



COMMUNICATIONS SYSTEMS GROUP

Number 37

June 1964

1. NEWSLETTER FUNCTION

1.1 This NEWSLETTER has been published quarterly during the past year for the Administrative Committee of the IEEE Communication Systems Group and has served as a vehicle for the dissemination of news items of current interest to group members. As a special service, copies of the March 1964 issue were distributed to the individual members of the IEEE Communications Division, as well as to the members of the Communications Systems Group. This was done so that all members of both groups would be kept fully informed of the pending merger of the two groups into the new IEEE Communication Technology Group. A similar distribution is being made of this issue.

1.2 On July 1, 1964, the NEWSLETTER becomes the official news organ of the new Communication Technology Group. Items concerning meeting notices, Chapter activities, publicity, committee actions, personal and professional items, and other material, are being solicited and should be submitted as follows:

Eastern Chapter Activities - indicated by (E) - and general material:

Gunther Karger, Editor,
IEEE ComTech Group NEWSLETTER,
ITT Communications Systems, Inc.
556 Herrick Drive, Dover, N.J. 07801

Western Chapter Activities - indicated by (W):
Ray Bogdan, Assistant Editor,
IEEE ComTech Group NEWSLETTER,
Teletype Corporation
5555 Touhy Ave.,
Skokie, Ill. 60076

The deadline for the September, 1964 issue will be August 15.

2. IEEE COMMUNICATION TECHNOLOGY GROUP

2.1 At the March 23, 1964 meeting of the AdCom of the Communication Systems Group, the Constitution and the By-laws of the new Communication Technology Group, were approved, as printed in the March issue of the NEWSLETTER. The next day, the AdCom of the Communications Division gave similar approval. Subsequently, the IEEE Executive Committee, on April 22, approved the same draft of the Constitution of the IEEE Communication Technology Group, with the following amendment:

Article III, Section 2, to read as follows: "A Chapter may be formed in a Section or in a Geographical Area including several contiguous Sections, in accordance with the IEEE By-laws. A Chapter of this group remains in the control and supervision of the Section or Sections within which it is organized. Its principal functions are to promote Chapter and Section meetings and activities in the scope of the Group and to assist the officers of the Group in the conduct and coordination of Group sponsored meetings and activities in the territory of the Section."

The Committee approved the draft with the understanding that the question of the composition of the AdCom may be open to re-consideration at a later date. The By-laws of G-ComTech were approved by the Executive Committee of IEEE with the deletion of Section 6. (There is to be a further study by the Executive Committee of the whole subject of "translations", with which section 6 of the By-laws was concerned.)

With approval of all governing bodies now having been obtained, the new Constitution and By-laws will automatically go into effect unless written notice of objection by 10% or more of membership of the Communications Systems Group is received by the Secretary of the group within thirty days of publication of this notice. The secretary is: Mr. Richard Benoit Jr., Rome Air Development Center., 138 Riverview Park North, Rome, New York 13440.

Note: The IEEE Board has approved dropping "Professional Technical" from all Group titles. Henceforth, it will be: IEEE Communication Technology Group", etc., or "G-ComTech" in abbreviated form.

2.2 Message from the Incoming Chairman:

Shortly after this issue of the NEWSLETTER is in your hands, the newly established IEEE Communication Technology Group (ComTech Group, or G-19, for short) will begin to operate. Although the By-laws made almost automatic the manner in which the incumbent officers of the merging groups are to share in the management of the new Group for the interim year, I consider it a great honor to serve as its first Chairman. I will do everything in my power to make its operation as effective as possible.

The new group has the potential to serve the needs and desires of the members interested in the broad field of Communication Technology even better than the constituting bodies could. Those who attended the AdCom and Division Committee meetings in March must have come away with the impression that both groups wish to see the strongest features retained and developed. This involves a few problems which are being recognized and attacked. Some of these I should like to list here:

1) Meetings: The success of a meeting can be measured by two criteria: the quality of the papers presented, and the state of the treasury afterwards. For former IRE members it may take a little time to get acquainted with the method of having the Technical Committees of the Group in charge of obtaining, reviewing and presenting papers. (The nature and scope of our Technical Committees are described elsewhere in this letter.) I hope they will find this approach as satisfactory as old AIEE hands found it to be in the past. One of its features, i. e., to have preprints available ahead of the presentation, can put the discussion of a paper on an entirely different basis.

On the other hand, some of the former AIEE members will have to appreciate that the new Group assumes a responsibility in addition to that of maintaining the highest possible technical standards - it is fully responsible for making sound financial arrangements. At the present time, this is not easy, and is one of the major concerns for the Meetings Committee. Consolidation and co-operative measures may be partial answers.

2) Publications: According to the present plan, the Transactions on Communications and Electronics will be discontinued (it was the technical publication of the AIEE Division) at the end of 1964, and the Transactions of the ComTech Group will carry the load from then on. There is no doubt in my mind that the new Transactions will be one of the finest publications in the field and truly reflect the advances of the art. Again, the responsibility for sound financing, which is not to be taken lightly, will largely determine the frequency of publication and the size. To my mind, the collected volumes of our Transactions are the most important permanent product of our Group's efforts.

3) Relations with Neighbors: After our own merged Group has begun to function, it will be necessary for the AdCom to look around and take cognizance of other groups in related fields. The Council of Communications Groups which has recently been established, is a forum to keep avenues for further co-operation and rapprochement alive. We are following with interest trends of consolidation within

Area# 5 (System-oriented Groups), the Basic Science Group, and the Electronic Computer Group. The idea of seeking joint action, especially on meetings, seems desirable to me. The Past Chairman of the Communication Division, L. G. Abraham, is following these activities closely in his capacity as Liaison Chairman.

We are fortunate to have in the Newsletter a live communication link with the members of the Group who will be interested in the manner in which these challenges will be met. The composition of the AdCom and the proposed chairmen of the various Standing Committees will be found elsewhere in this issue. With this strong team we can look forward to a very active year.

