants by remote control. This has resulted in a marked decrease in expenses and man power.

After the meeting, a guided tour was made through the radio and dial PBX equipment rooms.

Previous to the meeting, "A MEET THE SPEAKER DINNER" was held at the Iron Duke Restaurant nearby. There were 49 in attendance at the dinner and 78 at the meeting.

A Nominating Committee is being formed for the purpose of nominating officers for the coming year.

The present officers of the San Francisco Group are:

Chairman: Owen E. Thompson, Secode Corp.
Vice-Chairman-Program Chairman: Fred S. Beale, Lenkurt Electric Co.
Secretary-Treasurer: Robert S. Howland, Pac. Tel.

Seattle

No report.

Syracuse

See Chapter's Committee Report.

Toronto

Would like to have details on your recent meetings.

Twin Cities (Minneapolis-St. Paul)

A preview of what telephone service might be like in the year 2,000 was the subject presented on January 15th for the wives and friends of IEEE Communication Technology Group members. The presentation was given by Cletus F. Dozark, Executive Assistant, Northwestern Bell Telephone Company, Minneapolis.

Using demonstration equipment, the speaker showed models of a possible mobile wireless telephone, also a picturephone - a telephone with a television screen.

"Both of these phones are within technical capabilities right now," Dozark said, "but are not commercially feasible." In fact, there is not the necessary demand for such service now." However, when the time comes that such service is required, telephone research scientists will be ready with the necessary technology.

Speaking of new developments within the range of the near future, Dozark demonstrated touch-tone service which has become operational this fall in selected Minnesota communities. The touch-tone instrument uses ten push buttons for numbers and letters instead of the present dial wheel. It is entirely electronic and uses different combinations of audible electric frequencies to pass signals over the line.

Dozark described a new form of electronic switching equipment that will permit a much wider variety of personal services than is possible with present day mechanical switching equipment. Frequently called numbers will be reached by dialing two or four digit numbers instead of seven or ten. A third party may be "added on" to an existing two party conversation. Another unique service that will be possible will be a "call waiting" feature. A person already talking on a call would be notified by a tone that someone was trying to reach her. She could excuse herself, push a button and pick up the waiting call, then return to the original call without breaking the connection. First installation of this all-electronic central office is tentatively scheduled for 1967 in Minnesota.

Data Communications were described in the talk as the fastest growing and potentially most revolutionary development in modern telecommunication. Present day equipment is handling material and data at speeds of up to 2,500 words per minute, but laboratory tests show that potential speeds of up to one and one half million words per minute would be feasible.

Computers "talking" to computers will be commonplace in a relatively short time. "By 1975 expectations are that machine-to-machine communication over telephone circuits will exceed people-to-people talk."

Dozark opened his talk with a demonstration of a working model of Alexander Graham Bell's first telephone, along with several other antique phones, to illustrate the marked improvement in instruments since the invention of the telephone in 1876.

The meeting was concluded by announcements from Chairman Glen E. Barcus naming the nomination committee for the next year's officers as:

Garry Barritt
Norman Priebe
Robert F. Smith
Chairman: Larry Kogl

Washington

"Research at the Bottom of the Sea" was the subject presented by Mr. Chester L. Buchanan of the U.S. Naval Research Laboratory. The meeting was held on November 9th with eighty-seven persons in attendance.

GROUP PARTICIPATIONINIEEE 1965 INTERNATIONAL CONVENTION

Monday, March 22nd -- Friday, March 26th

New York Hilton Hotel And Coliseum

The COMTECH Group is sponsoring a substantial number of sessions at the convention and it is the purpose of this Newsletter issue to bring you, our fellow members the details of the "COMTECH" Program.

James M. Walsh of the meetings committee (RCA Communications, 66 Broad Street, New York) would like to express his appreciation to the technical committee chairmen for their cooperation and assistance in organizing the sessions. This cooperation was instrumental in enabling the COMTECH Group through its technical committees, to present such a fine technical program.

A note of thanks also goes to Jim Walsh for his effort in bringing it to realization.

