IEEE ELECTROMAGNETIC COMPATIBILITY GROUP

NEWSLETTER

ISSUE NO. 68 - APRIL, 1971 **EDITOR** ROBERT D. GOLDBLUM

71' EMC SYMPOSIUM HIGHLIGHTS

The 1971 EMC Symposium Program is receiving its final touches at the time of this writing and should be received by Group members in April. Since EMC is an interdisciplinary technology, Dr. Ralph Showers (Program Chairman) and Dr. Fred Haber (Papers Chairman) have demonstrated their expertise to develop a broad program of excellence which should be attractive to all EMC engineers and individuals with EMI problems.

There are over six evening workshop sessions planned to delve extensively into basic EMC problem areas such as grounding and bonding, shielding, interference in high voltage systems, measurement techniques, EMC standards and systems management. Each workshop will have a renowned expert in the subject as moderator. Tentatively, the regular sessions will be as follows. However, you should check your programs for schedule changes.

Session No.	Time	Session A	Session B
0 Tues.	9:00 - 10:15	Opening Session	
1 Tues.	10:30 - 12	Gov't & EMC	Filtering
2 Tues.	12 - 5	EMC Standards	Shielding
3 Wed.	9 - 12	Compat. of Home & Industrial Devices	Interference Production Fields
4 Wed.	2 - 5	Biomedical Applic. Digital Systems	Interference Prediction Circuits Measurement and Instrumentation
5 Thurs.	9 - 12	Spectrum Pollution	System Compatibility
6 Thurs.	2 - 5	Freq. Allocation & Spectrum Conservation	Interference Control

If you plan to arrive on Monday, try to come early. Your AdCom will be meeting during the day and there may be additional workshops planned for the evening prior to the formal opening of the session on Tuesday. For those of you who are planning an adjacent vacation, New York City is 90 miles to the North; Atlantic City, 60 miles to the East; and Lancaster (Penna. Dutch country) is only 60 miles to the West.

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EDITOR'S NOTE:

In these days of high unemployment and tight monetary policies, the support of the technical societies by industry has been greatly reduced. Nevertheless, some companies still stand solidly behind their employees who actively participate in society activities, and somehow find the means and resources to help fulfill their commitments. Among these is the General Electric Company, Re-entry and Environmental Systems Division, which I am proud to say, is my employer. Not only have they supported my endeavors as Newsletter Editor and 1971 Symposium Chairman over the past three years, but continue to provide encouragement, leadership and the time and travel expense required to pursue these activities. There are many individuals within GE who have contributed their support over the years. It is my appreciation to them and especially to my present immediate management that I make this acknowledgement. In particular, I would like to thank Gordon MacLeod, Manager, Electronic Systems Requirements Laboratory, and Richard Davis, Manager, Electro-Mechanical Systems Requirements Laboratory for their support in these days of economic austerity. Perhaps, by working together in the technical societies, the engineering community can help restore a more prosperous future for all of us.

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AIRWAVES & REGULATIONS

VALUES OF SPECTRUM MANAGEMENT

Decisions affecting the use of the electromagnetic spectrum need to include the counsel of persons trained in the social sciences, a panel of the National Academy of Engineering concluded in a recent report. (The Application of Social and Economic Values to Spectrum Management, National Academy of Engineering, July 1970. 100 pp. Available from the Committee on Telecommunications, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.)

Increasing demands on the available radio frequencies are forcing decision makers to place more emphasis on the potential social and economic benefits of a particular spectrum management decision. However, the Panel on Spectrum Value of the Academy's Committee on Telecommunications, which prepared the report, found that no clear-cut formula approach to spectrum management is possible at this time because of the lack of suitable methods to define and measure these factors.

To assist the persons actually making the decisions, the panel recommended the establishment of s small staff of highly trained persons to analyze the large amount of economic and social data available in many government offices and laboratories and to relate them to the necessary technological considerations.

The judges themselves, the panel pointed out, should be familiar with economic analyses and sociological trends and opinions, and should understand the relative importance of the different technical factors to be considered. If possible, various disciplines should be represented among the decision makers.