I should like to take this opportunity to thank all members who have worked toward the establishment of the new Group, and especially the members of the Communication Division, TOC, for their support. I believe that with this kind of team work, the new Group is bound to succeed.

Sincerely yours,
R. K. Hellman, Chairman-
Designate ComTech Group.

2.3 IEEE Communication Technology Group AdCom
for the Interim Year 1964-65

2.31

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Atlanta, Ga. 30313

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Brooklyn, N. Y. 11201

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305 Doyle Drive
Alexandria, Va.

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ITT Communications Systems Inc.
60 South, Rte 17,
Paramus, N. J.

Publications Mr. R. D. Slayton
Teletype Corp.
5555 Touhy Ave.
Skokie, Ill. 60076

Meetings Mr. F. D. Reese
Automatic Electric Labs., Inc.
P. O. Box 17
Northlake, Ill. 60164

Membership Mr. W. McLaughlin
RCA
Building 1-54
Camden, N. J. 08102

Awards Mr. E. J. Baghdady
ADCOM, Inc.
238 Main St.
Cambridge, Mass. 02142

Liaison with other groups Mr. L. G. Abraham
Bell Telephone Labs.
Murray Hill, N. J. 07971

Standards Liaison Mr. W. Y. Lang
Bell Telephone Labs.
463 West Street
New York, N. Y. 10014

2.33

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Space Communication J. L. Jatlow, ITT
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L. S. Schwartz, New York University
"Telecommunications and Radio Engineering" Review -
A. Minc, TeleSignal
"Electronics and Communications in Japan" Review -
W. Miller, Fairchild Stratons

2.4 The New Technical Committees

2.41 Introduction

A major purpose of this NEWSLETTER is to provide information concerning the operational aspect of the organization. Effective July 1, the IEEE G-CS and IEEE Communication Division merger into the IEEE Group on Communication Technology will result in a number of changes for those who are familiar with the G-CS Modem. Operandi. The concept of Technical Committees will be new to many G-CS members.

Since it is very important that the intire membership become familiar with the concept of Technical Committees, this article will discuss their purpose, scope and other pertinent details. A list of the committees and their chairmen is given immediately above. Addresses of chairmen and lists of committee members follow in Section 2.43.

Mr. L. G. Abraham, Director of Transmission Engineering at Bell Telephone Labs. and a member of the Communication Division Committee has had intimate contact with the Technical Committees. He, therefore is most qualified to discuss their overall purpose and scope:

2.42 Technical Committees of the Group on Communication Technology
by L. G. Abraham

Purpose - The Technical Committees of the Group on Communication Technology have mainly the same functions as those of old AIEE Technical Committees, i. e.,

- 1) to plan coordinated programs for technical meetings
- 2) to cooperate with other Technical Committees or their equivalent in planning joint sessions and/or joint meetings
- 3) to solicit papers of current and future interest for technical programs
- 4) to judge the quality of papers for publication in Transactions

- 5) as a group, to consider new technical fields needing exploitation and suggest existing or new Technical Committees to exploit them
- 6) to consider the need for Standards and to carry through their preparation when needed
- 7) to assist in the determination of candidates for Institute awards
- 8) to furnish advice and assistance on other Institute decisions and projects as needed.

These Technical Committees differ considerably from the old IRE Technical Committees which were largely for the preparation of Standards.

Scope - The following paragraphs provide a brief description of each Technical Committee:

COMMUNICATION SWITCHING

Sponsor papers, discussions, and standards on any phase of communication concerned with routing messages or switching communication channels for signals, data, or intelligence of any sort between transmitting and receiving entities.

COMMUNICATION THEORY

Treatment of matters of principle and theory in the field of communications, which do not fall within the scope of the other committees of the Division. This would include:

- The aspects of information theory of special interest in communication.
- The fundamental nature of and requirements for the transmission of communication signals of various types.
- The theory and comparative effectiveness of various modulation systems.
- Formulation of objectives, evaluation of performance, and methods of measurement.
- The relationship between the performance and reliability of communication systems and their important basic components, such as electron tubes, transistors.

COMMUNICATION SYSTEM DISCIPLINES

The treatment of all matters relating to communications systems engineering required in support of communications for point-to-point, mobile, ground-air, and transportable applications. These responsibilities include, but are not limited to, the communications system integration, economic trade-offs, and application of radio, wire, and cable transmission systems, switching systems, multiplexing systems, signal input/output, error control, and other definable means used for the reliable expeditious exchange of information from one point to any other point. It is recognized the applications of these systems and devices may overlap the responsibility of other technical committees. It is not intended that this Committee will cover those parts of the technical fields that are already covered by the existing technical committees or Groups except by agreement for joint action.

DATA COMMUNICATION AND TELEGRAPH SYSTEMS

The treatment of matters in which the predominant factors are concerned with the organization and transmission of record communications including terminal equipment, associated apparatus, and media. It encompasses service involving records, such as printed page, perforated tape, magnetic tape, perforated cards, photographs, facsimile, etc.

RADIO COMMUNICATION

Treatment of that branch of communication in which the dominant factors are radio. This includes radio systems of all types, equipment, components, maintenance, spectrum utilization, interference, propagation, or any other aspect of radio communication. The use of radio for broadcasting or space communication is excluded.

SPACE COMMUNICATION

Treatment of that branch of communications in which the dominant factor is the design, construction, and operation of systems for communicating with man-made or natural objects in outer space and relaying via such objects. Included is the use of communication techniques for tracking, control and command functions, as well as for the transmission of data, voice, video, and other types of signals. Although the dominant factor is communication in space, the techniques covered by this committee may overlap the scope of other committees, and when known joint action will be invited.

TELEMETERING

Treatment of all matters in which the dominant factor is electrical telemetering, and cooperation on treatment of other matters in which electric telemetering enters as an appreciable factor.

Note: Telemetering includes the component devices and complete systems in their various forms, such as detectors, intermediate means (including multiplexing), and end devices, and in both analog and digital form which, among other uses, may be used for indication, recording, or control in more complete instrumentation systems.