TECHNICAL PROGRAMCOMMUNICATION SYSTEM DISCIPLINES COMMITTEE

Chairman: C. A. Strom
Rome Air Development Center
Rome, New York

10:00 A.M. Monday - March 22nd - Trianon Ballroom

Session Chairman: C. A. Strom
Rome Air Development Center
Rome, New York

"Simulation in the Design of a Communications Terminal"

Robert F. Boehm and Arvind M. Parikh
General Products Division, IBM
Endicott, New York

Spectral Analysis - An RFI Prediction Tool

Rocco F. Ficchi
Communications System Division
Radio Corporation of America
Camden, New Jersey

Pulse Error Reduction in Pulse Position Modulation Systems

M. J. Wiggins
Martin Company
Orlando, Florida

"Threat Indifference" A Theory of Communications Survivability

L. Siegel and K. M. Curtin
RCA CSD N.Y. Systems Laboratory
New York, New York

2:30 P.M. Monday - March 22nd - Trianon Ballroom

Session Chairman: Dr. Elie J. Baghdady
ADCOM, Inc.
Cambridge, Massachusetts

Panel on the Evaluation of Tropospheric Medium for FDM and TDM Multichannel TransmissionPanelists

Mr. A. Pote	Mr. J. Polyzou	Mr. M.J. Wiggins
Page Comm. Engr.	ITT Federal Labs.	Martin Company
Washington, D.C.	Nutley, New Jersey	Orlando, Florida

Mr. R. Steel	Mr. Andrew Lipinski
Motorola	Lenkurt Electric
Chicago, Illinois	San Carlos, California

10:00 A.M. Friday, March 26th - West Promenade - Program to be announced

SPACE COMMUNICATIONS COMMITTEE

Chairman: J. L. Jatlow
ITT Federal Laboratories
Nutley, New Jersey

Space Communications Techniques

10:00 A.M. Tuesday, March 23rd - Coliseum Room B

Session Chairman: L. Pollack
ITT Federal Laboratories
Nutley, New Jersey

"Coding and Double Access to an Active Satellite"

Frederick Jelinek
School of Elec. Engr.
Cornell University
Ithaca, New York

"Spacecraft Transponder with Re-entrant Mode TWT Amplifier"

Messrs. R.R. Cagnon and S. D. McCaskey
TRW Space Technology Lab
Redondo Beach, California

"Hard Limiting of several signals and its effect on Comm. Systems Performance"

P. E. Shaft
Philco Western Development Lab
Palo Alto, California

"Some Design Considerations for a Steerable Satellite Phased Array"

E. M. Davis
Sylvania Electronic Systems
Williamsville, New York

Space Communication Technology

2:30 P.M. Tuesday - March 23rd, 1965 - Coliseum Room B

Session Chairman: H.E. Weppler
American Telephone & Telegraph Co.
New York, New York

"Utilization of the Phase Stability of Meteor Trails for Accurate time Synchronization"

V. R. Latorre
Department of Engineering
University of California
Davis, California

"Intermodulation Distortion in Multi-Carrier FM Systems"

E. D. Sunde
Bell Telephone Laboratories
Murray Hill, New Jersey

"Performing Phase Coded M'ARY Communication Systems in the Face of Average Power Limited Interference"

J. H. Wittman
Sylvania Electronic Systems
Williamsville, New York

"Theory of Tracking Cross-Conductors"

D. T. Magill
Philco Western Development Laboratory
Palo Alto, California

COMMUNICATION SWITCHING COMMITTEE

Chairman: A. E. Joel
Bell Telephone Labs.
Holmdel, New Jersey

Voice Quotation Systems

10:00 A.M Wednesday - March 24th, 1965 - Trianon Ballroom

Session Chairman: W. B. Groth
IBM Corporation
100 Westchester Avenue
White Plains, New York

The AmQuote Voice-Quotation System

Robert J. Buegler and Thomas R. Masone
The Bunker-Ramo Corporation
Stamford, Connecticut

Digital to Voice Converter/Multiplexer

Mr. Enn Aro
North Electric Company
Galion, Ohio

New York Stock Exchange, Ticker-Quotation Computer System

Edward DeLaura and Joel Beier
New York Stock Exchange
Mr. Thomas E. Digan
IBM Data Processing Division
Kingston, New York

Quotation Access Switching System

Edward Osmann
New York Telephone Company
New York, New York

Audio Response Unit for New York Stock Exchange System

G.E. DuBois
IBM Data System Division
Kingston, New York

SWITCHING SYSTEMS

2:30 P.M - Wednesday - March 24th, 1965 - Trianon Ballroom

Session Chairman: A. J. Leininger
Illinois Bell Telephone Company
Chicago 6, Illinois