The study was conducted at the request of the Office of Telecommunications Management, Executive Office of the President.

FCC TO OPEN FIRST SPECTRUM CENTER

The Federal Communications Commission reported it will open its first regional radio spectrum management center in Chicago

in an effort to improve land mobile system operations in urban areas.

The Commission, in a notice of proposed rulemaking, also disclosed it is instituting a new computer application and information program to obtain more information on land mobile systems.

The regional management concept was approved in an attempt to reduce land mobile radio frequency congestion in urban areas.

The FCC said: "If the regional management concept is to be applied to all metropolitan areas where there are or will be land mobile frequency problems, 10 to 12 regional centers may ultimately be required." It added, however, that "The ultimate number of centers can best be projected after further experience."

The Commission said the changes are necessary because of the rapid growth of land mobile communication services. It noted that at the close of fiscal 1970 it had authorized over 300,000 land mobile systems varying in size from a few radio transmitters to upwards of 1000 transmitters each.

The FCC proposed an initial frequency plan which will divide land mobile frequencies into two categories. Category I will consist of the spectrum space allocated to the police and fire radio services. Category II will consist of other land mobile services such as public safety, industrial, land transportation, broadcast remote pick-up, domestic public land mobile, and citizens radio.

SPECTRUM MANAGEMENT TASK FORCE ESTABLISHED BY FCC

Part 0 of the Rules has been amended by the FCC in order to formally establish the Spectrum Management Task Force created on February 9, 1970, to implement the Commission's Spectrum Management Program. This is a long-range program to promote more effective utilization of the crowded radio spectrum by introducing systems engineering concepts and by decentralized frequency management which would consider each area's unique economic, social, demographic and other factors in making frequency assignments.

Located within the Office of Chief Engineer, the Task Force is responsible for developing policies, plans, systems and procedures for the program and for establishing regional spectrum management centers. The Task Force makes recommendations to the Chairman and Commission on policies, rules and regulations concerning decentralized frequency management; carries out research and development projects and systems engineering projects required to implement the program; develops data banks and data processing systems for decentralized frequency management; and establishes and operates regional management centers.

Created to administer the regional management program recommended by several recent studies of land mobile frequency congestion, the Task Force is a transitional organization and after the development and testing phases of the program have been completed, its functions, activities and regional centers will be incorporated into the Commission's permanent organizational structure.

OTP, FCC IN JOINT STUDY OF RADIO FREQUENCY USE

The White House Office of Telecommunications Policy is making a study of U.S.use of the radio frequency spectrum. Clay T. Whitehead, director of the office, said the Federal Communications Commission will join OTP in making the study.

The review will commence immediately because the executive order setting up OTP "includes not only responsibility for frequency assignments for U.S. Government radio stations, but also the development in coordination with the FCC of a comprehensive long range plan for improved management of all electromagnetic spectrum resources," Mr. Whitehead said.

Mr. Whitehead said he is also asking the Interagency Radio Advisory Committee to prepare a statement of the nature and magnitude of the government's use of the spectrum.

"The joint review is expected to be an in-depth analysis of the nature and scope of spectrum use by both government and non-government interests. Information derived from the review will be used to develop long-range planning responsible to the nation's growing telecommunications requirements," the White House official declared.

In another action, Mr. Whitehead said the Nixon Administration has made no decision concerning legislation which would strip AT&T and other communication common carriers from the board of directors of Comsat. [Excerpted from Electronic News, Jan. 18, 1971]

RADIO SPECTRUM UTILIZATION IN SPACE

The Joint Technical Advisory Council (JTAC) gives a new authoritative look at the effect of space communication on one of man's natural resources in its recently released book RADIO SPECTRUM UTILIZATION IN SPACE.

