



Number 34

September 1963

1. CHAPTER REPORTS

1.1 Baltimore - No report in the last 2-1/2 years.2.1 Boston - Chapter officers for 1963-64 are:

Dale Pollack, Chairman
Waltham Electronics
Waltham, Mass.

V. Reed Manning, Vice Chairman
Mitre Corp.
Bedford, Mass.

L. J. Wollner, Secretary
5 Grape Street
Woburn, Mass.

Meetings during the last year included:

November 13, 1962 - Prof. J. M. Wozencraft, of MIT discussed "Coding and Communications."

At a joint meeting with the Military Electronics Professional Technical Group, on January 16, 1963, with 100 IEEE members and guests in attendance, James M. Bridges, of the Department of Defense Research and Development Organization, described "The Department of Defense Electromagnetic Compatibility Program".

The final meeting of the Professional Technical Group, for the year, featured Paul S. Darnell, of the Bell Tel. Labs., Whippany, N. J., who reviewed "Some Reliability Considerations for Telstar."

1.3 Chicago - Chapter Officers for 1963-1964 are:

Kenneth Padgitt, Chairman
Motorola, Inc.
1450 N. Cicero, Chicago 51, Ill.

Charles Westerlund, Vice Chairman
ITT - Kellogg
5959 S. Harlem, Chicago 38, Ill.

Alfred Ditthardt, Secretary
Zenith Radio Corp.
6501 W. Grand Ave., Chicago 35, Ill.

Meetings held during the past year included:

October 12, 1962 - Dr. Stephen S. Yau, Northwestern University, discussed "Topological Consideration of Communication Network."

On November 6, 1962, Ed Dervishian, of the Tally Register Corporation, described "High Speed Punched Tape Communication with Parallel Type Data Phone". At the conclusion of his paper, he demonstrated the use of the equipment by making calls to the Tally Headquarters in Seattle, Wash. and transmitting and receiving data to and from that point.

In the final meeting of the year, on April 16, 1963, Monte Ross, of the Hallicrafters Co., gave a dissertation on "Receiving Systems for Microwave Bandwidth Optical Communications".

The Chicago Chapter opened the new year of activity on September 13th with a discussion of "Mobile Radio Equipment for the

Telephone System", by Burnham Casterline, of Motorola. A mobile radio developed by Motorola, for the Bell Telephone Labs., was described. This radio is compatible with the improved mobile telephone system IMTS and includes such unique features as full duplex operation, 11 plug-in channels, solid state channel selection compatibility, and a solid state digital selector. The meeting was held jointly with the Vehicular Communications Professional Technical Group.

Future meetings of the Chicago Chapter will be held on January 9, April 14, and May 14, in 1964.

1.4 Dallas - Chapter Officers for 1963-64 are:

Howard Hern, Chairman
1224 Spruce Drive
Richardson, Tex.

James Loras, Vice-Chairman
8630 Rolling Rock
Dallas 11, Tex.

Albert Mason, Secretary
119 N. Gester St.
Dallas 11, Tex.

Recent meetings included:

November 14, 1962, at which J. N. Bryden, of Jet Propulsion Labs., discussed "Venus-Bound Mariner Telecommunications."

On January 16, 1963, with 104 members and guests in attendance, Hugh Christian, Collins Radio Co., reviewed "Project Apollo - From Launch to Landing."

The next meeting, on March 13, 1963, was also well attended, with 82 persons present. Dr. W. W. Salisbury, of Varo Corp., spoke the subject of "Lasers and Communication."

The final meeting of the year was on May 23, at which the topic "Microwave Technology in Semiconductors" was covered by Lawrence Blackwell, Microwave Physics, Garland, Texas.

1.5 Denver/Boulder - Chapter Officers for 1963-64 are:

Richard C. Kirby, Chairman
National Bureau of Standards
Boulder Colo.

Platt Wicks, Vice Chairman
University of Colorado
Boulder, Colo.

Quintas C. Willson, Secretary
Ball Bros. Res. Corp.
Boulder Colo.

The chapter organizing meeting was held September 13, 1962, at the University of Colorado in Boulder. Seventeen members and guests attended. Richard C. Kirby, chapter organizer, presided at a discussion of the functions of the new chapter, and over the election of a committee to determine offices to be filled. Guest speaker David S. Rau, Vice-President Engineering, RCA Communications, Inc., New York City, discussed "The Status of High Frequency Radio in World Communications." He covered the relative merits of high frequency radio versus cable for commercial usage, providing both historical and operational comparisons.

The second meeting was on November 29, 1962, with 27 members and guests present. Newly elected chapter officers were installed:

Chairman - J. Wesley Koch, Ball Brothers Res. Co.,
Boulder, Colo.
Vice-Chairman - Al. P. Barsis, National Bureau of Standards
Boulder, Colo.
Secretary - Platt Wicks, University of Colorado
Boulder, Colo.

Elie J. Baghdady, President and Director of Research, ADCOM Inc., Cambridge, Mass., provided a technical discussion on channel characterization. His subject covered theoretical work on the transmission of radio waves through distributed channels, such as the ionosphere and troposphere. He also described simple experiments which had been made to simulate propagation problems.

The next meeting was held on Friday, April 5, 1963, in the Music Lounge of the University of Colorado Memorial Center. The speaker was Professor Frank S. Barnes of the Department of Electrical Engineering at the University of Colorado. The topic of his talk was "Lasers and Communications"

The yearly business meeting was on April 14, 1963, at the University of Colorado in Boulder, with 13 members attending. Mr. J. Wesley Koch, Chairman, presided as ballots for 1963-64 officers were tallied. Guest speaker Martin Nesenbergs, Modulation Research Section, Central Radio Propagation Lab., National Bureau of Standards, Boulder Colo., discussed "Ideal Receiver, Error Probability, and Fading". He described how band-limited signals and noise obey the sampling theorem, thus leading directly to the error probabilities of the ideal characteristics result by considering a particular (Gamma) density distribution for the fading.