An Experimental High Speed Electronic Switching System Using Delta Modulation

O. Enonoto, A. Tomozawa, H. Katayama and T. Sekomoto
Communication Research Laboratory
Nippon Electric Co., Ltd.
Tokyo, Japan

Call Distributor Design for Smaller Business Application

G. E. Shirkey
Illinois Bell Telephone Co.
Chicago 6, Illinois

"Datess" Data and Teletypewriter Electronic Switching System

D. N. Hutchinson
Bell Telephone Co. of Canada
Montreal, Quebec, Canada

A Multifrequency Signaling Detector Using Digital Techniques

Uwe A. Pommerening
Stromberg-Carlson
Rochester 3, New York

A 100 Party Programmable Conference Circuit

F. Pankotay and D. Rimlinger
Stromberg-Carlson
Rochester 3, New York

SWITCHING APPARATUS & SYSTEMS

10:00 A.M. - Thursday - March 25th, 1965 - Trianon Ballroom

Session Chairman: S. B. Weiner, U.S. Inst. Corp.
Charlottesville, Virginia

A New Miniature Relay for Telephone Systems

Charles F. Spahn
Bell Telephone Labs, Inc.
New York, New York

New Mercury Relays for Sensitive Telephone and Telegraph Applications

G. E. Perreault
Bell Telephone Labs, Inc.
New York, New York

Time to Failure in Electronic Telephone Switching Systems

J. D. Beierle and V. B. Gylys
Automatic Electric Labs.,
Northlake, Illinois

Dynamic Programming and Optimum Routes in Probabilistic Communication Networks

Yuen-sun Fu
ITT Kellogg
Chicago, Illinois

WIRE COMMUNICATIONS COMMITTEE

Chairman: W. C. Burnett
Southern Bell Telephone
Atlanta, Georgia

Symposium on Impulse Noise

10:00 A.M. - Thursday - March 25th, 1965 - New York Hilton Regent Room

Session Chairman: A. B. Covey
American Telephone & Telegraph Co.
New York, New York

A Method for Evaluating the Effects of Impulse Noise on Digital Data Transmission

J. H. Fennick
Bell Telephone Labs.
Murray Hill, New Jersey

Measurement & Correction of N & ON Cables for Satisfactory Data Transmission

Wm. M. Varvel, Southwestern Bell Tel. Co., Dallas, Texas
J. R. Wilson, Jr., Southern Bell Tel. & Tel. Co., Nashville, Tenn.

Conditioning N2 Carrier System for Project 465L Data

T. G. Ladshaw
Southern Bell Tel. & Tel. Co.
Atlanta, Georgia

Measurement & Correction of Impulse Noise on Cable Carrier

F. L. Burge
Michigan Bell Telephone Co.
Detroit, Michigan

Transmission Objectives

2:30 P.M. - Thursday - March 25th, 1965 - New York Hilton Regent Room

Session Chairman: John C. Leffel
Michigan Bell Tel. Co.
Southfield, Michigan

Transmission Objectives for Special Services

K. L. Wilson
Michigan Bell Tel. Co.
Southfield, Michigan

Transmission Design Objectives for Switched Services Networks

C. H. Roggenkamp
Southern Bell Tel. and Tel. Co.
Atlanta, Georgia

Transmission Design of Short Toll-Terminal Trunks to meet the VNL Objectives

J. N. Petrie and J. C. Mau
Automatic Electric Labs
Northlake, Illinois

Variable Length Words Pulse Code Modulation

J. Deregnaucourt
Research & Development Labs
Northern Electric Company
Ottawa, Ontario, Canada

Carrier Systems

2:30 P.M. - Friday - March 26th, 1965 - New York Hilton
Regent Room

Session Chairman: B. P. Nicholls
Northern Electric Co., Ltd.
Research and Development Labs
Ottawa, Ontario, Canada

N3 Carrier System: Transmission Aspects and Objectives

George W. Bleisch
Bell Telephone Labs, Inc.
North Andover, Mass.

