

IEEE GROUP ON
MICROWAVE THEORY
AND TECHNIQUES

NEWSLETTER

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EDITORS NOTES

THE CONTROVERSY GROWS. . .

The footsteps of man are on the moon. Some hail this as an outstanding technical milestone; some say that the money was poorly spent--that we should have fed the poor or rebuilt the cities. There is no doubt that the results of engineering efforts are proving controversial--can the engineer continue to stand aloof from the political, social, and economic aspects of the creations of his mind? Could the men who designed the atomic bomb stand aside from the implications of their work? Should the men who design the ABM system also stand aside? I believe the answer is no--the engineer must speak out on these matters. The problem is how: by what means can his voice be heard.

Let me digress for a moment in order to try and answer the above questions. After the flight of Apollo 11, I read a letter to the editor in the Los Angeles Times. This letter can be paraphrased as follows:

"Man can do wonderful things when he sacrifices his own desires for the common good. Apollo 11 exemplifies this sort of cooperation. Think of the wonderful things that could be done if only man would sacrifice himself for the common good."

Recently in the IEEE Spectrum¹ the same type of thought was put forth in an article on engineering ethics which exemplifies the "us" aspect of modern technology: team spirit and team cooperation are the way things are done.

I disagree completely with this type of thinking. I believe that it is the individual, the "I", which is the primary mover. I have been in enough meetings on large programs to understand that "us" decisions don't come out of these gatherings. At best they tend to be progress reports or assignments of "action items" to individuals in the meeting. The decisions hastily made in large gatherings are often wrong because they lack in-depth preparation. The individual back at his drawing board is still the prime producer. It is my feeling that this individual effort, this "I" we find in the technical area is the way the engineer should approach the social, economic, and political aspects of his creations. The IEEE cannot speak with one voice for all engineers, thus the "us" approach can't work, at best it can only promote the majority viewpoint. What can the IEEE do to promote this "I" approach? The IEEE must offer the individual the opportunity to publish discussion on social issues as well as on scientific matter. The Spectrum is beginning to publish this type of article which is certainly a step in the right direction. However, I feel that we (IEEE members) are still talking to ourselves. Somehow the word of these individuals who have strong feelings about the political and social aspects must be brought to the attention of the body politic of this country. How to do this is the challenge for the IEEE.

A possible solution is through the IEEE sections. For example, the San Fernando Valley Section of IEEE recently put on a meeting in which the speaker was George Mueller, Head of NASA Manned Space Flight Center. He drew a sell-out audience of 900 (for dinner). The local congressman, Robert Gorman, was present and I believe (from what he said) dedicated to additional manned space flight efforts. Why not have other prominent speakers with social, political and economic topics related to engineering talk to sections? Congressmen and senators should be invited and engineers should discuss with them appropriate topics. This seems like a logical role for section activity. Let the groups then concern themselves with the technical aspects of our work.

¹ IEEE Spectrum, August 1969.



CHAIRMAN'S VIEWPOINT

by Leo Young

I hope you all had a refreshing and invigorating summer and are ready to work and learn and contribute for another season. I attended the European Microwave Conference in London in early September and enjoyed it immensely. Although microwave work in Europe as a whole may tend to lag the larger and more directed efforts in the U.S., there are many fine laboratories and imaginative individuals in Europe whose work deserves to be better known in the U.S.

The two-day meeting of the GMTT Administrative Committee (AdCom) in New York in September was an exceedingly busy one. (See AdCom Report inside.) AdCom is trying very hard to improve services to its members. Since it is limited to 18 members, it is doing so through committees in many of which AdCom members play a leading role. I have been very fortunate in this year's AdCom, especially in this year's vice-chairman, who will be next year's chairman, John Bryant. He also has a good crew for next year and an experienced and hard-working vice-chairman in Sy Okwit. I wish I could identify everyone with their contributions, but there isn't enough space for it here. With the increasing load on AdCom and its committees, there is plenty of room for suggestions and honest criticism from you, especially if you are willing to help with some of the work! I believe you will find it both interesting and rewarding. A few have stepped forward already and their services have been gratefully accepted. We need help with standards (write to R. W. Beatty), membership (write to Al Clavin or J. B. Horton), new technical subjects (write to D. B. Leeson). Jesse Taub and Hal Schrank would I am sure welcome help and suggestions on information services and the proposed computer index.

We sincerely would like to help our overseas members--in Europe write to Dr. H. Bosma at Philips Research Laboratories, Eindhoven, Holland, or to Prof. P. J. B. Clarricoats at Queen Mary College, London, and in Japan to Dr. Hideo Iwakata, Tokyo, with your suggestions. We would like to hear more from our Canadian members--Ross Warren will always be glad to hear from you.

Any interesting bits of history of GMTT you know? Don't keep it to yourself. Write to Ted Saad about it (whether from America or Japan or Europe or anywhere else). If you are interested in promoting interest in microwaves at Universities or Colleges, tell Warren Cooper or Saul Rosenthal about it.

Do you need help with local one-day seminars? Write Dave Leeson or John Cacheris. Are you even thinking of hosting the Microwave Symposium day? Discuss it with Frank Arams.

And what about engineers and social action or general comments? This may be IEEE rather than GMTT business, but our Newsletter is at your disposal. (Write to our assistant editor, R. D. Randall.)

Or you may always write to me on these or any other matters concerning GMTT.

Finally, don't forget to submit your papers for the next Microwave Symposium (to be held at Newport Beach, California, 11-14 May 1970) to Dr. R. H. DuHamel, Granger Associates, 1601 California Avenue, Palo Alto, California 94304, no later than 30 January 1970.



ADCOM REPORT

(ADMINISTRATIVE COMMITTEE) by John H. Bryant

The third of four scheduled AdCom meetings for this year, under the Chairmanship of Leo Young, was held at IEEE Headquarters, September 26 and 27, 1969 -- two days no less, including Saturday! The rationale for this extreme self-punishment was the large number of must items on the agenda.

Washington, D. C. was chosen as site for the 1971 G-MTT International Symposium to be held May 16-20, 1971. Again there were competing proposals. It was certainly good to see the chapters vying for the opportunity to host the symposium.

James H. Mulligan, Jr., Vice President of IEEE and Chairman of the Technical Activities Board addressed the AdCom and discussed briefly the TAB re-organization, budgets and other matters of interest. Councils and Committees

Kiyo Tomiyasu reported on the Quantum Electronics Council. John Horton reported on the IEEE Solid State Circuits Council meeting held at WESCON, August 20, 1969, and other matters. The Chairman, Leo Young, asked that our Council representatives prepare a list of questions and points for discussion at the next AdCom meeting. Standards Coordinating Committee

Bob Beatty, Chairman, submitted written report and discussed its contents. Kiyo Tomiyasu is studying background material of prior work on Laser standards and definitions.

Finance

Hal Altschuler discussed his report on Future Financial Needs and Sources of Income of G-MTT dated 7-22-69 which has been previously mailed to all members. This report was prepared by an Adhoc Committee to examine future financial needs and sources of income of G-MTT. The committee was formed in late 1968 with Hal as Chairman. It was moved, seconded and voted unanimously that Hal Altschuler should be congratulated and thanked for an excellent report.

Motion to increase the G-MTT fee from \$5 to \$6 effective January 1, 1970 was passed.

The motion to change institutional listing rates to \$440/12 issues, \$260/6 issues and \$60/single issue was passed.

John Bryant presented the September 18, 1969 version of G-MTT 1970 budget which was discussed in detail.

Two motions were passed to clarify price of Quantum Electronics Journal and Solid State Circuits Journal to G-MTT members.

Also discussed: 1) price of symposium digest and 2) promotion of library subscriptions.

Meetings and Symposia

J. B. Horton submitted written report on final results from the 1969 G-MTT Symposium. Final attendance was 730. Net income was \$2,816.21. 28 new members were signed up at the Symposium.

Gene Torgow reviewed written report on 1970 Symposium to be held May 11 to 14, 1970 at the Newport Inn, Newport Beach, Calif. The sponsoring Chapter will be given an advance of \$1500 as requested.

Rudy Henning gave a brief report on the Microelectronics Symposium held at St. Louis, Sept. 10-12, in which G-MTT was participant.

Leo Young reported on European Microwave Conference held September 8-12 in London.

Motion to cooperate in the Carnahan Conference on Electronic Crime Countermeasures to be held April 16-18, 1970 at the University of Kentucky was approved.

Frank Arams reported on arrangements for Microwave Presentations at the IEEE 1970 convention. This will be the third year that MTT has sponsored these microwave applications sessions. Concern was voiced that the 1970 session will be reduced to one day by action of the IEEE.

Proposals for the 1971 G-MTT Symposium

Two proposals had been submitted. Robert M. Knox, Chairman of the Chicago Chapter, reviewed the proposal from his chapter. Warren Cooper reviewed the proposal from the Washington Chapter. After questions and discussion the AdCom voted to hold the 1971 Symposium in Washington, D.C.

Publications

George Haddad reviewed an annual report of Transaction publication activities. He also discussed the procedures used for the review and selection of papers for publication. Three special issues of the Transactions are being planned for the future.

Hal Schrank reported on Information Retrieval program. Chairman Leo Young asked for overall report and recommendations at the next AdCom meeting. AdCom expressed favorable sentiment toward the Information Retrieval program.

Membership Services

Al Clavin, Chairman, reported on G-MTT Newsletter program. The subject of advertising in the Newsletter was discussed briefly. A study will be made of this.

John Horton reported on program for selecting the 1971 G-MTT National Lecturer.

Bob Rivers reported on the membership drive which continues to center around a "grass roots" recruiting strategy with primary effort through Chapter Chairmen, Chapter membership drive Chairmen and Newsletter contact.

Warren Cooper reported briefly on university relations prime efforts related to recruiting student members.

Technical Committees

Dave Leeson reported on organization and activities of Technical Committees. Each Technical Committee Chairman will be asked to prepare a list of objectives, for the coming year. Kiyo Tomiyasu suggested that the name of TC-3, Millimeter and Submillimeter Waves, be changed to Nanowaves. TC-6, Microwave Integrated Circuits, had responsibility for the Microelectronics Symposium, Sept. 10-12, 1969. Possible new committees were discussed.