WIRE COMMUNICATION

The treatment of that branch of communications in which the dominant factor is the transmission of intelligence over physical media, and the treatment of associated systems, facilities and apparatus.

Included in this scope shall be the treatment of the following:

- a) Open wire, cable and supporting structures
- b) Coaxial cable, underwater cables and wave-guide systems, except those directly associated with radio equipment.
- c) Subscriber-station and other terminal equipment
- d) Carrier (multiplexing) systems of all types
- e) Signaling systems for the operation of switching apparatus or other equipment.
- f) Test equipment for the operation and maintenance of lines and equipment.

Excluded from this scope shall be the treatment of the following:

- a) Methods, equipment and system aspects of facilities for the transmission of data, telegraph, television and aural broadcasting signals.
- b) Radio transmission and all equipment directly associated with radio transmission.
- c) Switching systems and arrangements, except for the transmission aspects thereof.

"ELECTRONICS AND COMMUNICATIONS IN JAPAN" Review Committee

To supervise IEEE participation in the translation and publication of the regular issues of the magazine "Electronics and Communications in Japan" in order to maintain high quality and prompt availability after each original Japanese issue; also to publicize this service by writing short critical reviews of the articles in each issue and advising on the publication of the most useful ones of these reviews in "Spectrum" or other IEEE publications.

"RADIO ENGINEERING AND ELECTRONIC PHYSICS" Review Committee

To supervise IEEE participation in the translation and publication of the regular issues of the magazine, "Radio Engineering and Electronic Physics" in order to maintain high quality and prompt availability after each original Russian issue; also to publicize this service by writing short critical reviews of the articles in each issue and advising on the publication of the most useful ones of these reviews in "Spectrum" or other IEEE publications.

"TELECOMMUNICATION" AND "RADIO ENGINEERING" Review Committee

To supervise IEEE participation in the translation and publication of the regular issues of the two part magazine, "Telecommunications" and "Radio Engineering" in order to maintain high quality and prompt availability after each original Russian issue; also to publicize this service by writing short critical reviews of the articles in each issue and advising on the publication of the most useful ones of these reviews in "Spectrum" or other IEEE publications.

2.43 Technical Committees Membership
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 2000 Bedford Street, Rome, N. Y. 13440

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 1200 18 St., N. W., Suite 716

Washington, D. C. 20036

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 Subcommittee

R. M. Gryb, Chairman
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 195 Broadway Room 1110
 New York, N. Y. 10007

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Hicksville, L. I., N. Y., 11802
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Telecommunications

H. A. Affel
E. D. Barcus
F. B. Bramhall
V. S. Garson
R. S. Caruthers
H. T. Head
J. R. Hyneman
Gunther Karger
N. A. Macina
R. B. Meader
V. J. Nexon
C. A. Parry
D. L. Solomon

Part II
Radio Engineering

A. G. Cooley
Zachery Esper
A. E. Frost
F. G. Hollins
A. E. Joel
R. C. Kirby
S. T. Meyers
W. A. Miller
F. W. Smith
J. C. Walters
J. L. Willson
G. B. Worthen

3. CHAPTER REPORTS

3.1 Baltimore (E) - No report this year.

3.2 Boston (E) - No report.

3.3 Canaveral (W) - According to George White, who is responsible for founding the Canaveral Chapter, the name of the Section and Chapter will remain "Canaveral" even though the station and its location has been renamed "Cape Kennedy". No meetings have been held so far by the Chapter, and their first activity is planned for June, 1964. A slate of officers is being recruited. The first nominee, for the position of Chairman, is: J. P. Anderson, (RCA), Communications Coordinator, (NASA) Mission Control Center, Cape Kennedy, Florida.

3.4 Chicago (W) - The Communication Systems Chapter and the Communication Committee have not yet formally merged, but have cooperated very well on joint activities during this past year. On April 7, with the additional sponsorship of the Space Electronics and the Telemetry group and the Military Electronics group, they met to hear Ray Marquedant, of the Hallicrafters Co., present a paper on "Coding for Space Communications." His subject discussed communications over extreme ranges which require signals to be properly encoded to insure reliable performance. This is especially true for space communications, where transmitter power is limited. The performance of coded communications is measured in terms of word error probability versus the ratio of energy-per-bit-to noise-energy-per-unit bandwidth, with the information rate maintained as a constant. When orthogonal codes and error correcting codes are compared to uncoded transmissions, an improvement in performance is seen in the encoded transmission. This improvement is obtained only through increased equipment complexity, which can result in systems beyond the realm of practicability.

Mr. Marquedant received his MS in Electrical Engineering from the University of Illinois. He is a Project Engineer in the R & D

division of the Hallicrafters Co., and is responsible for investigation of new communication techniques. These techniques include block length codes, small signal detection, tracking and systems performance on time varying, dispersive, noisy channels. He has also investigated the performance of radar systems operating in various ECM environments.

On April 23, the Communications Committee and the Communications Systems Chapter sponsored a dinner meeting at the Illinois Bell Telephone Company. Raymond W. Ketchledge, Director of the Electronic Switching Laboratory of Bell Telephone Labs., Holmdel, N. J., discussed "Electronic Switching Systems." This meeting, with 250 members and guests at the dinner, and just under 300 at the subsequent paper presentation, was considered the outstanding group activity in the Chicago Section during the year. Interest was heightened by the recent announcement that the Bell Telephone Labs. will establish a Research and Development Center on Electronic Telephone Switching Equipment near Naperville, Ill. This center will cost about nine million dollars, will cover two hundred acres, and will provide employment for around 1200 persons. Equipment designed at the center will be manufactured at the Cicero, Illinois plant of the Western Electric Co., the Bell System's manufacturing and equipment distributing organization. Mr. Ketchledge will have an important position in the direction of the new laboratories.