1.6 Florida West Coast - Officers for 1963-64 are:

Eli J. Dalabakis, Chairman
Electronic Communications, Inc.
1501 72nd St., N., St. Petersburg 33, Fla.
Harry L. Wallace, Vice Chairman
Electronic Communications, Inc.
1501 72nd St., N., St. Petersburg 33, Fla.
Tom Munday, Secretary
Electronic Communications, Inc.
1501 72nd St., N., St. Petersburg 33, Fla.

The Florida West Coast Chapter ran into heavy sailing last year and had to cancel each of the meetings which had been scheduled. They are now off to a fresh start for 1963-64 and anticipated having several meetings.

1.7 Long Island - This chapter, of the Long Island Subsection of the New York Section, was organized during the past year. A list of founding officers and programs planned for the coming year will be published as soon as it is available.

1.8 Los Angeles - This chapter was placed on an inactive status during the past year, due to insufficient activity and interest on the part of the members.

1.9 Monmouth - Chapter Officers for 1963-64 are:

Dr. Fritz E. Froehlich, Chairman
Bell Telephone Labs.
Holmdel, N. J.
Howard Kitts, Vice Chairman
USA Electronic R & D Lab.
Ft. Monmouth, N. J.
S. G. Student, Jr., Secretary
Bell Tel. Labs.
Holmdel, N. J.
Arthur Ross, Treasurer
USA Electronics R & D Lab.
Ft. Monmouth, N. J.

Activities during the past year included:

On September 12, 1962, David W. Nast, of Bell Tel. Labs., Holmdel, N. J. discussed "Tentative Characteristics of TELPAK Wideband Channels."

Next, Lt. Col. Robert E. Warren, Chief of Communications Satellite Development for NASA, addressed a well attended meeting on "Communications Satellite Systems." This meeting, on November 28, 1962, was held jointly by the Monmouth and Northern New Jersey PTG-CS Chapters at the Arthur L. Johnson Regional High School in Clark, New Jersey. A pre-meeting dinner was held at Novack's Restaurant in Scotch Plains, New Jersey. Col. Warren's talk concerned concepts for active and passive Communication Satellite Systems, and illustrated each type of system by describing NASA experimental projects. These included Projects Relay and Telstar (low-altitude active), Project Syncom (inclined synchronous active), and Projects Echo and Rebound (low-altitude passive). He also reviewed studies that NASA is conducting for advanced intermediate altitude active systems and advanced equatorial, synchronous active systems. The talk was illustrated with slide and motion picture film.

The third meeting of the season was held jointly by the Chapter and the Monmouth Subsection of the New York Section of IEEE on January 16, 1963. Dr. E. J. Baghdady, Director of ADCOM, Inc. Cambridge, Mass., presented a paper entitled "Coding and Communications." The presentation was very well received and the attendance of 109 persons set a record for the year for chapter activities.

The fourth and last meeting of the season was on January 16, 1963. Two papers were presented: Dr. Harold Jacobs from USA Electronics Research and Development Laboratory, Forth Monmouth, spoke about "Laser Techniques"; and Murray Lipton, from the same laboratory, discussed "Communications with Lasers". Both talks were well received by the group of 59 attendees. Officers for the 1963-64 were elected at this meeting.

1.10 Northern New Jersey - Chapter Officers for 1963-64 are:

Gunther Karger, Chairman
ITT Communication Systems, Inc.
South 60, Route 17, Paramus, N. J.
A. A. Roetken, Vice-Chairman
Bell Tel. Labs.
Murray Hill, N. J.
D. H. McAneney, Secretary
80 Pocono Rd.
Mountain Lakes, N. J.
Jack Harvey, Financial Officer
Sichak Associates
518 Franklin Ave., Nutley, N. J.

The 1962-63 program of the PTG-CS chapter of the Northern New Jersey Section got off to a very successful start with a meeting held at Bell Telephone Labs. at Murray Hill, N. J. on September 18. After Chairman Roger McSweeney outlined the program for the remainder of the year, he introduced the speaker, Mr. W. O. Fleckenstein, to an audience of 85 present. Mr. Fleckenstein gave a very interesting talk on "Data Communications Using the Telephone System".

After briefly describing some of the reasons for the extremely rapid growth of data communications in the last few years, Mr. Fleckenstein discussed the characteristics of existing telephone plant, e.g., amplitude bandwidth, delay bandwidth, and noise statistics, which are important in determining data transmission quality. Available data terminal sets having speeds ranging from 150 bits/sec to 40,800 bits/sec and capable of accepting data in serial or parallel form were described and then their operation was demonstrated in a variety of applications. In conclusion, Mr. Fleckenstein described future additions to the telephone system which can be expected to improve its capacity for transmitting data. In addition to a lively discussion period following the talk, everyone enjoyed an opportunity to try out the demonstration equipment.

The second meeting of the season was held jointly with the Monmouth PTG-CS Chapter at Clark, New Jersey, on November 28, with 85 guests and members of the two chapters in attendance. (Details of the program are given above under Monmouth Chapter activities-Ed.)

Mr. Louis A. DeRosa, Vice-President, Director of Engineering, of ITT Communications Systems, Inc., Paramus, New Jersey, addressed the Chapter on Tuesday, January 22, 1963. This meeting was held in the auditorium of ITT Federal Labs., in Nutley, N. J., following a dinner at the Copper Hood Restaurant, in Rutherford, N. J.

Mr. De Rosa, who is a Fellow of the IEEE and a member of the National Administrative Committee of PTG-CS, discussed the defensive and offensive operations, the logistics and supply problem, and the overall coordination of activities as organized and controlled by nature in design of the human being. It has been found that these are of great interest to the planner of Global Communications Networks. The topography of the neurological reticulations, the construction and hardening of various pathways, and the preemption or assignment of priorities to various message inputs all have parallel in the engineering of communications systems. Mr. DeRosa showed how the communication engineer profits by studying the design concepts introduced by nature and how he may be inspired by the manner in which nature implements its basic concepts.