Administration Committee (Operations Committee)

At the suggestion of Gene Torgow, Chairman, the name of this committee will be changed to Operations Committee.

Ted Saad, Chairman of the Awards Committee, reported on the 1970 Microwave prize. The recipient will be John D. Rhodes of Microwave Development Labs, Natick, Mass.

The possibility of establishing an additional annual award was discussed with consensus favoring this. The Awards Committee will make further study.

Gene Torgow reported that the IEEE Executive Committee had approved affiliate membership for members of the International Microwave Institute (IMPI). Bill Brown, Chairman of TC-5, Microwave Power, will be notified and asked to coordinate this with IMPI concerning IMPI Journal cost to MTT members, etc.

Rudy Henning, Chairman of the Nominating Committee, led the meeting for election of new members and new officers for 1970. Elected to three year terms were E. N. Torgow, R. W. Beatty, J. H. Bryant, T. B. Leeson, G. P. Rodrigue, J. M. Osepchuk and for two year term, N. Lipetz. New officers elected were: Chairman, J. H. Bryant, Vice Chairman, S. Okwit.

(continued on page 4)



Sy Okwit,
newly elected
Vice-Chairman

Scholarship Committee

Saul Rosenthal reported for the committee and discussed progress of the Scholarship program.

TAB Re-organization

The Organization of IEEE Technical Activities, Draft #7, July 24, 1969 revised August 28, 1969 were discussed. Motion that G-MTT endorse the basic concepts was approved.

G-MTT Symbol

Al Clavin has checked with IEEE Headquarters to determine what would be acceptable as a symbol. This program, which has been under way for more than a year, will continue with the expectation of having a proposal for the symbol of MTT by the next meeting of AdCom.

Chapter Activities

John Horton reviewed written report. Items included organization of Atlanta and Houston chapters. Progress is continuing on planning one day and half day G-MTT sponsored chapter symposia.

AdCom Advisory Committee

Chairman Leo Young appointed the following to the new AdCom Advisory Committee: S. B. Cohn, T. S. Saad, A. H. Oliner, K. Tomiyasu and H. A. Altschuler.

Next meeting will be held December 15, 1969 at the Newporter Inn, Newport Beach, California.

WHY DOESN'T G-MTT
STANDARDIZE
WAVEGUIDE BAND
DESIGNATIONS?



by

R. W. Beatty, Chairman

G-MTT Standards Coordinating Committee

This question arose at the G-MTT AdCom Meeting in New York on September 26. For a moment, it shook me. This is the province of the Electronics Industries Association (EIA), not the IEEE, I thought. The industry should standardize waveguide band designators. In fact, haven't they already done it with the WR numbers? And how about the IEC? But many countries have their own systems! And military organizations have their own systems of designators! And then there is "waveguide alphabet soup," with all of the letter designations! Each manufacturer seems to have his own version. Why doesn't everyone agree to use one system?

In the May 1961 issue of the Microwave Journal, Tore N. Anderson noted that "it is now nearly impossible to identify a specific size of waveguide by the letter designation; since no two manufacturers have chosen to agree, the microwave industry is caught in a Waveguide Alphabet Soup." After listing many parallel alternative designations in use for rectangular waveguide bands, he concluded that we should all switch to the EIA nomenclature.

Later, M. M. Brady suggested that we should all use the IEC (International Electrotechnical Commission) system, noting that a number of countries had already adopted it. (G-MTT Transactions, March 1965.) In the July 1965 issue of the G-MTT Transactions, he called attention to the waveguide flange nomenclature muddle. He again suggested that the IEC designations be used by everyone.

In 1967, Brady surveyed the designations used for rectangular waveguides and flanges in many countries of the world. (Microwaves, July 1967) Again he concluded that "the work of the International Electrotechnical Commission promises to alleviate much of the muddle as more countries adopt IEC nomenclature or use it as an alternative."

Now in 1969, we find that many systems of designating waveguide bands are still in use. Apparently there is a need among equipment and instrument manufacturers for a simple system such as one which assigns a single letter of the alphabet to a waveguide band. This is economical when labeling waveguide components. A number of such systems are used by different manufacturers who still do not agree on which letter should be used to designate which waveguide band. It appears that the electronics industries got together and agreed on a system (the WR system for rectangular waveguide) which many of them prefer not to use.

Can G-MTT do anything to clear up the muddle? I suggest that G-MTT encourage the electronic industries association (EIA) and the U.S.A. Standards Institute (USASI) to obtain agreement among industry representatives on a simple alphabetical system for designating waveguide bands. There appears to be a continuing need for such a system. Although there are more standard waveguide bands than letters in the alphabet, single letters might be used for the more popular bands and two letter combinations for the less popular bands. Such a system, if developed, could be an alternative to the WR system (EIA) and to the IEC system.

Admittedly, different systems have their uses, and variety is the spice of life. However, perhaps the waveguide alphabet soup muddle is sufficiently annoying and confusing to justify new industry efforts to obtain agreement.

Any comments? . . . Any volunteers?

(We already have comments, and possibly some volunteers.

See the Opinions section . . . Editor)

1969 GMTT SYMPOSIUM PROFITABLE

The final report for the 1969 GMTT Symposium in Dallas shows a net profit over \$2,800. Although the many new experiments that were introduced at this symposium caused the expenses to be high, the income was higher because of the good attendance at the symposium.

Additional income resulted from the extra sales of approximately 400 digests. Copies may still be obtained from IEEE Headquarters in New York by ordering IEEE catalogue #69C6.

Many foreign people attended the symposium. Countries that were represented included:

Canada	Nigeria
Israel	Norway
Japan	United Kingdom
Netherlands	West Germany

1970 IEEE CONVENTION

by F.R. Arams

The Group on Microwave Theory and Techniques is pleased to purpose the following participation for the 1970 Convention:

1. Microwave Presentations -

MTT proposes to continue its annual program consisting of 4 sessions on microwave-oriented topics of potential interest to a broad IEEE audience.

The Microwave Presentations were initiated at the 1968 Convention and held for the second time at the 1969 Convention, and have enjoyed good attendance. The program was organized by senior members of the Group on MTT and the program content was generally on an advanced level.

In keeping with this format, MTT strongly recommends that the Microwave Presentations be held in 1970 at the New York Hilton Hotel since the type of subject matter and the eminence of some of the speakers, we believe, dictates and deserves a better environment than the Coliseum. It is proposed that the Microwave Presentations be held as in 1969 on Tuesday and Wednesday without a repeat.

It has been suggested that holding the Microwave Presentations at the Hilton Hotel would automatically put them in competition with other Groups insofar as number of sessions, and session content are concerned. However, the G-MTT feels strongly that the type of program to be presented justifies making space at the Hilton available.

Failing this, (and this would be very regrettable), G-MTT sees no recourse except to urge strongly that IEEE make sufficient funds available and make the necessary arrangements to correct generally acknowledged deficiencies in the facilities used in 1969 at the Coliseum. The improvements that are strongly recommended include:

1. Elimination of cross traffic, noise and distractions
by closing passageway by means of a wooden partition (not a drop cloth)
2. Better chairs
3. Better visual aids (use double projector?)
4. Better acoustics and atmosphere by use of carpeting

We have appointed as Chairman of the 1970 Microwave Presentations

John M. Osepchuk, Raytheon Research Laboratories, Seyon Street, Waltham, Massachusetts (617) 899-8400, X2475 who is well-qualified, and served last year as organizer and chairman of one of the Microwave Presentation sessions.

GUNN RECEIVES IEEE MORRIS LIEBMANN AWARD

J.B. Gunn, whose name is widely recognized in the phrase "the Gunn Effect," received the IEEE Morris H. Liebmman prize award during ceremonies at WESCON in San Francisco. He was honored during the Program of the Sponsors Luncheon in the San Francisco Hilton on Tuesday, August 18.

The "Gunn Effect" describes high-frequency current oscillations that occur when gallium arsenide samples are subjected to a field above certain threshold levels. Mr. Gunn discovered this phenomenon in the early 1960's, and went on to analytical work now considered a classic of semiconductor research.

2. Microwave Sessions -

MTT could provide additional inputs on microwave-oriented sessions, if desired by the 1970 Technical Program Committee.

1970 IEEE INTERNATIONAL MICROWAVE SYMPOSIUM TO BE HELD
MAY 11-14, 1970 --- NEWPORT BEACH, CALIFORNIA

The IEEE Group on Microwave Theory and Techniques announces that their 1970 International Symposium will be held at the Newporter Inn in Newport Beach, California May 11, 12, 13 and 14. The Symposium will consist of papers from all over the world describing the latest state-of-the-art. The Chairman of the Steering Committee is Dr. Samuel Sensiper of TRW Systems. Chairman of the Technical Program Committee is Dr. Ray Duhamel, Granger Associates.

The above announcement is a change from early announcements at which the MTT Symposium was scheduled to be aboard the Queen Mary in Long Beach, California. This change was necessitated due to delays of the formal opening date for the Queen Mary.

1971 SYMPOSIUM TO WASHINGTON

The Washington chapter was chosen by ADCOM to host the 1971 G-MTT International Symposium in Washington, D.C. during May 1971. The proposed site is the Marriott Motor Hotel in Twin Bridges, Virginia.

To stimulate interest in the microwave field at the undergraduate level, a competition for the best undergraduate microwave paper has been proposed. This innovation should help to promote an early awareness of the microwave field and its challenging opportunities.

RHODES AWARDED MICROWAVE PRIZE

John David Rhodes has been awarded the G-MTT Microwave Prize for 1969. Dr. Rhodes merited this award by receiving the majority of votes from a special committee composed of MTT Chapter Chairmen and members of the MTT Transactions Editorial Board. The high quality of his two papers, "The Design and Synthesis of a Class of Microwave Bandpass Linear Phase Filters" and "The Stepped Digital Elliptic Filter," published in the April 1969 Transactions resulted in one of the most clear-cut award decisions in recent years.