Equipment Aspects of the Packaged N3 Carrier Terminal

L. H. Steiff
Bell Telephone Labs
Andover, Mass.

Regulating Repeater for a New Wideband Coaxial System

A. J. Desrosiers and F. R. Collins
Bell Telephone Labs
Andover, Mass.

Multi-Channel Load Calculation Using the Monte Carlo Method

N. J. Cyr and A. Thuswaldner
Northern Electric Co., Ltd.
Research and Development Labs,
Ottawa, Ontario, Canada

DATA COMMUNICATIONS & TELEGRAPH SYSTEMS COMMITTEE

Chairman: W. G. Vieth
Western Union
New York, New York

Data and Telegraph I

2:30 P.M. - Thursday - March 25th, 1965 - Trianon Ballroom

Session Chairman: Dr. F. E. Froehlich
Bell Telephone Labs
Holmdel, New Jersey

High Speed Teleprinter System

Dr. W. A. Kaiser
Standard Electric Lorenz AG
Stuttgart, Germany

Channel Evaluation Test Set

Harry W. Ansorge
Michigan Bell Telephone Co.
Southfield, Michigan

Facsimile Communication via the Dialed Telephone Network

E. R. Kretzmer
Bell Telephone Laboratories
Holmdel, New Jersey

Error Control Systems for Use on the Switched Telephone Network

H. O. Burton, R. N. Watts, W. J. Wolf
Bell Telephone Laboratories
Holmdel, New Jersey

Applications of Wideband Facilities for Data Transmission

John H. Roach
New York Telephone Company
New York, New York

Data and Telegraph II

10:00 A.M. - Friday - March 26th, 1965 - Trianon Ballroom

Session Chairman: F. W. Smith
Western Union Tel. Co.
New York, New York

The Telegraph Synchronizer

Roman Lutz
Siemens and Halske AG
Central Laboratory
Munich, Germany

A Synchronous Signal with Dual Properties for Digital Comm.

Adam Lender
Lenkurt Electric Co.
San Carlos, California

An Associative Data Compressor

P. E. Drapkin and R. M. Pentz
Lockheed Missiles and Space Co. Data Systems
Sunnyvale, California

Communications Implications of Project MAC

Richard G. Mills
Project MAC
Cambridge, Mass.

Advancements in the Facsimile Art During 1964

Warren H. Bliss
Astro-Electronics Division
RCA Corporation
Princeton, New Jersey

Data and Telegraph III

2:30 P.M. - Friday - March 26th, 1965 - Sutton Ballroom South

Design of Band Limited Signals for Binary Communication using simple Correlation Detection

B. R. Saltzberg and L. Kurz
Bell Telephone Lab
Holmdel, New Jersey
New York University
New York, New York

A High Speed Message Switching System

Winfried Graf, Siemens and Halske AG
Central Laboratory
Munich, Germany

An Analysis of the Capabilities of Polybinary Data Transmission

R. D. Howson
Bell Telephone Laboratories
Holmdel, New Jersey

Pictorial Transmission with HIDM

Marion R. Winkler
Radio Corporation of America
Communication Systems Division
Tucson, Arizona

Advancements in the Printing Telegraph Art During 1964

W. Y. Lang
Bell Telephone Labs
New York, New York

RADIO COMMUNICATIONS COMMITTEE

Chairman: C. R. Kraus
Bell Telephone Co. of Penna.
Philadelphia, Pennsylvania

10:00 A.M. - Friday - March 26th, 1965 - Regent Room

Session Chairman: Mr. I. T. Corbell
ITT Kellogg
Raleigh, North Carolina

"Optimal Decision Thresholds for Digital Signalling in Nongaussian Noise"

Stephen S. Rappaport and Ludwik Kurz
Department of Electrical Engineering and
Laboratory for Electroscience Research
School of Engineering and Science
New York University
New York, New York

"Selective Fading Limitations of the Kathryn Modem and Some System Design Considerations"

Phillip A. Bello
ADCOM, Inc.
Cambridge, Mass.