In his paper, Mr. Ketchledge noted that the continuing expansion of the telephone service, and the anticipated demand for additional services in the future, indicated a need for a new general purpose switching system. Through the utilization of electronic techniques, such a system has been developed. It is capable of providing local, tandem, toll services with either two-wire switching. The use of spare program control provides a system of unusual flexibility. New system concepts are used to provide the dependability required for telephone service. This system is a large real-time digital information processor, designed to operate without down-time. The dependability requirement is the reverse of that of the conventional computer: a telephone bit lost leads merely to the selection of a wrong number, which can be easily be redialed, while in a computer, a lost bit is a disaster, leading to a wrong answer. On the other hand, the breakdown of a computer is only a nuisance, since the problem can be run, while in telephone service, no break-down of long duration be tolerated.

Great reliability is, therefore, essential to the new super-fast electronic telephone switching systems. The one described has a mind which, among other things, can diagnose what has gone wrong with itself.

It can then report to the attendant the location of the failed component, after removing that unit from service. This feature, along with the many new services which can be provided only by the electronic techniques, permits electronic switching system to supersede the electro-mechanical systems used previously, even though first cost factors are approximately the same.

The most recent meeting of the Chicago Chapter was May 14, when Paul Fleming, Jr., ITT-Kellogg, reviewed "Electro-Mechanical Telephone Switching Apparatus." This presentation covered a comparison of several Electro-Mechanical Telephone Switching Apparatus from the systems viewpoint. Mr. Fleming used 35 MM color slides to demonstrate some of the short comings and some of the advantages of the different techniques used in the so called cross-bar and step-by-step telephone equipment systems.

3.5 Dallas (W) - The final meeting of the Chapter will be in early June, at which time election of officers will occur. Merger action at the local level with the communications committee will be undertaken later. Officer nominees selected by the Communications System Chapter include:

Chairman -	Jim Loras, Ling-Temco-Vought.
Vice Chairman -	Douglas Ziemer, Texas Instruments
Secretary -	Frank Reisch, Collins Radio

3.6 Denver-Boulder - The Denver-Boulder Chapter is completing a very productive year which included four highly interesting technical programs as well as formulation and approval of plans for hosting the 1965 Globecom VII Conference in Boulder.

At the meeting in April, Dr. W. V. Tilston, Director of Research and Development for Sinclair Radio Labs., Ltd., Canada, (presently on leave with the National Bureau of Standards, Boulder) spoke on "Simultaneous Transmission and Reception with a Common Antenna" and discussed some of the problems and techniques of

filter design for such applications.

During the year a number of special meetings of the Chapter Administrative Committee were called by Mr. R. C. Kirby, Chapter Chairman, for the purpose of organizing and planning for the 1965 Globecom VII Conference, to be held in Boulder June 7-9, 1965. These have resulted in the establishment of a number of special Globecom VII committees which are at present very actively engaged in preparing for this conference. Globecom VII is being jointly sponsored by the G-CS (G-ComTech after July 1); the Denver Section, IEEE; the Denver-Boulder Chapter of G-CS (G-ComTech); the University of Colorado; and the NBS. The dual theme of the conference is tentatively set as "Channel Characterization and Adaptive Communication Techniques." The University of Colorado campus has been chosen as the conference site because of its excellent, closely grouped auditorium and dormitory facilities and ideal location. The Chapter is looking forward to this opportunity to combine a stimulating technical program with an unsurpassed conference setting.

Due to the relative inactivity of the local Communications Technical Committee, no formal plans to implement a merger have been prepared. Discussions with various members of the former AIEE in the Denver area who are interested in communications have led to a decision to simply change the title of the present G-CS group and welcome AIEE members into this group, maintaining the officers as elected by the G-CS.

Nominees for the Denver-Boulder Chapter for 1964-65 include:

Chairman:

Quintus C. Wilson; Manager, Digital Communications Department, Ball Brothers Research Corporation; Research in digital communications systems; IEEE Member; Secretary, Denver/Boulder PTGCS 1963-64.

Platt Wicks; Professor of Electrical Engineering, University of Colorado; Supervises electronic and communications laboratory; IEEE Senior Member; Secretary of Denver/Boulder PTGCS, 1962-63, and Vice-Chairman of Denver/Boulder PTGCS, 1963-64.

Vice-Chairman:

S. W. Maley; Associate Professor of Electrical Engineering, University of Colorado; Electromagnetic and communication theory; IEEE Senior Member.

M. Nesenbergs; Mathematician, Central Radio Propagation Laboratory, National Bureau of Standards, Radio Systems Division; Applied mathematics in communication, information, and coding theory related to radio systems; IEEE Member

Secretary:

Leo J. Maloney; Electrical Engineer, Central Radio Propagation Laboratory, National Bureau of Standards, Troposphere and Space Telecommunications Division; Tropospheric propagation research, especially in the field of spectrum utilization; IEEE Member

A. C. Wilson; Electronic Engineer, Central Radio Propagation Laboratory, National Bureau of Standards, Radio Systems Division; Antennas, antenna measurements, and scanning arrays; IEEE Member

3.7 Florida West Coast (W) - In May, the Communications Systems group cosponsored, with the Reliability group of the FWC Section, a Lecture Series entitled "Application of Existing Standard Microcircuits to Microminiaturization of Equipment." Fifty six engineers attended the first lecture, on May 13, which was addressed by Mr. Burt Meyer, Manager of Applications, Signetics Corp., Sunnyvale, Calif. The second lecture was given on May 20 by John Rienzo, Production Manager, Integrated Circuits Dept., Sylvania Division, General Telephone and Electronics Corp. The third meeting, on May 27, was addressed by Mr. William Welling, Production Management Manager, Fairchild Semi-conductors.

The Chapter is in the process of selecting candidates for office for the coming year. Nominees include: Lewis Borges, Chairman; Henry Pichol, Vice chairman; and John Cobb, Secretary. All are associated with Electronic Communications Inc., St. Petersburg, Florida.

3.8 Long Island (E) - "Some Patent Problems of the Electronics Industry" were presented on April 28 by Mr. Morris Relson, Partner of Darby and Darby, Patent Law Firm of New York. The meeting was held at the Polytechnic Institute of Brooklyn, Graduate Center in Farmingdale, Long Island, with a pre-meeting dinner at Marc Pierre's. Mr. Relson discussed management's patent problems, particularly those of current interest.