Dr. Rhodes received the Ph.D. degree in electrical engineering from the University of Leeds, England, in 1966. He joined Microwave Development Laboratories, Inc., Natick, Mass. in 1967.

MEMBERS, MEMBERSHIP AND MEMBERSHIP DRIVE

by Robert Rivers



The Chapter Membership Committee has one of the most important tasks in the IEEE and the Group. Its task is to enhance communications with all of the technical people in our discipline. What is the nature of this communications function? It is to bring people together so that they may communicate at chapter activities, in group activities, in IEEE activities and through the various publications of the IEEE and the Group.

Chapter activities can only take place if they are promoted. They are generally promoted through section publications and through post card mailings. They are sometimes promoted by telephone calling, bulletin board notices and by personal contact. In general these promotions reach IEEE and Group membership only. Optimum chapter communication can be achieved by using all of these devices by a properly organized Membership Committee.

An in depth organization of the membership committee is recommended. Organization of the Membership Committee of a large chapter might be as follows:

- (1) Chapter Membership Committee Chairman
- (5) Area Membership Committee Representative
- (15) Facility Membership Committee Representative
- (75) Group Membership Committee Representative

Direct personal contact in larger organizations would be through the Group Membership Committee Representative. One would be appointed for every group in a company having 5 or more individuals engaged in our field of activities. In smaller companies, contact would be maintained by a Facility Membership Committee Representative. In larger companies, the facility representative would maintain contact with several group representatives. In the same way, an area representative would maintain contact with facility representatives in his geographical areas. What would this contact consist of? It would be a telephone committee to promote chapter activities by telephone calling a few days before a meeting. It would also be a selling operation to bring potential members into the IEEE so that we could communicate through other channels. It would be a way of reaching non-members working on the periphery of our areas of interest. In order to properly do the job of communicating with our members, I estimate that 10% of the MTT Group Members should be on the Membership Committee. That is approximately 600 members of the committee.

Some chapters may not want to organize such a large committee and would not plan on using it. As an alternate I would like to have volunteers of membership committee representatives on an at-large basis working directly through me to promote membership. We can then communicate with them through our normal channels.

CUT

I would like to volunteer to work on Membership problems. The responsibility I would like to take on is:

- () Chapter Membership Committee
- () Area Membership Committee Representative
- () Facility Membership Committee Representative
- () Group Membership Committee Representative
- () At-Large G-MTT Membership Committee Representative

If you wish to work on your Chapter Membership Committee, contact your Chapter Officer and send me a copy of this form. If you wish to work at-large return completed form directly to me.

NAME _____
COMPANY _____
STREET _____
CITY & STATE _____ ZIP _____

Upon appointment you will receive a Membership Kit and instructions.

From: _____ FOLD First Class Postage

R. A. RIVERS
AIRCOM, INC.
RT 16 B
UNION, NEW HAMPSHIRE 03887

FOLD

STAPLE

COMMITTEE ESTABLISHED FOR NEW TECHNOLOGIES

During 1969, the IEEE Technical Activities Board appointed a Technical Planning Committee, which was given responsibility for new technologies, i.e., those which properly belong within IEEE, but might be overlooked by our present 31 specific technical Groups. The new Committee, under TAB's Vice Chairman, Edward W. Herold, includes John R. Whinnery, Hubert Heffner, David M. Hodgins, Ralph E. Armington, and William O. Fleckenstein. Two meetings have now been held, with objectives a) to identify the most important new technologies, b) to act on those in which delay is inadvisable, and c) to propose a permanent and effective mechanism by which IEEE will exercise continuous leadership in new subject matter. The word "new" in this context is intended to include both the scientifically new, and that which is new to IEEE, but might have a substantial past history.

Among the topics considered were the following:

- Computer Aided Design
- Cable TV
- Electric Printing
- Holography and Electro-Optical Systems
- Plasmas and MHD
- Oceanography
- Acoustic Waves and Filtering
- Manufacturing Technology
- Cryogenics
- Applied Mathematics
- History of Electrical Engineering
- Social Systems (transportation, education, pollution, crime detection, data networks, urban planning, hospital systems)

In several of these, activity was already under way before the Committee was formed. For Cable TV and for Electric Printing, two Ad Hoc Committees were formed to undertake specific publication and conference actions and to recommend a permanent home for the technology in the IEEE structure.

The most important action of the Technical Planning Committee was to cooperate with TAB to see that the future technical organization of the IEEE would be flexible enough, alert enough, and resourceful enough to absorb new technologies. Language has been put in the general principles of organization of the Group structure, and detailed responsibility is to be developed, whereby it becomes possible for IEEE to remain the leading professional society in electrical and electronic fields. Whether it actually does will depend on the enthusiasm and participation of present members in adapting to change.

In many cases, responsibility for action ultimately lies within the Group. IEEE Groups are expected to energetically and actively alter and/or enlarge their technical sphere of influence as conditions change. However, it is quite common in talking to Group administrators about a new field to get a reaction such as "we're watching this new field with interest," or "we're already saturated with more material than we can handle--let's not expand even more," or "this belongs in IEEE but not with us," or "we're actively pursuing the subject" (when, in fact, little or no activity exists). These reactions are hardly conducive to attracting new members who work in a new field, and show far too much love of the status quo. In summary, the Technical Planning Committee urges Group members to take a broad view of their technology and, when appropriate, to stretch or change their definitions of scope so that IEEE can best serve the engineer and his future welfare.

INTERNATIONAL STANDARDIZATION OF RF CONNECTORS

ZURICH, SWITZERLAND

The delegates to SC46A-WG-1 on RF Connectors of the International Electrotechnical Commission pose along side the Swiss Electrotechnical Institute in Zurich where the meetings were held to decide on International Standards for RF connectors, May 19 thru 22, 1969.



From left to right: Mr. J. Cartier, RADIALL - French delegate, Tore N. Anderson, WINCHESTER ELECTRONICS - Chief U.S. delegate, M.V. Beveren, NEHERLAB - Dutch delegate, C. Stager, SWISS PTT, Swiss delegate, Victor Weill, U.S.N.A.S.L., U.S. delegate, Dr. G. Spinner, SPINNER GmbH, Secretary, Prof. G. Epprecht, MICROWAVE LAB E.T.H., Swiss delegate, D.J. Blight, BELLING & LEE LTD., British delegate, Franz Huber, ROHDE & SCHWARZ, German delegate.

This meeting, the last on a working group basis, continued the important task of RF connector standards started in 1959 and laid the foundation for the first meeting on a permanent basis of new IEC Committee SC46D on RF connectors.



CONFUSION IN WAVEGUIDE BAND DESIGNATIONS

by

W. F. Snyder
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Boulder, Colorado 80302

The proliferation of waveguide band designations has brought on a jumble of "labels" that is most confusing. Many of us in the Radio Standards Engineering Division of the National Bureau of Standards have become quite satisfied with the use of the Electronic Industries Association (EIA) nomenclature system, i.e., the WR system. It has meaning to it, in that it indicates the nominal value of the inside width dimension (in inches).

Nevertheless, the WR system has several shortcomings: (1) the number of characters in the designation can easily run to five, e.g., WR 284, whereas a simple system could use but one letter, say "X"; (2) the present WR system does not lend itself to the metric system except by changing all of the numbers.

THAT LOVELY OZONE

In a recent column I wrote about the weather, and wanted to say something about ozone, which is found in the atmosphere at heights of 13 to 26 miles, but I had used up my space.

Back in the days of spark transmitters all wireless operators encountered ozone. It was generated in the high voltage condensers and spark gaps. Its characteristic piquant odor diffused from the high voltage circuits and ebbed and flowed with the keying as the crackling blue spark flashed across the air-gap in unison with the Morse symbols.

I first encountered ozone shortly after the end of the First World War when I acquired an old Ford ignition coil, some jagged pieces of plate glass and some sheets of tinfoil from which to build a high-voltage condenser, some corroded strips of spring brass from which I made a rudimentary key, and some long lengths of brass strip normally used to protect the butted edges of the linoleum on the kitchen floor. These strips were wound on maple cross arms, soaked in wax, and formed a pancake-type variable oscillation transformer (tank circuit and antenna coupler). The spark gap was made from two brass bolts mounted on brackets screwed down to an ancient porcelain fuse holder as a base. The apparatus was then installed in the attic of my parents' home in Edmonton.

When coupled to the inverted 'L' cage-type antenna which towered precariously high above the roof this equipment produced most satisfying signals and, as an unexpected by-product, generated noticeable quantities of ozone as well. At first I didn't know what caused that peculiarly pungent odor that smelled the place up so awful. But when I found out I was delighted. I was really getting up to my ears in the mysteries of science and technology.

Inevitably, the urge to increase power exerted its subtle influence. As a first step I bought a Thordarson spark transformer with a 17,000 volt secondary. If I remember correctly, this generated something like a kilowatt of highly damped RF energy. I visited a local junk dealer, a little later, and became the proud possessor of an enormous discarded pole-line transformer and many thousands of feet of silk- and cotton-covered magnet wire, of assorted sizes, that had previously been used in Edmonton's original street lighting arc system. I also acquired more sheets of tinfoil and broken pieces of plate glass window - including old Ford windshields - together with an ancient motor from which to build a rotary spark gap.

In due course the transformer was reinsulated and rewound, the other bits and pieces were assembled, and I went on the pure (until then!) Alberta air with a stone crusher of a transmitter that played havoc with the lighting circuits in the neighbourhood (because of high voltage kick back along the power lines), wrecked several watt-hour meters in neighbours'

homes, and produced fantastic radio-frequency interference to all points of the compass. It also scared the pants off some of our neighbours when their lights flickered crazily whenever those weird blue flashes and loud crackling noises were observed coming from the small attic window under the eaves at the front of the Field residence. The multi-kilowatt transmitter also produced lovely quantities of ozone that permeated into even the darkest corners of the attic.