"Low Frequency Shielding Resonance"

R. B. Schulz, V. C. Plantz
and D. R. Brush
Boeing Company
Airplane Division
Renton, Washington

"The AN/GRC-117 (V) Tropospheric-Scatter System" - Including Audio Demonstration of Effectiveness of Speech Processing Equipment"

William H. Gentry, Jr.
Special Projects Engineering MVR
Communication Products Dept.
General Electric Company
Lynchburg, Virginia

"Some Aspects of the Reliability Program of the Titan II Inter-complex Radio Communication System"

H. G. Wiest, Jr.
Reliability Engineer
General Electric Company
Communication Products Department
Lynchburg, Virginia

5. FIRST IEEE ANNUAL COMMUNICATIONS CONVENTION INCLUDING GLOBECOM VII BOULDER, COLORADO - JUNE 7-9, 1965

Plans for the first IEEE Communications Convention (including GLOBECOM VII), which will be held in Boulder, Colorado, June 7-9, 1965, are progressing very well, according to co-chairmen R.C. Kirby and P. Wicks. Considerable interest in this convention is being evidenced throughout the communication disciplines, as indicated by the large number of papers and information requests which have been received from both U.S. and foreign sources.

Although a final program will not be available until after April 1st, when all papers have been reviewed and authors notified, W. F. Utlaut (Technical Program Chairman) has announced general plans. The Program will be announced in the June NEWSLETTER, which will be issued early for this purpose.

General Sessions: These sessions, covering the complete breadth of communication technology, are being organized primarily by the participating Groups and Technical Committees.

They will include both regular sessions of general interest and special sessions on selected topics such as Error Control, Time Varying Channels, etc. Organizers of these sessions include the following:

IEEE Communication Technology Group

Technical Committees

Communication Switching
Communication Theory
Radio Communication
Space Communication
Wire Communication
Data Communication/Telegraph Systems
Communication System Disciplines

IEEE Information Theory Group

Globecom VII Sessions: These sessions, organized around the theme "Channel Characterization and Adaptive Communication Techniques," will include regular sessions on Monday and Wednesday, and a special tutorial session on Tuesday, June 8th. This tutorial session will include the following speakers and topics:

1. Theory and definition of measures of channel performance
M. Schwartz - Polytechnic Institute of Brooklyn
2. Methods of measuring and monitoring channel performance
R. G. Enticknap - Lincoln Laboratories
3. Methods of adapting circuits to environments
F. E. Froehlich - Bell Laboratories
4. Communications Systems 0-300 kc/s - ELF/VLF/LF
A. D. Watt - DECO - Boulder, Colorado
5. Communications Systems 300 kc/s - 30 mc/s - MF/HF
B. Goldberg USAERDL - Ft. Monmouth
6. Communications Systems 30 mc/s - 3000 mc/s - Ionoscatter, Troposcatter, Meteor Burst
R. C. Kirby - National Bureau of Standards - Boulder, Colo.
7. Communications Systems above 3000 mc/s - Microwave, Space, Optical
Robertson Stevens - Jet Propulsion Laboratory
8. Communications Systems Wire and Cable
F. T. Andrews - Bell Laboratories

In addition to the technical program, a number of social functions are being scheduled for both participants and families. These will include a banquet on Tuesday night, tours to the nearby mountain areas or other scenic features, and one or more informal social hours.

Further information may be obtained by contacting:

W. R. Hinchman, Chairman
Publicity and Publications
National Bureau of Standards
Boulder, Colorado 80301

6. NATIONAL TELEMETERING CONFERENCE

APRIL 13 -- 15, 1965

SHAMROCK HILTON HOTEL

HOUSTON, TEXAS

Sponsored by

IEEE - ISA - AIAA

The COMTECH Group is supporting the NTC through the auspices of its Telemetry Committee whose Chairman is:

W. F. Cruess
Dresser Controls
Houston, Texas

The Technical Program will include related subjects on:

- Space
- Industrial
- Bio-Medical Electronics
- Oceanography
- and others

A tour will be made to the NASA MANNED SPACE FLIGHT CENTER including its large Computing Facility.

Those who arrive on the evening of April 12th, are invited to attend the First Ballgame in the New Houston Enclosed Air-conditioned Ball Field.

Further information may be obtained by contacting Mr. W. F. Cruess.

The Editor thanks Mr. F. Winton Long of Texas Eastern Transmission, Shreveport, La., for supplying this information.

7. MEMBERS COLUMN

The past few issues have contained a Members Column which purpose it was to report on the doings of COMTECH members. We received some news from IEEE Headquarters, Journals, News - papers and from personal knowledge but we assume it wasn't of too great an interest to the members as there was no response from the membership, so we will discontinue the Members Column. May it rest in peace, for peaceful it was.