This important new report deals with the variety of technical problems that are developing due to the added space use of radio spectrum. Included in this new reference volume are up-to-the-minute discussions of such problems as:

- Spectrum for space services in the 1970s.
- The multi-dimensional aspect of space and spectrum, relative to satellite communication.
- Considerations in antenna designs on both satellite and earth to provide the greatest spectrum utilization over the largest earth area.
- Effect of modulation techniques on the reuse density of the geostationary spectrum.
- Propagation effects.
- Considerations in the assignment of radio frequency spectrum to satellite and terrestrial users, including sharing criteria.
- Significant experiments that will affect communications in the 1970s.

Copies of the book are available from IEEE, 345 East 47th Street, New York, N.Y. 10017. IEEE & EIA members enclose check for $12; others, $24.

NEWSLETTER COMMITTEE

Many of us who have delved into the discipline of EMI/EMC for over the past thirteen years remember the first publication of a Newsletter devoted to electromagnetic interference. At that time, it was entitled "Quasies and Peaks" and was published and edited by a gentleman named Rex Daniels. Rex continued this publication as his personal contribution to society until after the formation of the PGRFI organization within the IRE. After Milt Kant edited the first issue of the IRE PGRFI Newsletter on January 2, 1958, Rex assumed the reins as Editor for the ensuing years. At his own request, Rex retired as editor in April 1968.

At the recommendation of Rex, Bob Goldblum was appointed as Editor by the chairman of the Administrative Committee, starting with issue No. 54 in July 1968. Applying his objective to make the newsletter more "people" oriented, Bob appointed Marty Berman as Associate Editor for Chapter Chatter, and Bill Duff as Associate Editor for Steering Committee Reports. Rex Daniels continued his association with the publication in the capacity of Consulting Editor.

The Newsletter Editor's Manual States that "the Newsletters are intended to bridge gaps between the Administrative Committee, the local chapters, and the individual members of the Group. They are intended to supplement the Group Transactions, national Group meetings and local chapter meetings. The prime object should be to supply the Group with information of interest to the membership that is not otherwise conveniently available.

It is the decision of the Administrative Committee of the IEEE Group whether to publish a Newsletter. Usually it is the responsibility of the Chairman to select the Newsletter Editor. Since most groups have a new Administrative Committee Chairman each year, it means that each year a new appointment is made. However, for many groups the practice has been to reappoint the same Newsletter Editor for more than a single year."

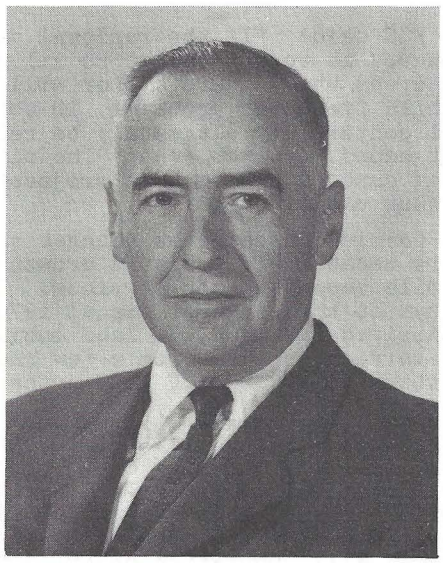
Economics now play a large roll in preparing the Newsletter. Each issue is page-count limited and it is mailed second class. There are only four issues a year presently scheduled. Until recently, the IEEE Office has acted as publisher and printer. However, the Editor has undertaken the entire production with the goal of saving the Group $800. a year.

Since the Group Bylaws and Constitution are rather vague on the content of the Newsletter, the Editor has attempted to canvass the membership for comments on editorial content. The response has been sparse. However, the G-EMC Newsletter was rated second among all Group Newsletters in satisfying the needs of the members by a survey conducted by the IEEE in 1969. Reader comments are always welcome! Open letters to the Editor are published when received, and timely topics are given prime attention. The Editors would really like to hear more from the members so that they can plan for the future.

REXFORD DANIELS

CONSULTING EDITOR

Rexford Daniels (Rex), Consulting Editor, has been associated with the Newsletter since its inception in 1958. He served as editor from 1958 to 1968. Rex is a senior member of the G-EMC and has been active in the field of EMC for over 20 years. In addition to his Newsletter activities, he is the G-EMC repre-



sentative on the newly formed IEEE TAB Environmental Quality Committee, is Chairman of the Spectrum Study Committee, and was a principal contributor to the JTAC report "Spectrum Engineering--The Key to Progress". He has published many articles on radiation side effects in Transactions, technical and consumer magazines.