And how I loved that ozone. It was the nectar of the Gods. It showed my power over nature. I wasn't aware in those days of happy innocence that ozone can be extremely toxic. But even if I had been, I doubt if it would have made any difference. The pungency I ignored. Who cares about what happens to one's nasal linings when this serves only to demonstrate a mastery over science. When the outside temperature was sixty below zero and the temperature in the uninsulated, unheated attic wasn't much higher, the ozone, the fantastic spark, and the frightening noise served to keep up my blood pressure, my feet warm, and my fingers from breaking off as I happily tapped out Morse chit-chat to a fellow ham on the other side of town. That was really living!

If at this point you are wondering about my receiving equipment, at various times I used coherers (experimentally), magnetic detectors, electrolytic detectors, and an assortment of crystal detectors ranging from pieces of the local lignite coal to chunks of carborundum, galena, silicon, zincite-bornite, cerusite, and traces of mineral in pieces of rock. I even devised a sophisticated (?) two-element Fleming valve made from a 60-watt carbonfilament lamp with a piece of tinfoil wrapped around the outside of the glass envelope as an anode (it worked)! In fact, I used anything that I thought might rectify, including rusty iron (oxide), all home made and thoroughly soaked in fingernail chips, pieces of mangled flesh, and liberal amounts of blood, sweat, and tears. Being a ham, an experimenter, and a budding scientist was fun in those days. Nearly everything was home made from junk. And the men who survived, who escaped electrocution, poisoning or falls from high poles, were made from sterner stuff than found in many of our spoon-fed science and engineering graduates of the present day.

P.A. Field

(Reprinted from Ottawa Section Bulletin)

WE NEED AN INFORMED CONSCIENCE

Efforts of science to develop and express a conscience are distressing in their ineffectiveness. Publications like Scientist and Citizen and Bulletin of the Atomic Scientists come on the scene, change names and wander without the influence one might want for them. Campaigns for the Schwartz amendment and moving away from Chicago generate much heat but not much light or permanent change. Organizations like Scientists for Social and Political Action follow the Federation of American Scientists with no obvious difference.

In Washington the American Physical Society fills a large hall with persons talking and learning about the antiballistic-missile question (PHYSICS TODAY, July, page 99). Meanwhile the organization is with-

out procedures to discover or discuss a hundred or a thousand other matters that involve both physics and public policy: support of science, weapons systems, open access to laboratories, international exchange of persons and information, job opportunities.

The cause of ineffectiveness, as we see it, is the dilemma between commitment and strength. On the one hand activists seek association with those who believe as they do. Their societies welcome believers but not the opposition. But existence of an issue implies significant difference of opinion: no difference, no issue. If one issue divides a group in half and another reduces the population by another 25% and so on, a group dealing with several important issues is likely to be small.

Yet all movements need the strength of numbers, and numbers are most readily available when the purpose is information, not commitment, and all are welcome. A good example is the Washington ABM session, billed as an information exchange and prevented from becoming a free-for-all forum for controversy.

How does one solve this dilemma between intense commitment and widely distributed information?

One solution has been to look to organized groups like the American Physical Society. Logically enough, believers in certain causes have sought to put society numbers and prestige on record as favoring their view.

But the movement runs into two kinds of difficulty. One is that many members are not on the "right" side of an issue. The second is the resistance of members who argue that the society was formed for a nonpolitical purpose. Taking on other purposes is not a proper extension of the mission, no matter how worthy the purposes, they say. If the mission changes from scientific to political, say the most vehement of this group, they will leave the organization.

Our answer to the situation would be to recognize the two sides of the dilemma and deal with one at a time. Commitment may be outside the purview of the American Institute of Physics and its member societies. As administrators and their advisers see it, constitutions, charters and requirements for tax-exempt status prevent that kind of involvement. If stands are to be taken, societies and groups of other kinds should take them.

Information, though, is another matter. The first mission of a scientist, we think, is to inform himself and others. Within the various scientific societies or even in a separate society formed for the purpose should be councils, meetings and publications especially for discussion of public-policy questions and determinations of which ones to discuss. The goal should be open-mindedness and information, not commitment.

One group has suggested an APS division (PHYSICS TODAY, June, page 15). Properly constrained to stay within APS bounds, such a division might be the appropriate mechanism. Let us all hope that the APS Council, which is studying the matter, will actively pursue the whole subject. The pressure of the need is more important than the mechanism chosen to meet it.

-R. Hobart Ellis, Jr., PHYSICS TODAY, August, 1969

WE MUST BE GIVEN MEANS OF JUDGING SCIENTIFIC ISSUES

Our generals and admirals may be losing some of their power to dazzle the minds of civilians but the American electorate and its elected officials still need new kinds of special knowledge if they are to make coherent judgements about the new-style political issues that besiege us.

Can something be done to help meet at least part of this need?

The question takes its urgency from two realities.

First, the cardinal decisions of American politics seem increasingly to involve cases where complex political issues are tied to complex scientific and technological issues. Some sense of the matter is conveyed by a list of the political-scientific subjects that have been publicly debated in recent months.

Items on the list include the deployment of the ABM system, the refinement of MIRV as a hydraheaded nuclear weapon, the preconditions for a U.S.-Soviet disarmament agreement, various matters pertaining to biological and chemical warfare, the post-Apollo scope of the space program, drug addiction, the control of population growth and the protection of the physical environment from pollution.

Second, if a coherent judgment about the political aspects of any of these items is to be made in line with the constitutional design for "responsible power," then its scientific and technological aspects must first be understood not by the President alone, but by Congress and at least a segment of the electorate.

PRESIDENT, CONGRESS MUST ASSESS QUALITY OF ADVICE

The President and Congress, of course, are not at a loss for expert advisers. They swim in them. But suppose that two expert advisers - both Nobel Prize winners in physics - disagree in the advice they give. In the absence of long inquiry, how can the President and Congress, as "amateurs" in the world of science, know which of the two is the expert whose advice should be heeded? The difficulties are self-evident.

There are other difficulties.

Suppose there is an executive-legislative clash over a political-scientific matter. Suppose the experts serving the President stand in opposition to the experts serving Congress - like psychiatrists serving the rival side of the defense and prosecution in a criminal trial. Who then is to be the final judge that decides which of the rival camps of experts has the "real truth" on its side? Under our constitutional democracy, "the people" are supposed to be that final judge. But do the people judge? If so, by what criteria?

In practice, the people usually tend to do one of two things. They automatically say that only the President's experts "really know all the facts and can see the big picture," or the people say: "It's all too complicated for ordinary folks to understand. Let the experts decide."

If the electorate and elected officials do not actively grapple with the difficult scientific and technological aspects of cardinal political decisions, our political organization could conceivably fly to one of two apocalyptic extremes.

At one extreme, the polity would not be governed. It would be administered, and it would be accepted as fact that only the experts were competent to administer it. In this way, bit by bit, the polity would degenerate into a system for administrative nihilism.

The men of science and technology would argue public matters in the same way. They would be in the happy position of deciding things to their own taste yet having no responsibility if the public result was a wreck - since no one outside their closed circle would know enough to know who should be blamed for it.

At the other extreme, the electorate and elected officials might come to feel a genetic urge to quiet their doubts about their relevance to the conduct of the most important business of government. They could, therefore, go primitive.

They would ignore the actual problems to be solved. Self-expression for its own sake would be all that mattered. They would thus use the power of decision willy-nilly to no purpose except the emotional one of proving that the users were alive and a force to be reckoned with. If havoc ensued, the commotion would nonetheless give great satisfaction to those who caused it.

Under any remedial scheme of things, experts will and must have their proper place. But it would be equally foolish to say that the experts should decide everything as to say that they should decide nothing. For the expertness of a man in the theoretical or applied sciences guarantees nothing else about him, not his moral integrity, not his emotional discipline, not his power of social invention, nor his title of right to guide the political process in matters lying beyond his own special field.

In the light of everything said up to this point, the question must again be asked: can anything be done to promote the diffusion of scientific and technological knowledge among the electorate and elected officials so that they can make better judgments about the new style political-scientific issues that present themselves for decision?

Leaving out of account the long-range changes that can be brought about through the regular educational process in the schools and colleges, something could be gained through an institutional innovation in government modeled in part after the relationship between the Council of Economic Advisers in the office of the President, and Congress' Joint Committee on the Economic Report.

ECONOMIC ADVISERS HELPED RAISE LEVEL OF DISCUSSION

Before that relationship was forged, through the United States had become history's greatest engine for the production and distribution of goods and services, the level of public discussion about political-economic issues frequently sounded like a catechism based on the simplistic maxims of "Poor Richard's Almanac." It sometimes still sounds that way.

But the picture as a whole was greatly changed when the Full Employment Act of 1946 brought forth the Council of Economic Advisers on the executive side of things, and the matching congressional instrument of the Joint Committee on the Economic Report. Since then, the constant interplay between these two bodies, with each checking on the educational work of the other, has led to a striking diffusion of solid knowledge about the major issues of contemporary political economy.

In the office of President there already exists a scientific adviser. But Congress has not produced a matching body of its own. It is time that it gave serious consideration to the formation of a joint committee on science and technology.

Such a committee would not take the place of the existing major committees of Congress which deal regularly with specific political scientific issues. Nor would it be charged with the legislative oversight of any particular department of the government - since science and technology flow through the work done in all departments. The functions of the proposed committee, like those of the Joint Committee on the Economic Report, would be primarily to investigate, to educate and to recommend.

It could receive regular reports from the scientific adviser to the President about matters affecting the general climate in which political-scientific decision are made. It could keep track of available scientific and technological resources, how they are used, the costs of developing them further, the nature of the competing demands on those resources. It could predict the consequences if one or another order of priorities governed the allocation of those resources.

Further, it could inquire deeply into the scientific and technological assumptions underlying prospective political decisions. It could broadcast its findings about the matter.

It could alert Congress, the President and the nation to the new political issues that were gestating in the work done in various scientific and technological laboratories around the nation. It could provide the political order with the language necessary to conduct a sensible discussion of new political-scientific issues. It could stage its own hearing on major political-scientific issues in a style that would emancipate them from the biases of vested interest that often mark the work of other congressional committees.