He covered patent relations with the Government, including the current patent-title vs. patent-license dispute, the effect of government-owned patent, and the problem of getting advantage in government procurement from one's own patent position. Mr. Relson also discussed problems of patent enforcement, and how best to prepare for and conduct infringement actions, both defensively and offensively, with special reference to the effects of the new Uniform Commercial Code. Patent acquisition, both from outsiders and employees, were covered. Mr. Morris Relson is a partner in the prominent New York patent law firm of Darby and Darby, and has had twenty five years experience in all phases of patent law. He is an electrical engineering graduate of the School of Technology of CCNY. Mr. Relson was awarded a Master's degree in mathematics and physics by George Washington University and a law degree by New York University. He served with the United States Patent Office as patent examiner on applications for patents in the radio field; and also as a member of the Patent Department of Sperry Gyroscope Co., particularly in charge of patent matters on microwave devices.

A joint meeting of the Long Island Section Communication Systems and Military Electronics Chapters was held on Tuesday, June 2nd at the Polytechnic Graduate Center on Route 110 in Farmingdale, New York. Mr. Bernard Goldberg of the U.S. Army Electronics Research and Development Labs. spoke on "MICROBEHAVIOR OF THE IONOSPHERIC CHANNEL." A pre-meeting dinner was held at the Marc Pierre Restaurant on Route 110 in Farmingdale.

Mr. Goldberg established a background base for the proper understanding of the characteristic nature of the ionospheric channel as it is known on a gross basis. This is used as a means of highlighting those areas in which finer grain data is required. The technique for gathering such data was explained together with the actual results achieved. The performance of HF data transmission systems under actual field conditions was covered and related to the basic fine grain data dealing with ionospheric perturbations. A film dynamically depicting the turbulent ionosphere's effect on communication signals was shown and then used to support the characterization of the HF channel. A short discussion of errors, error rates, and coding as applied to the ionospheric channel was followed by a limited coverage of adaptive communication terminals and the basic philosophical approach to equipment design of the future.

Mr. Goldberg is a graduate of the advanced curriculum of Capitol Radio Engineering Institute, Washington, D.C., A. A. degree from Monmouth College, the A. E. degree from Newark College of Engineering, and graduated from the Industrial College of the Armed Forces. He is a member of Lambda Sigma Tau and is a member of the International Administrative Committee of G-CS, IEEE, and past Chairman of the Monmouth Chapter G-CS, IEEE.

Mr. Goldberg has presented more the 15 technical papers before Technical Societies and has been awarded several patents. His present position is that of Technical leader of Statistical Communications Team, Data Division, USA ER&DL.

3.9 Los Angeles (W) - There has been no activity on the part of the Los Angeles Chapter for the past two years, according to Robert Garber, who is seeking to revive interests. Communication Systems Group and Communications Committee members may contact him at: Robert Garber, TRW Space Technology Labs., One Space Park, Redondo Beach, Calif., phone 679-8711, ext. 25909.

3.10 Mohawk Valley (E) - Nominations for 1964-65 officers have been announced:
 Chairman: Harry Carlson, RADC
 Vice Chairman: Mr. Beverly Gallup, Motorola
 Secretary: Zygmund Bara, GEELIA

A Chapter meeting was held jointly with the "RADC Symposium on Electronically Steerable Arrays" on April 21. More than 250 persons attended the dinner meeting which was addressed by Dr. Zvi Prehah on "Topological Design of Communication Systems."

The Chapter was a co-sponsor of the Mohawk Valley Management Seminar held on June 3. The speakers were Ralph J. Cole, Assistant to the Vice President for Engineering Services, Melpar, Inc.,

and professional lecturer in management at the American Universities Center for Technology and Administration, Washington, D.C., E. F. Canfield, Director of Government Products and Materiel, Philco, and Col. John A. Henderson, M.D. who is Fligh Surgeon and Director of the Griffis AFB Hospital. A roundtable discussion moderated by Mr. Lincoln Brown, Vice President, Contract Management, Melpar, followed the formal presentations. The Banquet speaker was Mr. Robert Peach, President of Mohawk Airlines.

3.11 Monmouth (E) - No report.

3.12 Northern New Jersey (E) - The Chapter held its last meeting of the season jointly with the Section, on April 21. Officers were elected and are as follows:

Chairman	R. D. Chipp, Chipp & Associates, Bloomfield, N. J.
Vice Chairman	A. A. Roetken, Bell Tel. Labs.
Secretary	J. Harvey, Sichak Associates
Financial and Arrangements	M. Westheimer, ITT Communication Systems, In

The meeting was chaired by retiring Chairman, G. Karger, who introduced the panelists. (The details of the Systems Engineering Symposium were announced in the last issue.) 115 persons attended the meeting, with 50 coming to the dinner.



Panelists at the Northern New Jersey Symposium, April 21, 1964 (left to right): A. D. Hall, Bell Telephone Labs.; Dr. E. J. Baghdady, ADCOM, panel moderator; Col. G. M. Adams, Chief DECEO, DCA; J. W. Halina, ITT Communication Systems, Inc.; S. Sobelman, Picatinny Arsenal.

3.13 Oklahoma City (W) - This chapter has held no meetings since last fall, but did assist in one joint endeavor with the ANE Chapter. An organization for the coming year is yet to be worked out.

3.14 Omaha - Lincoln (W) - The principal activity for the joint CS/VC group will be a field tour on June 2. First stop will be the Omaha Fire Department Communication Center Fire Station, at which Art Gast, the Omaha Fire Department Communication supervisor, will describe the departmental alarm system. Secondly, the group will visit the Metropolitan Utilities District Wal Hill pumping station, where Ray Vickland, Mobile Communication Incorporated, will discuss the telemetering and remote Control facilities for chlorination. Two mobile repeater systems will be shown in operation, having been installed by Mobile Communications.