8. THE NETWORK HOTLINE

The Members Column was buried in the preceding paragraph so we will write another column and spice it up a little. Your Editor has had no input yet, so he will draw from personal knowledge and recollection. If the information is not correct, that is good because then you, the members, will perhaps have to communicate with us and provide some inputs.

The purpose of this column is to publish
We solicit any and all types of information concerning our members and will edit and print it for the benefit of all. This includes both personal as well as corporate items. After all, the organizations which support us in our IEEE endeavors deserve a spot in this column. Please let me hear from you out there soon. The address is:

Gunther (Gus) Karger, Editor
Radiation Incorporated
725 Rosada Street
Satellite Beach, Florida 32937

If you are too busy to lift up your pen, but wish to inform us of something interesting, lift up your telephone and call me at 305-723-1511.

So here we go.

Donald L. Haas - former Communications Manager, Advanced Programs, Martin-Orlando, has joined the Aerospace Corporation, El Segundo, California. This is a surprise because the traveling team of Don Haas and Vern Catron reminded me of Siamese twins.

Roger McSweeney - the hardworking chairman of the COMTECH Group Chapter Activities Committee has transferred to ITT World Communications, New York, from ITT Communication Systems, Paramus, New Jersey. Good luck Roger.

Charles A. Parry - is now with Adler-Westrex, New Rochelle, N.Y. We now know he couldn't stay away from the snow. (He came from Martin-Orlando).

Harold Rappaport - former Executive V. P. of ITT Kellogg Communication Systems Division and V.P. of ITT Federal Laboratories, is now Vice President of General Instrument Corporation Defense and Engineering Products Group, where he will have responsibility for all military and space Equipment business. Radio Receptor and Harris ASW will fall under his jurisdiction.

ITT Communication Systems of Paramus, New Jersey Becomes Communication Systems, Inc.

The COMTECH Group has had much past support from ICS. Members might be interested that it is no longer part of ITT because it is now a subsidiary of Computer Sciences Corporation, and El Segundo, California firm. The Group looks forward to continuing support and wishes Communication Systems, Inc. the best of luck.

Radiation Incorporated

Radiation Incorporated, Melbourne, Florida, has acquired the Supervisory Control Equipment Line of North Electric, Galion, Ohio.

ITT INTELCOM

ITT INTELCOM, Falls Church, Virginia is now System Sciences Corporation, a wholly owned subsidiary of Computer Sciences Corporation of El Segundo, California.

DON'T FORGET TO SEND YOUR NETWORK HOTLINE NEWS

NEWS to the Editor by the Next Deadline, April 1st.
(And I am not fooling either.)

9. GENERAL NEWS

SECOND SPACE CONGRESS

APRIL 5, 6, 7

RAMADA INN --- COCOA BEACH, FLORIDA

SPONSORED BY

CANAVERAL COUNCIL OF TECHNICAL SOCIETIES

This meeting will be of substantial interest to many COMTECH Group members. As a result, we are publishing a condensed notice of this important meeting.

The Communication Systems oriented session will be held on Monday, April 5th.

R. E. Marquand - Session Chairman
Radiation Incorporated
Melbourne, Florida

(a) "Communication System Considerations for Manned Orbiting Laboratory Stations"

Dr. E. I. Muehldorf - Advisory Engineer
IBM

(b) "Unified S-Band Data Handling System"

Mr. R. Siebert
Collins Radio Company

(c) "Data Compaction of Rocket Booster PCM Telemetry Data"

Mr. L. W. Gardenhire - Prin. Research Engineer
Radiation Incorporated

(d) "Adaptation of Selfphasing Antenna Systems to Space Missions"

Dr. Sinclair Chen - Member Technical Staff
System Sciences Corp. (formerly ITT INTELCOM, INC.)

(e) "Data Transmission at Optical Frequencies"

Mr. B. A. Boerschig - Engineer
General Electric Company

The General Program is published for reference.