The April 16, 1963, meeting of the NNJ Chapter included outstanding talks on the world-wide communication system of RCA Communications, Inc. (RCAC) and American Cable & Radio Corp. (AC&R). Chapter officers for 1963-1964 were elected at this meeting, which was preceded by a dinner at the Blue Swan Inn, Rochelle Park, N. J.

Eugene D. Becken, Vice-President and Chief Engineer of RCAC, discussed the system of that organization. Mr. Becken is responsible for RCAC's engineering activities including design and installation of all communication plant in its worldwide services. He noted that telegraph message transmission has changed from Morse to telegraph printing techniques and that now computer and data processing devices are being applied in order to obtain fully automatic operation. RCAC's system utilizes stored programs, solid state components, magnetic cores, magnetic drum and magnetic tape storage. A second service, telex, permits approximately 60,000 subscribers in the U. S. to communicate via teleprinter with other subscribers located all over the world. While this service began on HF radio and required automatic error correction, many channels are now carried on the new transoceanic cables. Current installations will place this operation on a fully automatic basis with many countries. Finally, the rapid expansion of computer and data processing installations have resulted in the development of new techniques for data communication on radio and cable channels.

Francis Cassidy, Assistant Chief Engineer of AC&R, described the global system of that organization. Mr. Cassidy has general responsibility for development, manufacture, application of computers, and data transmission throughout the AC&R system. The first part of his talk dealt with growth of AC&R during the past ten years, a period of great expansion in telex and leased services with consequent large increase in the number of communication channels required to many overseas points. The second part of the talk described the introduction of automatic techniques and equipment for international telex service and message traffic. The third part dealt with current developments in data communication and automatic message switching, and the fourth discussed probable future trends of global communications.

The final meeting of the year, on May 16, consisted of a field trip to SAC Command Control and ITT Data Processing Facilities at the International Electric Corporation Laboratories and Testing Facilities in Paramus, N. J. Following the tour, which was held in the afternoon, the 75 guests and members attending participated in a social hour and dinner at the Blue Swan Inn.

The field trip consisted of a guided tour through the 465L System Test Facility where a Strategic Air Command Control System prototype model was on test. This occupied a whole building and included a complete electronic data transmission control center, a data display center, and several remote communication centers with input and output equipment. These equipments are designed to gather information from SAC's bomber, missile and logistics support bases, to automatically process the information, comparing it with pre-established plans, and to automatically present the information to the SAC Commander-in-Chief in comprehensive displays, also providing for dissemination of commands and alerts.

In addition to the impressive 465L Test Facility, the tour covered the ITT Data Processing Center in an adjacent building. The latter included a 7090 computer, two 1401 computers and peripheral equipment.

1.11 Oklahoma City - Officers for 1963-64 have not yet been reported. The only meeting known to have taken place last year was on March 21, 1963, when J. D. Swihart, Jr., of the Federal Aviation Agency, Oklahoma City, presented the subject "Navigational Aid Pictorial Display."

1.12 Omaha/Lincoln - 1962-63 Officers of the Joint PTG-CS/VC Chapter are continuing in office for the present. These are:

W. R. Emerson, Chairman
Norris Public Power District
Beatrice, Nebr.

Bay Vickland, Vice-Chairman
Mobile Communications Inc.
Omaha, Nebr.

Richard Doll, Secretary
Northwestern Bell Tel. Co.
Omaha, Nebr.

On Thursday, September 20, 1962, the Omaha-Lincoln Chapter sponsored a joint meeting of the Omaha-Lincoln Section of IRE and the Nebraska Section of the AIEE. The dinner meeting took place at the Town House Ballroom, 7000 Dodge Street, Omaha. The main speaker was Glen H. Sanders, Special Studies Engineer, Northwestern Bell Tel. Co., Omaha. His lecture reviewed "Telstar and Satellite Communications" and was illustrated with slides.

Eighty-three IRE and AIEE members and guests attended the meeting. IRE Section officers Glen Hadsell, Chairman; Glenn Carter, Vice-Chairman; and Dr. W. C. Robinson, Secretary-Treasurer, were introduced. New officers for the joint PGVC-CS Chapter were elected.

On Tuesday, September 25, 1962, the Joint PGVC/CS Chapter sponsored a special session with the AIEE Communications-Electronics Technical Group. Meeting at the Western Electric Plant at 120th and F Streets, Omaha, the subject "The New Six Trunk Line Concentrator-Identifier for Telephone Answering Service" was discussed by Mr. Merle E. Laughlin, Senior Engineer, Western Electric. The program included a demonstration of telephone terminal equipment, a quick tour of the W. E. manufacturing floor, and refreshments.

On Friday, Nov. 9, 1962, the IRE-PGCS/VC Omaha-Lincoln Chapter were guests of Aksarben Radio Club at an "Old Timers and Past Presidents Night" meeting. This meeting was a return engagement from last May 11 when IRE presented a program for the Club. Nine IRE members and 49 Club members and guests attended. The program included the "Telstar" movie and messages from previous club presidents who are IRE members or have helped with IRE meetings. These included: Art Gaeth (1947), Herb Curry (1948), John Orr (1952), Fr. Ray Strange (1953), Dick Eilers (1956), and Royal Enders (1962). Subjects included "nostalgic reminiscences", "what's of greatest interest to amateurs now?" and "future goals".

Fifty members of the Omaha-Lincoln Section who have amateur licenses were honored. Thirty-five of these came from Omaha, four from Lincoln, eight from outside Nebraska, and three from western Iowa. Special recognition was given to the oldest IRE member, Dr. John Jensen, of Nebraska Wesleyan University (M'19-F'56), who was an amateur from 1906-1957 and who made the first educational broadcast in history in 1921. Other pre-1920 radio amateurs honored include: W. J. Kotera (A'27-SM'58), Director of Engineering, WOW-TV-AM-FM; and R. H. Ralls (A'48-SM'58), Strategic Air Command, who revived the Army Amateur Radio System (AARS) during his Pentagon tour. Mr. Ralls was Omaha-Lincoln Section Chairman 1959-1959 and is a member of the National IRE Committee on Facsimile.