Mr. Vickland has been the chairman of the joint CS/VC Chapter for the past year. His address is: Mobile Communications Inc., 1713 Webster Street, Omaha, Nebraska 68102. Telephone 341-1529.

3.15 Philadelphia (E) - The Philadelphia Chapter is now the result of the merger of the Communication Systems and Vehicular Communication chapters and the Communication Division local organization. Officers have been elected and major committee appointments have been announced. They are:

Chairman	Roy Gaskell, Bell Tel. Co., 1835 Arch Street, 15th Floor Philadelphia, Pa. 19103
Vice Chairman	M. Keith Wilder, RCA
Treasurer	Ralph Bailey, RCA
Secretary	Ronald Kern, General Electric-RSD
Publicity Committee Chairman	T. W. King, Bell Tel. Co.
Program Committee Chairman	Henning Link Olesen, General Electric Co. -RSD
Membership Committee Chairman	C. A. Hauer, Philco

The Chapter has been very busy in the planning and execution of Globecom VI. The details of this event will be reported in the next issue.

3.16 San Francisco (W) - This chapter has been largely inactive on its own account, but has worked jointly during the past year and a half with the Communications Committee. Tentative merger arrangements are being considered. The most recent Chairman has been: Maurie H. Kebby, Kebby Microwave Corp., 535 Old County Road, San Carlos, Calif.

3.17 Seattle (W) - Stuart P. Weiss, Chapter Chairman, presided at a meeting on April 28, at which Leonard Westbo and Joe [unclear] of the Federal Aviation Agency, Auburn, Wash., described the facilities of and then led a tour through the FAA Air Route Traffic Control Center at Auburn. Thirteen members and guests attended a dinner at the site, and twenty-three were at the subsequent meeting.

Mr. Hope described the operational features of the Air Route Traffic Control Center, which is responsible for the Seattle region. In-route Air Traffic over the states of Washington, Oregon, Idaho, and northern California is controlled from the center. In the case of Seattle - Tacoma Airport, the Center controllers "hand-off" planes to the local Airport controllers when the planes are 15 to 30 miles from the field.

Mr. Westbo covered technical features of the Center. Flight information is transmitted over microwave radio from four remote radar sites to the center. These are located at Klamath Falls and Salem, Oregon and Mica Peak and Fort Lawton, Wash. An elaborate voice communications network allows the Center controllers to talk with aircraft throughout the Region. Following these discussions and a question and answer period, the group toured the Center, observing both the operations area and electronic equipment.

Elections of Chapter officers was also conducted at the meeting.

For the year 1964-65, there will be:
 Chairman Dale O. Shuck, The Boeing Co., Seattle
 Vice Chairman Don L. Scidmore, Honeywell Co., Seattle
 Secretary James G. Carter, Pacific Northwest Bell Tel. Co., Seattle.

3.18 Syracuse (E) - No report.

3.19 Toronto (E) - No report.

3.20 Washington (E) - Mr. Harry Fine of the FCC has advised that officers have been elected and the Chapter is now on an national basis. The officers are:

Chairman	J. W. Worthington, Defense Communications Agency, Washington, D. C. 20305
Vice Chairman	Merle B. Floegel, FCC Washington, D. C. 20554

Secretary Dr. W. M. Mazer, ITT Intelcom, 5817 Columbia Pike, Falls Church, Va.

A meeting was held on May 25 at PEPCO Auditorium, Washington, D. C. on "SYNCOM - Past, Present and Future". The speaker was Mr. Harry N. Stafford of NASA.

The SYNCOM family of communication satellites is unique in that the orbital period is adjusted to be synchronous with the earth's period of revolution. Since the satellite altitude required for synchronism with the earth is 22,300 miles, SYNCOM is several times more distant than the medium altitude communication satellites, namely RELAY, TELSTAR, and ECHO. Although the orbital maneuver required for a SYNCOM launch is complex, once in position the satellite can be easily tracked by ground stations. SYNCOM has the further advantage that only three satellites are required to link the major inhabited parts of the world.

There have been two SYNCOM launches to date with a third one imminent. These three spacecraft are similar in design but each one has its unique story. The technical performance of SYNCOM has demonstrated the feasibility of communications via the synchronous altitude satellites. The commercial application of synchronous communication satellites is foreseen in the very near future.

Mr. Stafford is the SYNCOM program officer at the National Aeronautics and Space Administration Headquarters in the Communication and Navigation Programs Division. Prior to his assignment with NASA, he was an electronic supervisory engineer with CIA and REA for a period of 17 years. He served as an electronic officer during the Korean War in research and development activities at Wright-Patterson AFB. In World War II he was a Signal Corps Officer in various assignments including that of Chief of Radar and Radio maintenance at Kadena Air Base, Okinawa. Mr. Stafford is a graduate of the University of Texas and has taken courses of study at Harvard and MIT. He is a member of Tau Beta Pi and Eta Kappa Nu honorary fraternities, and a Member of the IEEE.

3.21 Prospective Chapters - Bernard Goldberg, Chairman of the Chapters and Membership Committee, reports that information on "How to Organize a Communications Systems Chapter" has been sent to David S. Ostrom, of the New Haven Telephone Co., in New Haven, Conn. Thus it appears that a new Chapter will be formed in the Connecticut Section. The NEWSLETTER editors wish the Communications Systems members in the Connecticut Section the best of success in the formation of their Chapter and look forward to publicizing news of their first activities at an early date.

4. COMING MEETINGS

4.1 Globecom VI - As this issue of the NEWSLETTER goes to press, the final arrangements for Globecom VI are being made in Philadelphia. The meetings, to be held June 2, 3, and 4, at the University of Pennsylvania and the Sheraton Hotel, are expected to have participation on a greater scale than any previous Globecom. Complete details, with photographs, will appear in the September issue of the NEWSLETTER.

4.2 Wescon - The 1964 Western Electronics Show and Convention meets in Los Angeles, Calif. August 25-28. The IEEE summer meeting will be held simultaneously and in conjunction with WESCON. Advance programs are not yet available, but there will be many sessions of interest to Communication Technology people.