Monday - April 5th

Opening Ceremonies

Maj. Gen. Vincent Huston, Commander
Air Force Eastern Test Range
Dr. Kurt H. Debus, Director
John F Kennedy Space Center

WELCOMING ADDRESS

Maj. Gen. Don Ostrander, Commander
Office of Aerospace Research

LUNCHEON ADDRESS

Hon. Olin E. Teague, Member
U.S. House of Representatives

AFTERNOON SESSIONS

1C Management
1D Space Power

Tuesday - April 6th

Morning Sessions

1A Space Communication
1B Reliability and Value Analysis
2A Bio-Astronautics
2B Range Instrumentation

LUNCHEON ADDRESS

Lt. Gen. James Ferguson, USAF
Deputy Chief of Staff
Research and Development

AFTERNOON SESSIONS

2C Missions and Programs
2D Navigation and Control
2E Propulsion

EVENING BANQUET

Hon. James E. Webb, Administrator
NASA

Wednesday - April 7th

Morning Sessions

3A International

LUNCHEON ADDRESS

Mr. J. L. Atwood, President
North American Aviation, Inc.

AFTERNOON SESSIONS

3B Re-entry
3C Ground Support and Launch

Inquiries concerning further details of this event may be directed to Mr. R. E. Marquand or the Editor of this NEWSLETTER (address appears on front page).

10th NATCOM CONVENTION RECORD NOW AVAILABLE

The Convention Record of the 10th National Communications Symposium (NATCOM) held in Utica, New York, October 5/7, 1964, contains over 50 papers (521 pages) summarizing the latest techniques and advances in the communications field. It can be obtained by contacting Mr. Harold W. Burton, 1626 Conkling Ave., Utica, New York - price \$10.00 per copy.

GLOBECOM VI KEYNOTE PAPERS AVAILABLE

The papers presented at the Keynote Session of the International Symposium on Global Communications (GLOBECOM VI), at Philadelphia, on June 2nd, 1964, will shortly be published by the Institute of Electrical and Electronics Engineers. They are scheduled for appearance in an early issue of the IEEE TRANSACTIONS on Communication Technology, and will also be made available as a collection in a common binder, as a special service to those interested in world-wide communications. GLOBECOM VI was sponsored by the IEEE Communications Division and the IEEE Communications Systems, which have since merged into the new IEEE Communication Technology Group. The IEEE Computer Group, the Philadelphia IEEE Section, and the University of Pennsylvania also co-sponsored GLOBECOM VI.

The Keynote Session, with its theme of "World-Wide Communications," included introductory remarks by Mr. H.I. Romnes, Vice-Chairman of AT&T, who was Chairman of the session, and the following addresses:

"New Development in U.S. Communications," by R.J. Hough, AT&T.
"Commonwealth Submarine Cable System," by R.J. Halsey, G.P.O. England.

"Telecommunication Service and Technical Developments in Japan", by S. Yonesawa, Nippon Tel. & Tel., Japan

"European Long-Distance Communications", by E.M. Deloraine, Lab. Central de Telecommunications, France.

"Communication Needs of the New African Nations," by G. Tedros, Imp. Board of Telecommunications, Ethiopia.

The collection of papers may be obtained from the Order Dept. of The Institute of Electrical and Electronics Engineers, Box A, Lenox Hill Station, New York, New York 10021, by requesting "GLOBECOM VI Keynote Papers." The price for the volume is \$2.00 per copy, to be included with the order.

PURDUE UNIVERSITY

PRESENTS

SHORT COURSE IN MODERN ASPECTS OF COMMUNICATION THEORY

A workshop on the modern concepts of communication theory, covering important developments in the field over the last decade, will be presented at Purdue University June 7-18.

The workshop is intended for engineers and scientists who have been active in communications or have had some graduate training in noise theory.

Designed to provide maximum personal contact between student and teacher, the program will consist of a sequence of lectures and small group problem workshops. Problem solving experience will be provided in a variety of practical applications.

Topics to be covered include probability theory and random processes, spectral analysis, optimum filtering, information theory and coding, channel characteristics and models, decision theory, detection of signals in noise, sequential detection, estimation theory, optimum demodulation, adaptive and learning systems and signal design.

The workshop will be conducted by the staff of the Electronic Systems Research Laboratory, Purdue School of Electrical Engineering. Further information is available through

Professor John C. Lindenlaub
School of Electrical Engineering
Purdue University
Lafayette, Indiana

LECTURE NOTES AVAILABLE ON

"OVERALL COMMUNICATION SYSTEMS PLANNING"

Send Request for Sets of Notes to:

Mr. R. Kudisch
Communication Systems, Inc.
South 60, Route 17
Paramus, New Jersey

Make Checks Payable to:

North Jersey Section IEEE

Enclosed is a check for \$.....for.....sets of notes for the Overall Communications Systems Planning Seminar.