Mr. H. W. Becker the PTG coordinator in the Omaha-Lincoln section, reports that: "H. D. Curry read Dr. T. F. Jones' editorial on ham radio at the Nov. 9th meeting so eloquently (Oct. '62 IRE PROC) that 5 Club members requested IRE application blanks. These included the only 2 present with experience going back to 1918, Comdr. Rudy Veverka (IRE member in '20's) W6FBB, and H. E. Velte, W6ABI; also Damon Nuckols (IRE student branch chmn. in SD) W6UIO, Joe Berounsky, K6QDB, and Joe Connell, W6LHZ."

On January 7, 1963, the Joint Chapter sponsored an Omaha-Lincoln Section meeting at the University of Omaha. 140 Members and guests, including the Northeast Nebraska Radio Club, were in attendance. The subject "What's New in Single Sideband?" was pre-

sented by Warren Bruene, Senior Technical Consultant at Collins Radio at Cedar Rapids, Iowa. Mr. Bruene is one of the world's foremost authorities on SSB, serving on the IRE SSB Transmitter Subcommittee, and working on the Collins team that has made SSB practical for general adoption. His talk covered the basic principles of sideband and its application to voice, radio teletype, and data transmission. The effects of propagation media and sunspot activity were noted. The latest techniques which have been developed to meet current communication needs were illustrated with new slides prepared especially for the meeting.

Prior to the talk, demonstrations of Collins KWM-2 SSB amateur equipment were given by members of the Northeast Nebraska Radio Club and student awards were presented to members of the student branch from the Radio Engineering Institute of Omaha. This student branch is the largest of the three branches in the Omaha-Lincoln Section.

The Chapter met with the Military Electronics Group and the Omaha AFCEA Chapter at Offutt Air Force Base on February 25. The dinner meeting was addressed by Robert E. Sageman, Satellite Projects Engineer or A. T. & T.. His subject was "Telstar - The Birth and Rebirth of a Satellite". He covered the recent history of Telstar, the cause and cure of its first failure, and provided a preview of the future of satellite communications. Colored slides of the satellite were shown, and tribute was paid to J. R. Pierce of Bell Labs., for his vision in promoting Telstar. (Dr. Pierce also perfected the traveling wave tube, featured at a recent chapter meeting, which is the only vacuum tube in Telstar.) Total attendance at the meeting was 119, 40 of whom were from IEEE.

1.13 Philadelphia - Officers of the new joint PTG-CS/VC/CTD Chapter for 1963-64 are:

H. Rappaport, Chairman
Pennsylvania R. R.
1640 Transportation Bldg., 6 Penn Center Plaza,
Philadelphia 4, Pa.

W. McLaughlin, Vice-Chairman
RCA Surface Communication Div.
Bldg. 1-5, Camden 2, N. J.

M. K. Wilder, Secretary
RCA Surface Communication Div.
Bldg. 1-5, Camden 2, N. J.

R. J. Gaskell, Treasurer
Bell Telephone Co. of Pennsylvania
1835 Arch St., Philadelphia 3, Pa.

Meetings held during the past year included:

October 16, 1962 a double-header with John Allen, of RCA, Camden, N. J., reviewing "Repeater Satellite Communications" and John A. Gitmens, of Bell Telephone Labs., Whippany, N. J., describing "Telstar".

At the second meeting, on December 11, 1962, "SCAN - Switched Circuit Automatic Network", was described by Major James C. Sutton, of the U. S. Army Strategic Communication Command.

Thirty-three members and guests attended the third meeting, on January 22, 1963, where Dr. A. H. Benner, Manager of Advanced Systems and Techniques Engineering for RCA in Camden, N. J. and Burlington, Mass., discussed "Modern Communication Theory and Its Effect on Communications Systems". Dr. Benner covered the communications requirements predicted for the future both in commercial and government areas, with respect to traffic reliability, time of access and allowable delays. The state of the art of present communication systems was compared with these requirements. Several communication techniques (CW Laser, satellite relays) now being pursued were evaluated as to their prospects of meeting the future need. Of special interest was Dr. Benner's belief that during our lifetime, existing global communication systems will have adequate or almost adequate capacity for future needs up until the year 2000. This suggestion evoked a lively question and answer period following the talk.

At the final meeting of the year, on February 19, 1963, with 45 members and guests in attendance, Mr. R. F. Privett, of RCA Camden, N. J. reviewed "Recent RCA Developments in the Microwave Communications Field." At this meeting, the new joint Chapter which includes the PTG on Vehicular Communications and

the Communications Technical Divisions Chapter of the Philadelphia Section, a joint "rules of procedure" was adopted and officers for the coming year were elected.

1.14 Rome-Utica - Chapter officers for 1963-64 have not yet been announced. Recent meetings included:

September 18, 1962, when Harry Letaw, of Martin-Marietta discussed the subject of "Command & Control in Transition."

The next activities centered around NATCOM VIII, held October 1, 2, and 3, 1962, with an attendance of about 1,100. Special addresses included: Admiral Wilkin Irvin, of the Defense Communications Agency, who presented "D. C. A. Communications Requests," and Dr. Ernst Weber, of Polytechnique Institute of Brooklyn, who addressed the group on "Communications - Links to Tomorrow."

A panel discussion on "USAF Technical Standards" was the highlight of the November 15, 1962, meeting. R. C. Benoit, Jr., moderated the discussion in which three government and three industrial representatives participated.

As a special event, the Chapter sponsored an IRE Christmas Dance on December 21, 1962, in which 200 members and guests participated.