4.3 NATCOM X - This year, the National Communications Symposium celebrates its tenth anniversary with many special events. The meeting will be October 5, 6, and 7 at Utica, N. Y. The call for papers was printed in the last issue of the NEWSLETTER. Complete program details will be published in the September issue of the NEWSLETTER.

5. CALL FOR PAPERS

5.1 Conference on Automotive Electrical and Electronics Engineering

Original papers covering the forefront of the art are sought for the First National Conference on Automotive Electrical and Electronics Engineering to be held September 22 and 23 in Detroit, at the McGregor Memorial Conference Center of Wayne State University.

Within the context of automobiles and traffic, the following subject categories will be considered.

1. Systems and Automatic Control
2. Communication and Signalling
3. Vehicle Propulsion and Control
4. Energy Storage and Conversion
5. Sensors and Gauges
6. Components and Devices
7. Test Instrumentation
8. Manufacturing Processes and Techniques
9. Electronics in Sales and Distribution

Prospective authors should submit a 500-1000 words summary not later than July 15th to the Chairman of the Papers Committee, Mr. E. A. Hanzys, General Motors Research Laboratories, G.M. Tech. Center, Warren, Michigan. The author should indicate the length of time required for presenting and discussing the paper. This length may be as short as 10 minutes or less, but should definitely not exceed 30 minutes.

The Conference is sponsored by the Institute of Electrical and Electronics Engineers, University of Michigan, Michigan State University, Wayne State University, and University of Detroit.

6. ADMINISTRATIVE COMMITTEES

6.1 Communications Systems Group AdCom Meeting, March 23, 1964

The annual meeting of the AdCom was held at IEEE headquarters. Twenty-nine officers, AdCom members, Chapter Chairmen, and delegates were present. Chairman David S. Rau presided. Minutes of the meeting of October 7, 1963 were approved. Treasurer John Worthington, Jr., reported that from January 1, 1963 to March 12, 1964, income exceeded expenses by \$5,877, but that a commitment for publication of the September and December, 1963 Transactions brought about a final deficit of \$3,229. Mr. Rau appointed an Adhoc Committee on Finances, consisting of John Worthington Jr., Ran Slayton, and himself to investigate means for overcoming the deficit. (Subsequently, the Committee has found that IEEE Headquarters had not forwarded membership dues for new members signing up during the past six or eight months, and that the amount involved covered the deficit.)

Reports were made by the various Committees:

- A) Chapters and Membership - Bernard Goldberg.
- B) Meetings - Charlie Strom.
- C) Transactions - Elie Baghdady.
- D) Newsletter - Ran Slayton.
- E) Chapter Chairmen

Richard Kirby, in reporting from the Denver-Boulder Chapter, told of the progress of work on Globecom VII, to be held June 7-9, 1965, at the University of Colorado, Boulder. The theme will be "Channel Characterization", and preliminary announcement of the conference will be made in July 1964. The Call for Papers deadline will be December 1, 1964.

The AdHoc Committee on merger with the Communications Division, IEEE, reported on merger progress. The proposed Constitution and By-Laws of the new IEEE Communication Technology group discussed, as printed in the March issue of the NEWSLETTER, and then approved upon proper motion, second, and vote. A tentative list of the members of the AdCom of the new Communication Technology group was drawn up and circulated, the names shown being in accordance with the arrangements given in the new Constitution for the interim period of 1964-65. In accordance with the provisions of the Communications Systems Group Constitution, six members at large for the interim AdCom of the complex group were elected. These were:

- | | |
|-----------------------|--|
| For three year term - | Dr. W. B. Jones, Georgia Institute of Technology; Richard C. Kirby, National Bureau of Standards |
| For two year term - | Walter Lyons, TeleSignal
Ralph L. Marks, RADC |
| For one year term - | Louis DeRosa, ITT Communications
Bernard Goldberg, USAR & DL |

Dr. Ivan Coggeshall reported on the formation of a Council of Communications Area Groups. (See next section of NEWSLETTER for details - Ed.) Having completed its business, the Communica-

tions Systems Group AdCom adjourned sine die.

6.2 Communication Division AdCom - The regular meeting of the CD AdCom was held at the New York Hilton Hotel on March 24, 1964 with twenty-seven members, delegates, and observers present. Dr. R. K. Hellman, Chairman, presided. The minutes of the October 29, 1963, meeting were approved.

Mr. L. G. Abraham, Chairman of the AdHoc Committee for the formation of the Communication Technology Group reported that the fifth draft of the Constitution and By-Laws of the proposed group had been approved on the previous day by the Communications Systems Group. Upon due motion, second, and vote, this version of the Constitution and By-Laws was approved.

Mr. Abraham reported that a council of Communication Area Groups has been organized, with Dr. Coggeshall as Chairman, for the purpose of providing liaison among communication oriented groups. It was agreed that the new Communication Technology Group would assume a strong role in this activity.

A new Technical Committee on Communications Systems Disciplines has been organized with Charles Strom as Chairman. A proposed scope of activities for this Committee was discussed, modified, and accepted. An AdHoc Committee on meetings, consisting of F. D. Reese and Mr. Strom, submitted a report outlining recommendations for future technical meetings, as part of long range planning for the new Communication Technology Group. The report was accepted. Future meetings to be sponsored by the ComTech Group include NATCOM X, to be held October 4, 5, and 6, 1964; and Globecom VII, to be held in June 1965.

Copies of the March issue of the Communications Systems Group NEWSLETTER were distributed. This issue included the detailed proposed Constitution and By-Laws for the new Communication Technology Group. The Chairmen of the Technical Committees were requested to furnish information on the scope, a brief summary of current and projected activities, and a list of members of their respective Committees for publication in the June issue of the NEWSLETTER. Following the discussion of other business, it was agreed to hold a luncheon meeting of the CD AdCom on Wednesday, June 3, in Philadelphia, at the Sheraton Hotel, during the Globecom VI meeting.