In these and in other ways, by careful work pursued over the years, the committee could produce a quiet revolution in the sphere of public knowledge about political-scientific issues.

There is a harsh sound in Napoleon's maxim that "the tools belong to the man who can use them." But there is even a harsher truth in it.

The truth is that unless the man who are vested with responsible political power make better use of the tools of decision in political-scientific matters, the tools could become a monopoly of the scientific and technological experts who will use them in a closed system of politics from which there would be no appeal to a larger body.

-Sidney Hyman, Los Angeles Times, 31 August 1969

CHANGE OF PRINCIPAL MEASUREMENT AND TEST FREQUENCIES

by

R. E. Larson, Chief
Microwave Calibration Services
National Bureau of Standards
Boulder, Colorado 80302

It has been suggested recently by the Department of Defense and others that a more universal set of principal frequencies be adopted by NBS for use in its calibration work and other standards work. I believe

the suggestion may well be carried to a broader and more general use whenever measurement and test frequencies of various kinds are needed. Perhaps G-MTT would wish to consider the following concept of preferred frequencies for measurements and test work. Does this fall within G-MTT's scope of standardization activity?

The present "suggested" frequencies used in NBS calibrations associated with standard rectangular waveguide have been in use for about ten years. These "suggested" frequencies have been very useful in bringing about some economies to calibration users and to NBS. This set of frequencies is given in Table I below.

Table I

EIA Waveguide designation	Frequency range, GHz	Suggested calibration frequencies GHz		
		No. 1	No. 2	No. 3
WR430	1.70 - 2.60	1.80	2.20	2.50
WR284	2.60 - 3.95	2.85	3.25	3.55
WR187	3.95 - 5.85	4.35	4.90	5.25
WR137	5.85 - 8.20	6.45	7.00	7.40
WR112	7.05 - 10.0	7.75	8.50	9.00
WR90	8.20 - 12.4	9.00	9.80	11.2
WR62	12.4 - 18.0	13.5	15.0	17.0
WR42	18.0 - 26.5	19.8	22.0	23.8
WR28	26.5 - 40.0	29.0	33.0	37.0

Table I contains three frequencies for each waveguide size which are associated with the waveguide frequency range in the following way: (1) the lower-frequency value is selected to be approximately ten percent greater than the low-frequency end of the waveguide band; (2) the higher-frequency value is selected to be approximately ten percent less than the high-frequency end of the waveguide band; and (3) the mid-frequency value is selected to be near the center of the waveguide band. It is clear, then, that the set of frequencies in Table I is closely coupled for use only with standard rectangular waveguide.

Many have expressed a desire to have a single set of calibration frequencies that could be used for equipments terminated with rectangular waveguide connectors as well as equipments terminated with coaxial connectors.

In some recent correspondence I have had from Mr. G.J. Halford of the Services Valve Test Laboratory in England, and also at the XVIth General Assembly of the International Scientific Radio Union in Ottawa, Canada, August 18 - 28, 1969, Mr. Halford has presented a set of measurement frequencies which I believe should be considered for adoption in calibration and standards work as well as other general test and measurements work. Halford's frequency set consists of rounded-off numbers which are generated from a geometric series suggested by J.W. Mullin.* Sets of numbers given by the geometric series suggested by Mullin make use of the 10th and 20th

*J.W. Mullin, "Preferred Numbers," The Engineer, October 15, 1965, pp. 630-631

roots of ten as multiplying factors. Out of these sets of numbers, referred to as R10 and R20 series respectively, Mr. Halford has selected, rounded off, and slightly manipulated the exact values to provide the following useful group of numbers. Also included in this group is the familiar set of 1 - 3 - 10 - 30 - etc. Halford's group of numbers is given in Table II below.

Table II

Derived From

1-3-10 Series	1.0					3.0			10.0	
R10 Series	1.25	1.5	2.0	2.5		4.0	5.0	6.0	8.0	
R20 Series	1.12	1.35	1.75	2.25	2.75	3.5	4.5	5.5	7.0	9.0

Halford has suggested that the 1 - 3 - 10 series and the R10 series be used for work associated with coaxial connectors where octave frequency bands often are applied. This allows four frequency values in each octave band which usually is adequate for our measurement purposes.

For work associated with rectangular waveguide, Halford suggests using all three of the series of Table II. This allows three frequencies to be included in each waveguide frequency band as we have been accustomed to using, and many of the numbers in our present "suggested" frequency set are used. A new set of waveguide frequencies is given in Table III. This should be compared with Table I.

Table III

Waveguide Size (EIA)	Frequency Range GHz	Preferred Calibration Frequencies GHz		
		1	2	3
WR650	1.1 - 1.7	1.25	1.35	1.5
WR430	1.7 - 2.6	1.75	2.0	2.25
WR284	2.6 - 3.95	2.75	3.0	3.5
WR187	3.95 - 5.85	4.5	5.0	5.5
WR137	5.85 - 8.2	6.0	7.0	8.0
WR112	7.05 - 10.0	8.0	9.0	10.0
WR90	8.2 - 12.4	9.0	10.0	11.2
WR62	12.4 - 18.0	13.5	15.0	17.5
WR42	18.0 - 26.5	20.0	22.5	25.0
WR28	26.5 - 40.0	27.5	30.0	35.0
WR15	50 - 75	55	60	70
WR12	60 - 90	70	80	90
WR8	90 - 140	100	112	125

The above frequencies for use in coaxial transmission line and rectangular waveguide are to be referred to as preferred frequencies.

According to Mullin, such a geometric series as he has suggested has been adopted by the national standards association of several countries including the United States, and it has been adopted by the International Organization for Standardization (I.S.O.). There are other interesting properties which result from the geometric series using a common ratio of some root of ten. The virtues of the decimal system are maintained in the sets of numbers generated. Within very close tolerances, the harmonic series of 2 - 4 - 8 - 16 - etc. is also kept. The common set of 1 - 3 - 10 is generated in the R40 series and easily can be made a part of the group of numbers used. In attempting to remember the number sequence, the number values in the R10 series have a logarithmic relationship and can be read directly on a slide rule, for example.

It is recognized that the economic factors involved in changing from commonly-used frequency values to a new set of preferred frequencies should be taken into account. The adoption of the preferred frequencies may require a few years in some instances.

CHAPTER ACTIVITIES



by J. B. Horton



During the summer months most of the activity concerning the chapters has involved the G-MTT National Lecturer and formation of two new chapters.

Dr. Harold Sobol of RCA has accepted the 1970 National Lectureship. Dr. Sobol's topic has not been announced yet, but the general subject area is microwave integrated circuits and devices. Information about Dr. Sobol's background appears in the following article of this issue of the Newsletter. We are arranging his schedule now and chapter chairmen should contact me or Dr. Sobol to schedule his talk for your chapter.

New chapters are being organized in Atlanta and Houston. The Atlanta group, under the guidance of G.P. Rodrigue, has held two meetings to date. The proposed chapter is joint AP-MTT with the following officers:

Chairman:	G.P. Rodrigue
Vice-Chairman:	R.W. Larson
Secretary-Treas.:	T.J. Lyon
Member-at-Large:	J.M. Spencer, Jr.

The Houston group has held one meeting and is still in the early organization stages. L.E. Davis of Rice University is guiding the organization activity.

Dr. R.W. Damon will conclude the 1969 National Lecturer tour at the North New Jersey chapter meeting on November 13. His schedule included the following chapters:

New Hampshire	January 15
Denver/Boulder	February 4
Foothills (California)	February 5
Columbus	March 31
St. Louis	April 1
Chicago	April 3
Milwaukee	September 15
S.E. Michigan	September 16
Phoenix	October 13
Houston	October 14
Atlanta	October 15
Philadelphia	October 16
Schenectady	October 20
N. New Jersey	November 13

Our sincere thanks go to Dr. Damon for an excellent job as 1969 National Lecturer.

In closing I would like to remind you that the Call-for-Papers for the 1970 G-MTT International Symposium has been issued. Please encourage your co-workers and fellow chapter members to submit papers to the Symposium.



SOBOL 1970 NATIONAL LECTURER



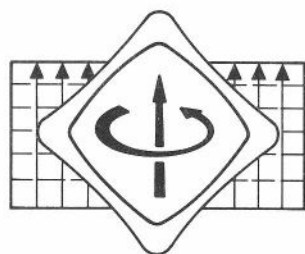
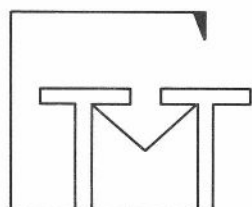
The Membership Services Committee of G-MTT ADCOM announced October 2 that Dr. Harold Sobol has been elected 1970 G-MTT National Lecturer. Dr. Sobol's lecture topic will be on microwave integrated circuits and devices.

Harold Sobol received his BSEE from CCNY, MSE and Ph.D. from the University of Michigan. From 1952 to 1959 he worked on radar and traveling-wave tube studies at the University of Michigan's Willow Run and Electron Physics Laboratories. In 1960 he joined the IBM Watson Research Center and was involved in work on high-speed superconducting circuits. In 1962 he joined RCA Laboratories and worked on plasmas, klystrons, solid-state devices and microwave integrated circuits. He was head of the Microwave Integrated Circuits Group at RCA Laboratories until February 1968. He is currently Manager, Microwave Microelectronics, RCA Components Division, Somerville, New Jersey.

The G-MTT National Lectureship was instituted in 1967 to make available to chapters a prominent speaker on one of the current microwave technologies. The National Lecturer receives \$2000 subsidy from IEEE for expenses during his one-year tenure. Past Lecturers were A.A. Oliver (1967), Leo Young (1968), and R.W. Damon (1969).

SYMBOL CONTEST

These are the final suggestions submitted. The January 1970 issue will reprint many of these symbols so that each member can vote for his choice.