1.15 San Francisco - Chapter officers for 1963-64 have not been announced. For 1962-63 they were:

W. R. Vincent, Chairman
Stanford Res. Inst.
Menlo Park, Calif.

Owen E. Thompson, Vice-Chairman
Secode Corp.
555 Minnesota St., San Francisco 7, Calif.

M. H. Kebby, Secretary-Treas.
Lenkurt Electric Co.
1105 Country Road, San Carlos, Calif.

Recent meetings included:

September 25, 1962, when Cecil M. Kortman, Group Leader of the Telecommunications Department of Lockheed Missile and Space Co, presented a paper entitled "Sample Data Telemetry for Satellite Applications" to a joint meeting of the Communications Division of AIEE and PTG-CS. Mr. Kortman's paper was supplemented by a large number of excellent slides depicting both systems' concepts and actual hardware. He laid the groundwork for his paper with a review of the history of satellite telemetry, going back to the utilization of the early FM/FM systems. The various classes of data normally handled between the space vehicle and the tracking station were analyzed with respect to the basic requirements of speed and accuracy. These requirements were then compared with the capabilities of the various present-day modulation techniques.

Examples of past and present packaging of the space vehicle hardware emphasized the progressive strides that have been made in this field. Photos of tracking station facilities illustrated the high degree of integration required by these systems. Ground station pre-detection recording techniques, demodulation techniques, and analog-to-digital converters were described. Also considered from the system data analysis flow-chart viewpoint was the reduction of redundancy that could be achieved in data processing. The paper was followed by a question and answer session. Thirty-two people were in attendance.

Dr. D. A. Chisholm, of Bell Tel. Labs., Murray Hill, N. J., discussed "The Telstar Experiment" at the November 27, 1962, meeting.

On January 15, 1963, David S. Pratt, a project engineer with Granger Associates, presented a very interesting program, including slides and motion pictures, which concerned "Oblique Ionosphere Sounding and Radio Propagation." This was a combined meeting of the PTG-CS, PTG=AP and the AIEE Communications Division Chapters. Mr. Pratt described older methods which had been used, such as vertical sounding and back-scatter and discussed their advantages and limitations when applied to the 4 to 32 megacycle communications band. The propagation characteristics of this portion of the spectrum were considered in some detail with the aid of slides depicting single and multi-hop paths between two fixed points and the effects of the ionosphere on these paths. These changing characteristics illustrated very well the desirability of changing frequency on a given circuit every few hours if the optimum performance is to be realized.

The advantage of the synchronized oblique sounding technique is that by transmitting a very short duration pulse over a path, the

characteristics of the received pulse may be analyzed and the usability of the path at a given frequency and a given time may be determined. The transmitter and receiver are simultaneously stepped in discrete frequency increments through the spectrum of 4 to 32 megacycles and an energy pulse of only a few microseconds duration is transmitted. Its reception or absence is recorded on a suitable storage display tube at the receiving location. The pattern that is obtained, as the steps through the frequency spectrum are made, show the lowest usable frequency, the multi-hop characteristics, and the maximum usable frequency at the particular time of sounding. If soundings are taken at regular intervals throughout the day, predictions of changes of the maximum usable frequency may be made prior to a change. The use of these techniques has resulted in an increase of the circuit usability from 92 per cent to 99 per cent over a test path between Hawaii and San Francisco. In a question and answer period that followed Mr. Pratt's presentation, it was brought out that interference to other services by synchronized oblique sounding was nil due to the extremely short pulse duration and slow repetition rate used.

A joint meeting with the Communications Division Chapter was scheduled for March 19, featuring a talk on data transmission over microwave systems.

On April 18, 1963, Adam Lender, of Lenkurt Electro Co., described "The Duobinary Technique for Digital Communications" to a group of 46 members and guests.

1.16 Syracuse - Chapter officers for 1963-64 have not been announced. For 1962-63 they were:

R. E. Hansen, Chairman
General Electric Co.
208 S. Geddes St., Syracuse, N. Y.

R. Frost, Vice-Chairman
General Electric Court St. Plant
Rm. 37, Bldg. 3, Syracuse, N. Y.

R. W. Kille, Secretary
General Electric Electronics Park
Bldg. 3, Syracuse, N. Y.

Two meetings were planned for last year. At the first, Nov. 20, 1962, Fred Warden of IBM spoke regarding the compromises imposed on data processing networks by shortcomings in communications.

During the year, General Electric set up a Military Communications Department in Oklahoma City, and this caused a fair portion of chapter membership to be transferred to that location.

1.17 Toronto - Chapter officers have not been announced. During the past year meetings were held as follows:

On October 22, 1962, R. F. Lowe, of General Electric Co., Lynchburg, Va., discussed "Microwave Multiplexing, Voice and Signaling Systems." Next, on November 19, 1962, Ross E. Freeman, of Computing Devices of Canada Ltd., reviewed "Exploration in Space Research."

Dr. Carl F. Buhner, from the General Telephone and Electronics Labs., on December 10, 1962, addressed the chapter on "The State of the Art in Laser Modulation Techniques."

Twenty-seven members and guests attended the February 4, 1963, meeting where "Some Aspects of a General Purpose Satellite Ground Station" was covered by P. Foldes, of RCA Res. Labs., Montreal. One week later, on February 11, Prof. G. W. Farnell, of McGill University, Montreal, discussed "Some Aspects of Hypersonic Waves in Solids."

The final meeting of the year was on May 25, when 40 members and guests made a tour of E. Leitz, Ltd., facilities in Toronto.

1.18 Washington - No officer list available. At the only meeting reported last year, November 27, 1962, the subject "Computer Control Techniques Used in Adaptive Communications", was covered by Dr. Richard F. J. Filipowski, and Mr. William Smith, both of International Business Machine Corp., Washington, D. C.

1.19 Prospective Chapters - Information on how to form new chapters of PTG-CS has been forwarded to group members in Phoenix, Arizona and The Netherlands. The latter would be the first overseas chapter, and part of the Benelux Section of IEEE.