7. IEEE COUNCIL OF COMMUNICATION AREA GROUPS.

7.1 The IEEE has formed a council composed of those groups which have an interest in communications. Dr. I. S. Coggeshall has been elected Acting Chairman for 1964 and we have asked him to write a few words on the subject in order that the membership may be informed of this very important activity.

7.2 Five IEEE Groups Form Council - by Dr. Coggeshall
The intricate process of merging IEEE's technical activities, hitherto carried on independently by IRE and by AIEE, has caused many of the former IRE Professional Groups (now IEEE Groups) to consider what gains might be achieved by voluntary cooperation in several areas. In the area of telecommunication, five Groups recently organized a pioneer "council" of appointed representatives, who will meet several times a year to probe the possibilities by cut-and-try.

The Groups so allied are: Audio, Broadcasting, Broadcast & Television Receivers, Communication Technology (new), and Vehicular Communications. Messrs. D. S. Rau and W. B. Jones are representing the Communications Systems Group, which, with the present Communication Division, is one of the units forming the new IEEE Communication Technology Group.

Organizationally, the Council is a subcommittee of the IEEE Groups Committee (formerly the PTG Committee), but it has been authorized to operate under the name of "IEEE Council of Communication Area Groups."

Hopes have been expressed that eventually the Council will serve helpful functions that individual Groups in the telecommunication area cannot exert alone and that the IEEE Groups Committee itself is too large and amorphous to carry out. Such functions might include, for example, seeing to it that no gaps in technology exist between Groups to impair collective coverage of the entire telecommunication continuum; that all members in this broad spectrum of interest be served adequately by publications, meetings, Sections, and Chapters, and that none be neglected year by year; that discoveries in sciences underlying the communication engineering

arts be promptly reported; that IEEE take no place subordinate to other sources of similar information throughout the world; that the interests of telecommunication members in government, education, and consulting work be catered to equally with their industrial and common carrier counterparts; and that material appropriate to the various membership grades and technical levels be supplied, including meeting of the needs of technicians in the lower membership grades.

Initially, significant steps have been taken to guarantee the continuation of past and present autonomy enjoyed by the five constituent Groups. Any course of action adopted by the Council will be in the form either of recommendations which the IEEE Groups Committee may accept or reject; or, of proposals only to the constituent Groups. The powers of the Council are to be only those that its members shall unanimously decide. If a majority of the five Groups reach and ratify a particular agreement, those Groups may function in the way determined without imposing their agreement on the other Groups. Also, two or more Groups may continue, as in the past, to act in concert, quite apart from the Council. A Chairman, to be elected by the Council, will call its meetings and preside but must proceed otherwise only as directed by the Council.

Dr. Ivan S. Coggeshall was elected Acting Chairman for 1964, to be succeeded by an elected Chairman on January 1, 1965.

At the Council's second meeting, April 23rd, the Groups united in asking for a minimum of 20 sessions (an increase of 25%) at the 1965 IEEE International Convention, more adequately to serve the fee-paying members of these five Groups; for the expansion, if necessary, of the total number of Convention sessions to accommodate this enlarged allocation; and for permission for the Council to coordinate the division of the 20 sessions among its five Groups as the technical program shapes up. The IEEE Groups Committee, on April 24th, referred these Council recommendations to the Convention Technical Program Chairman for due consideration. If they are adopted, it will justify the Council's expectation that such recommendations, carefully and responsibly worked out in concert, will be acceptable and even welcomed in various parts of the new IEEE organization.

MEMBERS' COLUMN

8.1 Salute to Reinhard K. Hellman, First Chairman of IEEE ComTech Group - The Chairman-Designate has been active in both AIEE and IRE and was a Fellow of both before the merger. He was Vice Chairman and then Chairman of the Communication Division, TOC, and has held office in Technical Committees and AdComs in both societies. He is a past Chairman of the Long Island Section, IRE, and is just finishing a term as Assistant to the Director of Region 1 for the Metropolitan New York Area.

Dr. Hellman is Senior Vice President for Engineering with Hazeltine Electronics Division where, since joining in 1947, he has held a number of technical and administrative positions. Military electronic equipment, instrumentation and TV receiver development have been among his interests. From 1959 to 1963 he was Vice President of the research subsidiary, and is presently Vice President of Wheeler Labs., a Hazeltine subsidiary engaged in the development of microwave antennas and components.

A native of Germany, he obtained his degrees at the Technische Hochschule, Aachen, including a doctorate in Communications Engineering. From 1933 to 1937 Dr. Hellmann was a development engineer in the Central Labs. of Siemens & Halske in Berlin and was engaged in the development of carrier telephony equipment. After coming to this country, he served as Assistant Chief Engineer with Connecticut Telephone and Electric Company where he was concerned mostly with the design of military communication equipment.

Dr. and Mrs. Hellmann live in Westbury, Long Island, New York with their two children and have participated in a number of civic activities such as PTA. Recently, Dr. Hellmann was a member of the Industrial Advisory Committee for the Graduate Center of Brooklyn Polytechnic Institute and is currently President of the Westbury Public Library.

8.2 Denver-Boulder Members Promoted, Move - Some recent news regarding Chapter members includes the elevation of A. D. Watt of DECO Electronics to Chief Corporate Scientist (formerly Boulder Division Director) and the impending move of O. Wilson (Chapter secretary) from Ball Brothers to the National Center for Atmospheric Research.

9. MEMBERSHIP IN COMMUNICATION TECHNOLOGY GROUP

9.1 All IEEE members are invited to become members of the new IEEE Communication Technology Group upon its formation effective July 1, 1964. This may be accomplished either by renewing their membership in the Communications Systems Group, or by directly applying for membership in the new group. An application form has been included in this NEWSLETTER for your convenience.



Mr. Reinhard K. Hellman, Chairman Designate, IEEE ComTech Group

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

BOX A, LENOX HILL STATION, NEW YORK, NEW YORK, 10021

GROUP APPLICATION

I wish to apply for membership in the new COMMUNICATION TECHNOLOGY Group, upon its formation effective July 1, 1964. The enclosed \$4.00 covers the annual fee.

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