Name.....

Home Address.....

Cost of Notes (3 Volumes) is as follows:

\$15.00 for IEEE Members
\$25.00 for Non-Members

SHERATON PARK HOTEL - WASHINGTON, D. C.

CALL FOR PAPERS

A RAND report issued in January, 1963 considered the question of programming languages and standardization in Command and Control and concluded that it was too early to standardize. The quantity and kind of work done on and with such languages since that time suggests that the question might well be re-opened. In order to bring together people working in this area, the IEEE Computer Programming Committee is planning a workshop at which the problems can be aired, the progress can be assessed, and the different viewpoints can be presented.

Anyone active in this area interested in participating in such a workshop is invited to send his name, address, and a short resume of his work in this area to the workshop chairman:

Dr. Theodore Singer
The MITRE Corporation
Box 208
Bedford, Massachusetts

A time and place will be selected, depending on the response, and invitations will be sent to a limited number of persons active in this field.

URSI-IEEE SPRING MEETING

APRIL 20-23, 1965 ----- WASHINGTON, D. C.

The United States National Committee of the International Scientific Radio Union will hold its Annual Spring Meeting this year in close cooperation with the American Geophysical Union (which meets in Washington, D.C. on April 19-22, 1965). There will again be a jointly organized

SYMPOSIUM ON SOLAR-TERRESTRIAL RELATIONSHIPS

on THURSDAY ----- APRIL 22, 1965

Additional joint URSI/AGU sessions will be arranged where appropriate. The meeting will be co-sponsored by IEEE Groups.

USNC-URSI Commissions:

- 1. Radio Measurement Methods and Standards
2. Radio Propagation in Non-Ionized Media
3. Ionospheric Radio
4. Magnetospheric Radio
5. Radio & Radar Astronomy
6. Radio Waves & Transmission of Information
7. Radio Electronics

Possible joint URSI/AGU sessions:

- 1. URSI Commission 3,4 - with AGU Section on Geomagnetism and Aeronomy
2. URSI Commission 2 - with AGU Sections on Meteorology and Oceanography
3. URSI Commissions 2,3,4,5 - with AGU Section on Planetary Sciences

For Information contact:

Professor Alan T. Waterman, Jr.
Secretary USNC-URSI
Stanford Electronics Laboratories
Stanford, California

Authors are invited to submit summaries and abstracts of papers for presentation at the 1965 International Symposium on Antennas & Propagation. Theoretical, experimental and developmental papers are solicited in all areas of the G-AP field of interest:

- ANTENNAS: Frequency-Independent, Low-Noise, Signal-Processing, Large Reflectors, Phased Arrays
SCATTERING & DIFFRACTION: ELECTROMAGNETIC THEORY
RADIO WAVE PROPAGATION: Tropospheric, Ionospheric, Space, Guided Waves
RADIO PHYSICS: Plasmas, Radio Astronomy Systems

Summaries will be published in the Symposium Digest, and must be submitted in final form. They are to contain between 400 and 600 words and a maximum of six figures. Three copies of the summary are required, one with reproducible figures; i.e., glossy prints.

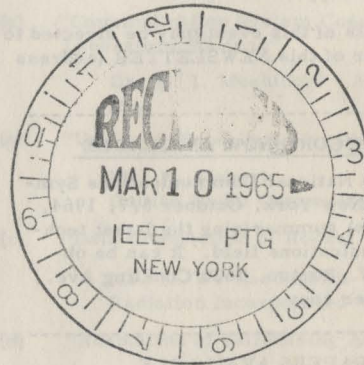
Three copies of a 50- to 100-word abstract are required.

Mail summaries and abstracts to:

R. J. Adams
Chairman, Technical Program Committee
1965 International Symposium on Antennas & Propagation
Code 5330
U. S. Naval Research Laboratory
Washington, D. C. 20390

Deadline for receipt of summaries and abstracts is MAY 15, 1965.

Authors will be notified of acceptance or rejections by JUNE 7th, 1965.



IEEE

COMMUNICATIONS TECHNOLOGY GROUP

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