2. CALLS FOR PAPERS

2.1 1964 IEEE International Convention - March 23-26, 1964
New York Hilton Hotel and the New York Coliseum, N. Y. C.

Prospective authors are requested to submit all of the following information by the DEADLINE DATE OF -- OCTOBER 18, 1964

1. A statement, in quadruplicate indicating the contributions made by the paper which warrant its inclusion in the International Convention program.
2. 100-word abstract in quadruplicate, title of paper, name and address.
3. 500-word summary in quadruplicate, title of paper, name and address.
4. Indicate in which of the following technical areas your paper should be classified:

- (1) Basic Sciences and Techniques. The mathematics, physical science and techniques underlying electrical and electronics engineering. General principles and theory.
- (2) Power. Production, transmission, and distribution of electrical power for all uses.
- (3) Industry and Industrial Applications. Specific industries and applications of electrical and electronics technologies in industry.
- (4) Communication. Transmission of intelligence by wire, radio, or optical means and associated switching, control, and spectrum problems.
- (5) Electronic Systems. Electrical and electronic systems for control or telemetry in various areas such as industry, military and aerospace.
- (6) Computers and Data Processing. Analog and digital computers and data handling devices and systems generally where the emphasis is on transformation of information rather than transmission.
- (7) Instrumentation. Electrical and electronic techniques as applied to the measurement and recording of physical, chemical and electrical quantities; also the transducers for the conversion of physical variables to electrical ones.
- (8) Materials, Components and Production Processes. Finished components and all materials of interest in the fabrication of electrical and electronic devices. May include active components. Methods and problems of production and quality control.
- (9) Bio-Medical Electronics. Application of electrical and electronic techniques and devices to biological and physiological research and medical diagnosis and therapy.
- (10) Professional Activities. The development and education of engineers, management of engineering activities, relations of electrical technology to society, engineering writing and speech.

Note: Only original papers, not published or presented prior to the 1964 IEEE International Convention, will be considered. Any necessary military or company clearance of papers must be granted prior to submission.

Address all material to: Dr. Ferdinand Hamburger, Jr., Chmn.
1964 Technical Program Committee
The Institute of Electrical and Electronics Engineers, Inc.
Box A, Lenox Hill Station
New York 21, N. Y.

2.2 1964 National Winter Convention on Military Electronics

Qualified persons are invited to submit technical papers for presentation at the 1964 National Winter Convention on Military Electronics, to be held February 5 - 7, 1964, at the Ambassador Hotel in Los Angeles. The general theme will be "Weapons Systems Selection -- 1964", with program emphasis on papers which identify military--governmental criteria for determining systems requirements, technical feasibility, and cost effectiveness. Industry papers of merit will be considered, in addition. Areas include:

- a) Systems; b) Technologies; c) General

Authors should submit proposed papers prior to October 4, 1963, along with a 100-word unclassified abstract and a short autobiography, directly to the chairman of the technical program committee: Dr. Nicholas A. Begovich, Vice President, Hughes Aircraft Co., Ground Systems Group, Fullerton, California.

3. COMING MEETINGS

3.1 NATCOM IX - As this Newsletter goes to press, final arrangements are being made for the Ninth National Communications Symposium, October 7-8-9, 1963, at Utica, N. Y. The theme will be "Communications - Catalysts of Progress", and the symposium will cover communications related in the areas of systems, equipments, techniques and associated fields. Classified sessions, held under the auspices of the Directorate of Communications, Rome Air Development Center, will be held concurrently with the three-day Communications Symposium. Directing the symposium, which is expected to have an attendance of over 1200 persons, are:

General Chairman - R. R. Ruhm, Jr.
Technical Program Chairman - J. L. Ryerson
Technical Program Committee, Vice-Chairman - J. Entzminger
Classified Program Chairman - C. L. Strom
Classified Program Committee - Capt. W. Woodruff & D. Worthington

3.2 National Electronics Conference - The 19th Annual National Electronics Conference at McCormick Place, Chicago, Illinois, on October 28-29-30 will feature survey courses to help up-date the "tools" of the practicing engineer. Among these courses will be a six-hour integrated discussion on "Quantum Devices in the Optical Region!" and a five-hour program on the "State Variable Approach to Automatic Control Systems." In addition, an intensive seminar on the special applications of solid-state devices will be given.

The Second Symposium on Adaptive Processes, sponsored by the IEEE Committee on Discrete Systems Theory, originally scheduled for Philadelphia, will be held in conjunction with NEC. The Chicago Section, IEEE is sponsoring an evening session with the intriguing subject "Communicating with Another Species."

The electronics exhibit will be larger than ever, with more than 500 electronics firms showing their wares. The IEEE PTG-I is once again sponsoring a New Products Symposium, in answer to many requests.

3.3 Globecom VI - A planning committee has been formed in Philadelphia to prepare the way for the Sixth National Symposium on Global Communications, to be held June 2-3-4, 1964. Sponsoring organizations include PTG-CS, PTG-EC, the National Communications Division of the Technical Operations Committee, the Philadelphia Section of IEEE and the University of Pennsylvania. The theme of the symposium will be "Communications Wedded to Data Processing", and a call for papers will be issued shortly. Advance information may be obtained from Mr. William McLaughlin, Vice-Chairman of the Philadelphia, PTG-CS Chapter, Radio Corp. of America, Surface Communication Division, Bldg. 1-5, Camden 2, N. J.

4. ADMINISTRATIVE COMMITTEE

4.1 1963-1964 PTG-CS Officers

David S. Rau, Chairman
RCA Communications, Inc.
66 Broad St., New York 4, N. Y.

Dr. William B. Jones, Jr., Vice-Chairman (New)
Georgia Inst. of Technology
Atlanta 13, Ga.

Richard C. Benoit, Jr., Secretary (Appointed)
Rome Air Development Center
138 Riverview Parkway No, Rome, N. Y.