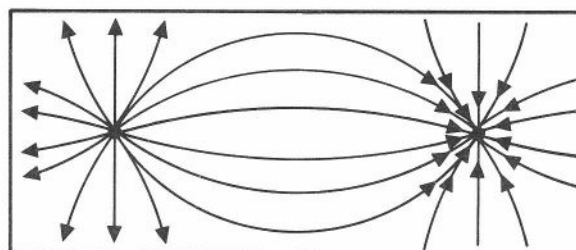
by Stanley Summerhill



by W. H. Kahn



by H. Warren Cooper



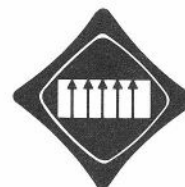
by M. Cohn



Anonymous



Magic T-T's
by Robert E. Puttre



by F. G. R. Warren



by Raymond A. Patrin



by Dave Leeson



CHAPTER NEWS

BALTIMORE CHAPTER

Summary of 1969 Meetings

Date: January
Speaker: Mr. L. J. Ippolito
Affiliation: NASA
Abstract: Applications Technology Satellite (ATS-E) Millimeter Wave Propagation Experiment

Date: February
Speaker: Dr. W. F. Gabriel
Affiliation: Delex Systems
Abstract: Tunnel Diode Low-Level Detection

Date: March
Speaker: Mr. J.M. Flaherty
Affiliation: Westinghouse
Abstract: Microcircuit Phased-Array Electronic Countermeasures System

Date: April
Speaker: Dr. S. Weinreb
Affiliation: NRAO
Abstract: Radio Astronomy-Goals, Facilities and Future

Date: May
Speaker: Dr. H. Sobol
Affiliation: RCA
Abstract: Lumped Element Microwave Integrated Circuits

Personals

The G-AP/MTT recently completed its 1968-69 Program Year with the election of new officers. They are:

Chairman: Dr. Lawrence E. Dickens
Westinghouse Defense and Space Center, Baltimore

Vice Chairman: Dr. Lawrence R. Whicker
Westinghouse Defense & Space Center, Baltimore

Secretary: Mr. Bert A. Sichelstiel
Westinghouse Defense & Space Center, Baltimore

Our past Program Year was very successful with a full calendar of eight speakers. The list of speakers and the titles of their talks are enclosed. The meeting was well attended with the highest being 45 attendees. Dinner attendance before the meetings was also very high, averaging over 15.

MTT/AP Chapter Program for 1969-70

October 2, 1969

"TRACKING APOLLO 11 WITH MICRO-WAVES" Mr. Paul Barritt, NASA Headquarters

November 6, 1969

"LADIES NIGHT"
"SPACE AGE COOKING WITH MICRO-WAVES" Mr. Maxwell Michaels, Amana/Raytheon

December 4, 1969

"PHASED ARRAY APERTURE MATCHING CONCEPTS AND TECHNIQUES" J. Frank and E. Byron, JHU/APL

* January 8, 1970

"MAPPING BY MICROWAVE RADIOMETRY" Mr. Robert Moore, NWCC

* February 5, 1970

"MICROWAVE COMMUNICATION FOR HIGH SPEED TRAINS" Mr. R. Ludwig, Wheeler Laboratories

* tentative

BOSTON CHAPTER

Past Meetings

Date: May 20, 1969
Attendance: Eighty-Nine
Speaker: J. A. Saloom
Affiliation: Varian Associates
Abstract: Microwave Generation and Application: Some Thoughts On Future Directions

CHICAGO CHAPTER

Past Meetings

Date: September 16, 1969
Attendance: Fifteen
Speaker: R. J. Wenzel
Affiliation: Bendix Research Lab.
Abstract: The application of the frequency transformation originally introduced by Richards has resulted in significant advances in the exact analysis and synthesis of commensurate length transmission line structures. The use of Richards' transformation has led to exact design procedures for filters and multiplexers, broadband transformers, a wide class of directional couplers and all-pass phase compensation networks, and matching networks for both active and passive devices.

Future Meetings

Date: November 8, 1969
Location: King's Palace Restaurant & Bell Indian Hill Lab.
Speaker: W. W. Mumford
Affiliation: Bell Whippany Labs.
Abstract: Man's ability to generate microwave power has been increasing at the rate of about 15 db per decade. Experiments performed by subjecting animals to high power indicate that hazards to personnel could exist if appropriate safety measures are not adopted and observed.

This presentation reviews the history of the recognition of this potential hazard and the safety measures adopted by the Bell System, the USASI, and others to protect personnel.



Date: November 1969
 Location: Black Steer Restuarant
 Speaker: B. Weinschel
 Affiliation: Weinschel Engineering
 Abstract: Improvement of Broadband
 Microwave Meas. with Data
 Processing Techniques.
 RSVP to P. Toullos
 (225-9630 X 4014)
 Cost: \$5.00

Activities

A proposal was prepared by the Chicago Chapter to hold the 1971 G-MTT International Symposium in Chicago at the Arlington Park Towers Hotel. The proposal was presented at the September 26, 1969 meeting of the MTT AdCom but award of the priviledge of serving as host to the 1971 symposium was made to Washington in its second bid for the meeting site.

COLUMBUS CHAPTER

Past Meetings

Date: May 27, 1969
 Attendance: Thirty-One
 Speaker: Dr. Robert E. Collin
 Affiliation: Case Western Reserve Univ.
 Abstract: Propagation in a Scattering
 From Random Media

DENVER-BOULDER CHAPTER

Past Meetings

Date: September 16, 1969
 Attendance: Eleven
 Speaker: Mr. Mick Spano
 Affiliation: Hewlett-Packard,
 Neely Sales Division
 Abstract: This was an informal meeting which provided an opportunity for the members to discuss the direction they wished the chapter to take. The group decided to (1) try evening dinner meetings with a separate program for the wives, (2) encourage several joint meetings with the local P-GAP group (3) invite speakers from nearby communities, and (4) to

be alert for speakers passing near Boulder that might be persuaded to speak to the chapter.

FLORIDA WEST COAST CHAPTER

Past Meetings

Date: May 14, 1969
 Attendance: Twenty-One
 Speaker: Dick Hackburn
 Affiliation: Hewlett-Packard Co.
 Palo Alto, California
 Abstract: Automatic Network Analyzer
 Measurement and Techniques
 Date: June 16, 1969
 Attendance: Eighteen
 Speaker: Glenn Burkland
 Affiliation: Pico Systems, Inc.
 Vienna, Virginia
 Abstract: Thick and Thin Film
 Substrates - Video and IF
 thru Microwave Amplifiers

Date: July 23, 1969
 Attendance: Nineteen
 Speaker: Dr. Robert Ashley
 Affiliation: University of Colorado
 Abstract: Dr. Ashley spoke on the
 noise performance of micro-
 wave signal sources.

Future Meetings

Date: October 16, 1969
 Location: Clearwater (Ramada Inn)
 Speaker: Mr. Ned Farinholt
 Affiliation: Texas Instruments
 Abstract: Mera Phased Array Antenna
 and its MIC Module

Mr. Farinholt will discuss the Mera Program, covering the phased array antenna and the MIC module. As a close to the program, Mr. Farinholt will describe other new innovations in the MIC line.

Activities

The Florida West Coast Chapter has had a very active year. We have had six chapter meetings covering a range of subjects. We look forward to an even better year in 1969-1970.

Personals

Our new Chapter officers for 1969-1970 are as follows:

Chairman: Mr. George F. Horner
 Vice Chairman: Mr. Bobby J. Duncan
 Secretary: Mr. Bernard E. Sigmon

All three are members of the Engineering staff at the Sperry Microwave Electronics Division, Sperry Rand Corporation, Clearwater, Florida 33518.

LOS ANGELES CHAPTER

Past Meetings

Date: October 16, 1969
 Speakers: Dr. Raymond Y. C. Ho
 Dr. David K. Adams
 Affiliation: Stanford Research Institute
 Abstract: New Microwave Applications
 For Transistors

NORTH JERSEY CHAPTER

Past Meetings

Date: March 20, 1969
 Attendance: Thirty-Three
 Speaker: P.D. Stark
 Affiliation: Bell Telephone Laboratories
 Abstract: Tattalum Film Technology
 Speaker: K. F. Sodomskey
 Affiliation: Bell Telephone Laboratories
 Abstract: Design Techniques for
 Microwave Integrated Circuits

Date: April 24, 1969
 Attendance: Thirty-Five
 Speaker: Herman Okean
 Affiliation: Airborne Instruments Lab
 Abstract: Parametric Amplifiers, 1969

ORANGE COUNTY CHAPTER

Past Meetings

Date: April 1, 1969
 Attendance: Forty
 Speaker: Harlan Howe, Jr.
 Affiliation: Microwave Associates
 Abstract: Computer Aided Design,
 Analysis, Test of Microwave
 Components

Date: May 6, 1969
 Attendance: Thirty-Two
 Speaker: Leon J. Ricardi
 Affiliation: MIT Lincoln Laboratory
 Abstract: Array Antennas for Communication Satellites

ORLANDO, FLORIDA CHAPTER

Past Meetings

Date: March 12, 1969
 Attendance: Sixteen
 Speaker: James R. Reid
 Affiliation: Avantek
 Abstract: Microwave Transistor Amplifier

Date: May 21, 1969
 Attendance: Thirty-Seven
 Speaker: Dr. Robert H. Kingston
 Affiliation: Lincoln Laboratory MIT
 Abstract: CO₂ Laser Radar

Date: June 17, 1969
 Attendance: Nine
 Speaker: Robert E. Webster
 Affiliation: Symetrics Engineering Corp.
 Satellite Beach, Florida
 Abstract: High Efficiency Antenna Apertures for Autotrack Applications Above 1 GHz

PHOENIX CHAPTER

Past Meetings

Date: September 22, 1969
 Attendance: Forty-Two
 Speaker: Dr. Joseph C. Palais
 Affiliation: Associate Professor of Engineering, Arizona State U.
 Abstract: Laser Applications
 Dr. Palais described practical applications of lasers in the areas of fabrication, alignment, distance measurement, communications, information processing, holography, and basic studies. A demonstration of holography and optical communications was presented.