John W. Worthington, Treasurer (Appointed)
Defense Communications Agency
305 Doyle Dr., Alexandria 8, Va.

Elected PTG-CS AdCom Members

Dr. Andre G. Clavier
ITT Labs. (Retired)
109 S. Rosborough Ave., Ventnor, N. J.

Ivan S. Coggeshall (New)
670 Maywood Ave.
Maywood, N. J.

Louis A. deRosa
ITT Communications
60 South, Rt. 17, Paramus, N. J.

William L. Firestone
Motorola, Inc.
1450 N. Cicero, Chicago, Ill.

Frank A. Ford
Grant Smedmor Ltd.
1819 Yonge St., Toronto 7, Ontario, Can.

Bernard Goldberg
USA Electronics R & D Lab.
1108 Jeffrey Ave., Wanamassa, N. J.

Leonard R. Kahn
Kahn Research Lab., Inc.
81 S. Bergen Place, Freeport, N. Y.

Richard C. Kirby (New)
National Bureau of Standards
2814 - 15th St., Boulder, Colo.

Walter Lyons
Telesignal Corp.
198 Miller Pl., Hicksville, L. I., N. Y.

Ralph L. Marks
Rome Air Development Center
126 Glen Rd., S., Rome, N. Y.

William M. Mazer
ITT - Intelcom, Inc.
5817 Columbia Pike, Baileys Crossroads, Va.

Roger McSweeney (New)
ITT Communications
60 South, Rt. 17, Paramus, N. J.

Kenneth P. Patterson
Sperry Gyroscope Co.
294 Commercial, Sunnyvale, Calif.

Arthur C. Peterson, Jr. (New)
Bell Tel. Labs.
Murray Hill, N. J.

William L. Roberts (New)
Sperry Rand Research Center
Sudbury, Mass.

Charles A. Strom, Jr.
Rome Air Development Center
2000 Bedford St., Rome, N. Y.

PTG-CS AdCom Alternates

C. M. Jansky (New)
Jansky & Bailey
1339 Wisconsin Ave., N. W. Washington, D. C.

Shogo Namba (New)
Kokusai Denshin Denwa
Tokyo, Japan

COMMITTEES

Awards:

Louis A. de Rosa, Chairman
ITT Communications
60 South, Rt. 17, Paramus, N. J.

Chapters and Membership:

Bernard Goldberg, Chairman
USA Electronics R & D Lab.
1108 Jeffrey Ave., Wanamassa, N. J.

Meetings:

Charles A. Strom, Jr., Chairman
Rome Air Development Center
2000 Bedford, St., Rome, N. Y.

Ad-Hoc Committee on Merger:

Ivan S. Coggeshall, Chairman
670 Maywood Ave.
Maywood, N. J.

Jes E. Schlaikjer, Vice-Chairman
ITT Corp.
320 Park Ave., New York 22, N. Y.

Publications:

E. J. Baghdad, Transactions Ed. & Chairman
AdCom, Inc.
Cambridge 42, Mass.

Ransom D. Slayton, Newsletter Ed. & Subcomm. Chairman
Teletype Corp.
5555 Touhy Ave., Skokie, Ill.

4.2 Annual Meeting, March 25, 1963 - Ralph L. Marks, PTG-CS Chairman for 1962-63 presided with 29 AdCom members, Chapter representatives and AIEE Committee representatives present.

The Chapters and Membership Committee reported that membership in PTG-CS is up 6.25% with a present membership (as of March) of 4253. A new chapter has been formed on Long Island and formation of a Detroit Chapter is probable. There is also some interest in Phoenix. Los Angeles Chapter has reverted to an inactive status.

The Newsletter Committee reported that difficulty had been encountered in getting enough material from the various Chapters to produce a satisfactory Newsletter. Problems were also encountered in printing, editing, and distribution. The merger of IRE and AIEE into IEEE has overloaded headquarters facilities, but means are being sought to speed up the printing and distribution process of the Newsletter.

The Transactions Committee reported that issues of the Transactions will continue to be 4-1/2 to 5 months late, but it is hoped that this can be eventually reduced to not more than 3 months. The average cost for each issue last year was 7,000, and this is expected to increase to \$8,000 for the coming year. A distinguished list of reviewers has been chosen and invited papers are being sought in an attempt to make the Transactions the outstanding journal of the communications field. Several specialties are being planned to stimulate work in special research areas. It is felt that, due to the formation of IEEE, the Transactions should be compartmentalized in order to cover all fields.

The Financial Report was summarized:

Balance, January 1, 1962	\$10,298.99
Receipts, 1962	25,044.29
Expenditures, 1962	32,184.34
Balance, Dec. 31, 1962	3,158.94

The cost of the December issue of the Transactions, some \$9,200 should be deducted from this balance, leaving a deficit of some \$6,000. This problem has been discussed with IEEE Headquarters but there seems no clear cut solution. There are more good papers available and being published that the subsidy allocation by IEEE would allow. This subsidy was cut recently 1/3 to 1/4 of the Transactions cost. Potential solution would be to reduce the size, and therefore the service rendered to members, of the Transactions to delete issues, or to continue delaying their publication and charge some to subsequent year's budgets. The recent increase in membership dues should help somewhat, but

a "one-shot bailout" would be desirable.

The 8th National Communications Symposium was reported to have a net profit of \$2,037.28, one-half of which will be forwarded to PTG-CS. Plans for the Ninth National Symposium will get underway about April 1 and advance work on the Tenth Symposium will start, in order to insure that the 19th anniversary will be appropriately celebrated. A letter of appreciation was received by PTG-CS from Dr. Mertz for the paper award bestowed at the 8th Communications Symposium.

The Awards Committee requested that nominations for the Fellow award be submitted by the various chapters.

The relationship of the professional groups (IRE) and the technical divisions (AIEE) was discussed, and the problems resulting from the merger into IEEE were covered. The future pattern for action has not yet been established, but may well take the direction expressed in a recent survey letter that was sent to all PTG-S. (The suggested plan may be seen in the Call for Papers outline for the 1964 IEEE International Convention:----- papers are being sought in only 10 general areas rather than the 29 or 30 formerly assigned to the Professional Technical Groups - Ed.)

Approval was requested by the Philadelphia Chapter for the Group to help sponsor the next Globecom Symposium. This approval was voted, and funds to assist in getting the symposium underway were also to be advanced.

A resolution was adopted encouraging the holding of a National Communications meeting west of the Mississippi in late 1964 or early 1965, if a Chapter/Section could be found willing to undertake the project.

A request to approve the formation of a separate IEEE Professional Technical Group on Systems Science was disapproved.

Six new members, of three-year terms each, were elected to the AdCom and two alternates were selected. (See Directory at head of this paragraph - Ed.) Mr. David Rau, RCA Communications, Inc. was elected Chairman for 1963-64, and Dr. William B. Jones, Sr. Georgia Institute of Technology, was elected Vice-Chairman.

The next meeting of the AdCom was set for 12:00 noon on Oct. 7, 1963, at the Hotel Utica, Utica, N. Y., during the Ninth National Communications Symposium

4.3 Wescon Meeting - A meeting of the AdCom was held in San Francisco on August 20th while members were attending Wescon. In view of a lack of a quorum, no official business was transacted, but discussions of matters to be taken up at the October meeting of the Committee were held. Among the items discussed were: (a) the steps being taken by the Philadelphia Section in connection with plans for Globecom VI; (b) progress being made on merger of PTG-CS with other communication groups of the IEEE. An AdHoc Committee consisting of Dr. I. S. Coggeshall, Chairman, J. E. Schlaikjer, Vice-Chairman, and D. S. Rau, ex-officio member, will be meeting with an AdHoc Committee Division of the Technical Operating Committee of IEEE, to draw up a possible proposal for a merger of these groups. If a satisfactory proposal can be developed it will be presented to the PTG-CS AdCom at its October meeting for consideration.

4.4 Notice of PTG-CS Constitution Amendment

Article VII. Section 2 - Old Version

"The Chapter of the Group may organize national meetings of the Group. Approval of the theme and slogan, if used, of each meeting and its financial arrangements must be obtained from the Administrative Committee before any meeting can be identified as a national meeting of the group. A member of the Administrative Committee designated by the Chairman must be placed on the governing body of such a meeting. Final control over the financial arrangements of such meetings will be the province of the AdCom. In view of the support of such meetings by the Group, half of any surplus from such a meeting will be accrued to the treasury of the Group. Also, a sum, designated by the AdCom, but in any case not less than \$1.00 will be remitted to the treasury of the group for each fully paid attendee at such group sponsored meetings."

Article VII, Section 2- New Version

"A Chapter of the Group may promote a national meeting of the group within and through the Section of which the Chapter is a part, and the Section may become a co-sponsor of the meeting. Approval of such meeting, its theme and slogan, if used, and its

financial arrangements must be obtained from the Administrative Committee before any meeting may be identified as a national meeting of the group. "

The remaining four sentences of the old version are to be omitted from Article VIII, Section 2, reworded and placed in the Bylaws. The new version has been approved by the AdCom of PTG-CS, by the IEEE PTG Committee, and by the IEEE Executive Committee. According to the constitutional rules for amendments, the change is hereby published in the PTG-CS NEWSLETTER. Unless 10% or more of the group membership object, (by letter to the Secretary) within 30 days of publication, the amendment goes into effect.

The AdCom is considering deletion from the Bylaws of the requirement for remitting to the group treasury of a fee for each attendee at a national meeting when the national meeting is co-sponsored by more than one PTG. This matter is subject to further clarification and will be discussed at the October 7th meeting of the AdCom. Tentatively, the Bylaw Section would read about as follows:

"Financial Support - The annual assessment for members of the Group shall be \$4.00 for which assessment they shall receive the full services of the Group, except that registration fees may be charged for attendance at Group sponsored national meetings (including conferences, symposia, and conventions) in accordance with such rules as may be established by the management of such meetings.

"In view of the support of Group sponsored national meetings, a share of the surplus funds accrued from such meetings proportionate to the number of co-sponsors shall be remitted to the treasury of the Group. Also where the Group is the sole sponsor or shares sponsorship only with a Section, a sum designated by the AdCom, but in any case not less than \$1.00, shall be remitted to the treasury of the Group for each full paid attendee at such Group sponsored meeting. "

4.5 IEEE Translation Committee - The Communication Division of the IEEE Technical Operations Department has under its jurisdiction three "Translation Committees" covering Institute participation in the Translation (by an outside paid organization) of the following technical journals.

"Telecommunications" and "Radio Engineering", Russian
"Radio Engineering and Electronic Physics", Russian
"Journal of the Institute of Electrical Communications Engineers of Japan"

The scope of each committee is:

"To supervise IEEE participation in the translation and publication of the regular issues of the magazine "-----" in order to maintain high quality and prompt availability after each original (Russian or 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 "Electrical Engineering" or other IEEE publications".

Committee members are each assigned several translations for critical review, and determination is made on the basis of these reviews regarding publication of the articles.

PTG-CS is invited to participate in this work to the extent of committee membership and even to being given the Chairmanship of the first listed Committee. The term of the present Chairman of that Committee, Mr. H. F. May, of Bell Labs. is about to expire and a replacement will be appointed in September.

This type of work is not considered to be the same as that involved in our Publications Committee, and consequently is not being referred to the Chairman of that Committee for action. He is requested however along with others to whom this communication is addressed to offer advice and recommendations.

Addressees are requested to inform PTG-CS Chairman David S. Rau of interest in such participation by themselves, by others within their organization, or by others known to have qualifications for reviewing technical papers. An early response will be appreciated.

G. KARGER
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