Past Meetings

Date: May 19, 1969
 Attendance: Thirty-One
 Speaker: Westley G. Matthei
 Affiliation: Raytheon
 Abstract: Recent Developments in Microwave Integrated Circuits.

SAN DIEGO CHAPTER

Past Meetings

Date: March 11, 1969
 Attendance: Eleven
 Speaker: Dr. Frank A. Olson
 Affiliation: Microwave Electronics
 Abstract: Microwave Acoustic Devices and Selected Applications

Date: April 15, 1969
 Attendance: Twenty-Two
 Speaker: Dr. Alan Carlson
 Affiliation: Varian Associates
 Abstract: Advances in Avalanche Diodes

Date: May 13, 1969
 Attendance: Twenty-One
 Speaker: Dr. William Edson
 Affiliation: Electromagnetic Technology Inc.
 Abstract: Input Impedance of Filters for Multiplexers and Channeling Filters

SCHENECTADY CHAPTER

Election of Officers:

Chairman: John W. Maurer
 General Electric Company
 Schenectady, New York, 12305
 Vice Chairman: Ed Steenaart
 Rensselaer Polytechnic Inst.
 Troy, New York, 12181

SEATTLE CHAPTER

Past Meetings

Date: April 23, 1969
 Attendance: Seven
 Speaker: Dr. Dennis R. Bernotski
 Affiliation: The Boeing Company
 Abstract: Near Zone ELF and VLF Pulse Propagation in the Earth-Ionosphere Waveguide

Date: May 21, 1969
 Attendance: Twelve
 Speaker: Mr. Sperry H. Goodman
 Affiliation: Seattle University
 Abstract: Surface Wave Mode Parameters for a Lossy Dielectric-Coated Plane

SOUTHEASTERN MICHIGAN CHAPTER

Past Meetings

Date: September 16, 1969
 Speaker: Richard W. Damon
 Affiliation: Sperry Rand Research Center
 Abstract: Pretersonic Technology (Propagation of High Frequency Elastic Waves)

Future Meetings

October 21, 1969

Dr. Ralph Levy, Microwave Development Laboratories, Natick, Massachusetts, will discuss "Recent Advances in Passive Microwave Components." The 8:00 PM meeting will be held at Lawrence Institute of Technology, Southfield, Michigan

November 18, 1969

Microwave Theory and Techniques topic, Southfield

January 20, 1970

Electron Devices topic, Ann Arbor

February 26, 1970

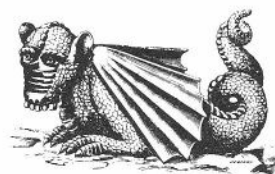
Joint Meeting with the Section sponsored by G-AP/MTT/ED and G-VT (Vehicular Technology), Ann Arbor

April 14, 1970

Antenna topic, Ann Arbor

Personals

Chairman: P.C. Goodman
 Omni Spectra, Inc.,
 Farmington, Michigan
 Vice Chairman: C.P. Tresselt
 Bendix Research Laboratories
 Southfield, Michigan
 Secretary-Treasurer: W. R. Curtice
 The University of Michigan
 Ann Arbor, Michigan
 Newsletter Reporter & Membership Chairman: D. G. Gartzke
 Omni Spectra, Inc.,
 Farmington, Michigan



WASHINGTON CHAPTERPast Meetings

Date: May 2, 1969
 Attendance: Nineteen
 Speaker: Mr. Humphry M. Smith
 Affiliation: Royal Greenwich Observatory
 Abstract: Time Determination and
 Dissemination at the United
 Kingdom Greenwich
 Observatory

Past Meetings

Date: 9 September 1969
 Attendance: Twenty-Two
 Speaker: Dr. Marvin Cohn
 Affiliation: Westinghouse, Baltimore
 Abstract: Millimeter Waves:
 An Updated Survey

A brief review of the characteristics and applications of the millimeter portion of the spectrum was presented, including the current and projected state-of-the-art of Millimeter wavelength components and areas where further RAD may be fruitful. The effects of atmospheric absorption and scattering and the resultant constraints on terrestrial systems were discussed.

Date: 14 October 1969
 Speaker: Dr. J. deKlerk
 Affiliation: Westinghouse, Research
 Labs, Pittsburgh, Pa.
 Abstract: The Application of Elastic
 Surface Waves to Microwave
 Devices

Methods of generating and detecting elastic waves on the surfaces of solids were described and used to show how such waves can be employed to reduce the physical size of such devices as delay lines, directional couplers, power dividers, filters, etc., by a factor of 10^5 over their electromagnetic counterparts. These microminiature devices, which can be fabricated using integrated circuit techniques, can be used in many radar applications with obvious space-saving advantages.

Future Meetings

Date: 11 November 1969
 Speaker: Dr. H. Sobol
 Affiliation: RCA, Sommerville
 Location: Harry Diamond Labs
 Washington

Abstract: Lumped Constant Microwave
 Integrated Circuits

Thin-Film Lumped Element Microwave Integrated Circuits have cost, size and reliability advantage over the more conventional microstrip circuits. The properties and design of Thin-Film Lumped-Elements at microwave frequencies will be discussed. Performance results of UHF, L-band and S-band Lumped-Element Power Amplifiers will be shown. A Lumped Element Broadband Low-Noise Amplifier will be discussed.

CHAPTER NEWS:

Washington GMTT is planning a 1-day symposium on microwave integrated circuits. Tentative plans call for tutorial session on the technology, fabrication techniques (thin/thick film) ferrites, lumped-constant and cost/reliability considerations to be concluded by panel discussion. Tentative date, March 10, 1970, Location NASA (Goddard).

**ANNOUNCEMENTS**PHASED-ARRAY ANTENNA SYMPOSIUM

An unclassified Phased Array Antenna Symposium sponsored by the Advanced Ballistic Missile Defense Agency of the U.S. Army, Massachusetts Institute of Technology Lincoln Laboratory and the Polytechnic Institute of Brooklyn Electro-physics Department, will be held June 2-5, 1970 at the PIB Long Island Graduate Center, Farmingdale, N.Y. A workshop type of symposium is planned to provide the array antenna designers an opportunity to explore the state-of-the-art and future directions. Those interested in contributing either by attendance or by the submission of a paper should contact:

Professor A. A. Oliner, Chairman
 Phased-Array Antenna Symposium
 Electrophysics Department
 PIB Graduate Center
 Route 10
 Farmingdale, New York 11735

The scope of this symposium will include all applications and types of electronically-scanned array antennas. Some of the specific topics are:

Radar element design
 Wide-angle wide-band matching
 Mutual coupling analyses
 Methods of predicting array performance
 Aperture design and thinning
 Nonplanar arrays
 Transient response
 Feed networks and interface problems
 Effects of digital beam steering on performance
 Impact of solid state devices on array design
 Test, evaluation, and monitoring

There will be general surveys and panel discussions, and both invited and contributed papers.

Contributed and invited papers should be submitted by January 15, 1970, and should include a 35 word abstract and a summary containing 400 to 700 words and 3 to 6 figures. All authors will be notified of selection by February 15, 1970 and furnished detailed information on the preparation of the technical material for publication. The abstract will appear in the Advance Program and a revised summary, which is due by March 15, 1970, will appear in the Symposium Digest. A full length manuscript of each accepted paper will be required by May 1, 1970 for inclusion in a Proceedings.

ANNOUNCEMENT AND CALL FOR PAPERS

The Eighth International Conference on Magnetism (INTERMAG) will be held on April 21-24, 1970, at the Statler Hilton Hotel in Washington, D.C. The INTERMAG Conference is sponsored by the Magnetism Group of the IEEE.

Papers are solicited in all areas of applied magnetism, related magnetic phenomena, and superconductivity. Abstracts must be received no later than December 12, 1969. They must contain sufficient information that they can be judged for technical content and subject timeliness. Abstracts should be sent to:

Dr. Daniel S. Shull, Jr.
 Bell Telephone Laboratories, Inc.
 3300 Lexington Road, S.E.
 Winston-Salem, N.C. 27102
 U.S.A.

Oral presentations at the Conference must be in English, and the time allotted for the presentation of each contributed paper will be approximately 12 minutes. A future issue of the IEEE Transactions on Magnetics will be reserved for the publication of INTERMAG Conference papers. Instructions concerning the preparation of manuscripts will be sent to the authors of accepted abstracts. March 1, 1970, is the anticipated deadline for the submission of these manuscripts.

Topics which have been of especial interest at recent INTERMAG Conferences are listed below. The list is not intended to preclude categories not specifically mentioned, and papers in all areas of applied magnetics are welcome.

- A. Materials Characterization and Technology
 - 1. Magnetic Films
 - 2. Ferrites and Garnets
 - 3. Microwave Materials
 - 4. Other Soft Materials
 - 5. Hard Materials
 - 6. Preparation and Processing
- B. Phenomena and Theory
 - 1. Magnetization Reversal Processes
 - 2. Magneto-Optics
 - 3. Superconductivity
 - 4. Other
- C. Memory Devices and Systems
 - 1. Ferrite
 - 2. Magnetic Film
 - 3. Cryogenic
 - 4. Semiconductor
 - 5. Other
- D. Recording
 - 1. Digital and Analogue
 - 2. Unconventional Recording
 - 3. Recording Mechanisms
 - 4. Hardware (heads, discs, etc.)
 - 5. Materials and Devices Characterization
 - 6. Manufacturing Considerations
- E. Devices
 - 1. Inverters and Converters
 - 2. Other Magnetic-Semiconductor Hybrids
 - 3. Transformers and Inductors
 - 4. Microwave
 - 5. Magneto-Elastic and Acoustic
 - 6. Logic

- 7. Permanent Magnet
- 8. Cryogenic
- 9. Other

- F. Measuring Techniques
- G. Computer-Aided Design

CALL FOR PAPERS

SPECIAL ISSUE

MICROWAVE SOLID-STATE CONTROL DEVICES

The IEEE Transactions on Microwave Theory and Techniques is planning to devote a spring 1970 issue to Microwave Solid-State Control Devices. The purpose of this special issue will be to present recent developments in this field and to attempt to define more clearly the general topic area.

The special issue will present new results and observations on solid-state devices that control basic microwave parameters such as amplitude, phase, frequency, and polarization. Devices for both low-power and high-power applications are of interest, and in particular phase shifters, modulators, switches, active limiters, and variable attenuators. While a control device is one that effectively has three or more terminals, the term "device" will be interpreted broadly and may include integrated-circuit devices whose system function is the control of microwave energy. Solid-state devices used as sources, amplifiers, and active filters will generally not be considered unless they are closely related to the operation of a specific control device.

It is hoped that the issue will serve as a medium for introducing new types of control devices and new applications for present devices.

Papers dealing with all the above aspects of the subject area are invited. Length and style should be in accordance with the "Information for Authors" published in the Transactions. Three copies of each complete manuscript should be submitted for review not later than 1 October 1969 to the Guest Editor:

Dr. David K. Adams
Building 406B
Stanford Research Institute
Menlo Park, California 94025

CONFERENCE ON PRECISION
ELECTROMAGNETIC MEASUREMENTS
JUNE 2,3,4,5, 1970 - BOULDER, COL.

The 1970 Conference on Precision Electromagnetic Measurements will be held at the Boulder Laboratories of the National Bureau of Standards, Boulder, Colorado. The aim of the Conference is the advancement of electromagnetic measurements at levels of precision and accuracy appropriate to national standards laboratories. The traditional fields of DC, LF, HF, and microwave measurements together with related physical studies provide the core of the Conference subject matter. For 1970, emphasis will also be placed on the rapidly developing field of precise measurements at very low temperatures. Methods for automated measurements will also receive special attention.

1971 INTERNATIONAL SYMPOSIUM ON
ANTENNAS AND PROPAGATION

TO BE HELD SEPTEMBER 1-3, 1971 ---
SENDAI, JAPAN

To further international exchange and technical research in the area of antennas, radio propagation, electromagnetic theory and related problems, and to foster international development in those fields, we now are planning the "1971 International Symposium on Antennas and Propagation, Japan."

The Symposium is open to any interested person from any nation, and will specialize in subjects of current importance in regard to "Theory and Practice of Antennas, Propagation and Electromagnetic Field."

Details about "Call for Papers" and registration will be contained in the Second Announcement to be published in March, 1970. Persons interested in receiving the forthcoming Second Announcement are invited to communicate with:

Dr. K. Nagai, Secretary
Executive Committee of 1971 ISAP, Japan
c/o The Institute of Electronics and
Communication Engineers of Japan
Kikai-Shinko-Kaikan Bldg. Shiba Park
21-1-5
Minato-ku, Tokyo 105, Japan



LETTERS TO THE EDITOR

Editor, MTT Newsletter:

- - - I read with eagerness the reply of the membership drive chairman to our letters of protest against his proposed suggestions. I was looking forward to the kind of self-defense and reasoned argument that enables an adversary, whatever the substance of the dispute. Instead, we were rewarded with a spasmodic attempt at justification, showing that the point of our well-intentioned criticism was completely missed.

We (Wheeler) comment on the distinction of performing as an outstanding example of service to our members while he wants to kill the myth that anything should be free. We (King) touch upon tangibly sore points that affect membership and he, agreeing, remains silent. We (Avellino) talk about increased efforts on an individual basis while he is waving the stick. We (Getsinger) offer that the concept of locked libraries is alien to the spirit of free inquiry and he talks about selling the product. We (Tsandoulas) are concerned about free dissemination of scientific information to the family of Man while he suspects leakage.

The issues raised are of far greater importance than a simple membership drive. They involve questions concerning the very foundation of the IEEE. Yet the chairman divorces his immediate area of concern from the rest of the structure by effectively insisting that the two are unrelated.

I will not begrudge the attempted patronizing in the form of a lecture on transparent

economic dogma followed by naively fabricated psychological argument. What I will do, however, is to ask whether the membership drive chairman's statement "If what I have planned doesn't work..." means that GROTF Lagration is imminent. Under the circumstances, a clarification becomes axiomatic

Sincerely,

G.N. Tsandoulas
Array Radars Group
M.I.T.

Editor, MTT Newsletter:

- - - I have read with increasing interest the recent issues of the Newsletter.

The discussions there--and in the SPECTRUM-- point up the basic dichotomy facing the Institute: Can it fill the role of a professional society while functioning as a learned society? That it is a learned society cannot be doubted; such a society has "publication" as its major role, and we find that the main function of the Institute. It is worth noting (Newsletter, April issue) that MTT seems to be one of the most successful learned subsocieties of the IEEE. What you ask in the April editorial --and I strongly agree with you--is that the Institute take on more of a professional character.

Like you, I find a change in tax status of really no concern. I doubt if most members of the IEEE (or prospective members) are in a tax bracket where this saving amounts to more than ten dollars a year. You are certainly right that the services to be gained would be worth that. The additional influence, job security, and even salary to be achieved through a strong professional outlook would quickly make up for the economic investment.

Bob Rivers' comments in the April issue were rather disturbing. As an educator I must oppose removing MTT Transactions (or other IEEE publications) from libraries, as long as the Institute maintains the learned society function. And I believe it is--or should be--financially secure enough to fulfill the roles of both a professional and learned society.

Sincerely,

Eugene H. Kopp,
Dean of Engineering
California State College
at Los Angeles

Editor, MTT Newsletter:

- - - I herewith express my keen desire to continuously receive the Newsletter mailed first class, because I certainly like to get the largest possible share of my information in about real time.

Once on line, I also would like to comment the recent Newsletter topic of the non-member policy of G-MTT. Surely you are facing a dilemma in this problem, but, after all, I think that a positive approach in gaining new members is better than the negative one. For example, why not try on the bill-my-company line? In other words, trying to make companies and engineers to understand that a personal copy of some competent paper is always worth the extra money.

Sincerely,

Jorma U. Neiminen
Finland

Editor, MTT Newsletter:

- - - Mr. Warren's suggestion (Newsletter 55 July '69) of a GMTT Symposium in Western Canada is an excellent one.

The International Microwave Power Institute has held two international symposia in Western Canada; as a founder of IMPI, and from having been involved in both, I can assure your readers of a very enthusiastic response for a joint meeting, over perhaps one week.

IMPI's next two meetings are in The Hague (October 1970) and in San Francisco (1971). What about

G-MTT = IMPI VANCOUVER 1972

or 1973. I can assure you of our fullest cooperation if you wish to pursue the idea.

Yours sincerely,

W.A. Geoffrey Voss
Editor, The Journal
of Microwave Power

(We feel that many of our readers would welcome a symposium in Canada. We suggest that the Canadian IEEE might coordinate the submittal of a formal proposal to MTT ADCOM. Further information can be obtained from F.R. Arams, Meetings and Symposia Chairman for G-MTT, at A.I.L.) - - - Editor

Editor, MTT Newsletter:

--- Thank you for your letter dated 24 July 1969. It arrived on 10th Sept. and cleared up the mystery whereby I received two copies of the newsletter. Both copies arrived at exactly the same time approximately two weeks ago (1 September).

Wishing you success in your experimenting.

Yours sincerely,
C.L. Carson
Australia

Editor, MTT Newsletter:

--- In reference to your letter dated July 24 concerning the differences in postal delivery times, I have the pleasure to inform you that:

- 1) The copy mailed 3rd class - 10 c stamp - postmarked July 1, 1969, reached me during my Summer vacation period, i.e., sometime between July 24 and August 18.
- 2) The regular copy mailed with 14 c postage (but without any "First Class" mention) stamped "Printed Matter" and postmarked July 8, 1969, reached me on September 12, 1969.

These results are quite surprising; they suggest that 3rd class actually goes faster! I hope however that you will have some more definite information from your other correspondents.

Thank you for this interesting experiment. I hope that you will publish the results obtained.

Sincerely yours,
F.E. Gardiol
Assistant Professor
Belgium

Editor, MTT Newsletter:

--- This is a reply to the letter dated July 24. I have received the July issue of the MTT Newsletter on July 30 by the first class mail and another copy on August 21 by the third class mail.

Therefore the difference in delivery times is more than 20 days.

According to the accumulated data it takes usually 5 days by air mail between the States and Japan and more than a month by sea mail.

Sincerely yours,
Sohji Okamura
Japan

Editor, MTT Newsletter:

--- I received the July Newsletter on July 3, and I thought I'd send you a note to tell you I think it is perhaps the greatest single copy of any Newsletter that I have seen. I might point out that I have been receiving all of the Newsletters of all of the groups for at least a year.

If you print this letter in the Newsletter I will deny it completely.

Theodore S. Saad

(Ted, we feel obligated to print this and the following letter as proof of our objectivity)

----- Editor

Editor, MTT Newsletter:

--- I doubt whether anyone reads IEEE Newsletters with greater critical interest than IEEE Newsletter editors. As a result I have been impressed for some time by the high standards you have set for your publication.

With the arrival of the current (July) issue, I can't help but be motivated to write and congratulate you on the outstanding job you are doing. I can appreciate the sheer amount of work that had to be done to put the 32 pages together, and yet maintain the overall high quality of both contents and format.

Jan M. Engle, Newsletter Editor
Electron Devices Group

Editor, MTT Newsletter:

--- Don't dare to discontinue to mail me the G MTT Newsletter! It affords much interest and amusement (but don't tell Lionel Davis!) and even arrives as though transported by sail - rather than by snail as earlier in the year. (Of course I know you've all been busy over there winding up the elastic for Armstrong & Co.)

Ron Godfrey
England

Editor, MTT Newsletter:

--- I would very much appreciate receiving the Newsletter by first class mail. I find the Newsletter provides an interesting profile of microwave engineering trends in the USA, but not unfortunately in Europe.

I submit two entries for the symbol contest, these are attached. I wish you and the Newsletter every luck.

Stanley Summerhill
Switzerland

Third Class



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LOS ANGELES, CALIFORNIA 90005