In 1952, Rex organized Interference Testing and Research Laboratory, Inc., served as president until 1959, and as chairman of the board until 1960. He organized Interference Consultants, Inc., in 1960, where he presently is serving as President. His current activities include the investigation of such subjects as dowsing, noxious earth currents, a second force of gravity, radiesthesia and weather control.

Rex graduated from Yale Sheffield Scientific School in 1920 with a Ph. B degree. He served on active duty in the U.S. Naval Reserve for four years during WW II.

Rex, and his wife Nancy, live in the beautiful countryside of Concord, Mass. They have three children and seven grandchildren. Since reaching the age of 65 eight years ago, Rex has been making plans to retire.

ROBERT D. GOLDBLUM

EDITOR

Robert D. Goldblum (Bob), has been Editor of the Newsletter for nearly three years with this being his fifteenth issue. He is a member of the G-EMC and has been active in the field of EMC for over ten years. In addition to being editor of the Newsletter, Bob is a past Chairman of the Philadelphia G-EMC Chapter and is also Chairman of the 1971 International EMC Symposium to be held in Philadelphia. He has published several papers in IEEE Transactions and trade journals, and is

the publisher and editor of ITEM - Interference Technology Engineers Master.

Bob started his EMC career in 1961 with Ark Electronics Corporation in Willow Grove, Pa., and then moved to Sylvania Electronic Systems in Mass. In 1964, he returned to the Philadelphia area as an EMI Project Manager for AEL, Inc. Bob joined The General Electric Company Space Systems Division in 1967 and is

currently functioning as an EMC Consultant in the Re-entry & Environmental Products Division of G.E. in Philadelphia.

Bob received a BSEE degree from The Pennsylvania State University in 1961, and a MS in Engineering Science in 1967. He recently taught and was the director of a three-day course on the measurement and control of EMI for the Center for Professional Advancement.

Bob, his wife Barbara, and their son and daughter live in Plymouth Meeting, Pa. They are expecting an addition to the family in early September.

WILLIAM G. DUFF

ASSOCIATE EDITOR - STEERING COMMITTEE REPORTS

William G. Duff (Bill), the Newsletter Associate Editor for Steering Committee Reports, has been a member of the staff for more than a year. He is a member of the G-EMC and has been active in the field of EMC for about twelve years. In addition to acting as Newsletter Associate Editor, Bill has had several papers published in the IEEE, G-EMC Transactions and various trade journals. He has presented papers at a number of technical symposia and received a "Best Paper Award" for one of his papers.

Bill started his EMC career in 1959 with Jansky & Bailey which is now a part of the Electronics and Communications Division of Atlantic Research, A Division of The Susquehanna Corporation, Alexandria, Virginia. His work with Atlantic Research has encompassed a number of projects in the area of EMC analysis and prediction. As a part of these endeavors, he spent three years in Rome, New York, working on Air Force contracts to develop an interference prediction process for Rome Air Development Center. Bill is currently a principal engineer for Atlantic Research.

Bill received a BEE degree from The George Washington University in 1959, and an MSEE degree from Syracuse University in 1969. He is currently enrolled in the Doctor of Science program at The George Washington University, and has completed all of the course requirements for this program.

Bill, his wife Joan, their son and twin daughters live in Springfield, Virginia. Both

he and his wife are quite active in community activities. They particularly enjoy working with teenagers and have been counselors for Methodist Youth Fellowship groups for the past five years.

IRA M. BERMAN

ASSOCIATE EDITOR - CHAPTER NEWS

Ira M. Berman (Marty), the Newsletter Associate Editor for Chapter News, has been a member of G-EMC for five years, and a member of the Newsletter staff for two. He is presently employed as a System Design Engineer at General Electric's Knolls Atomic Power Laboratory, Schenectady, New York. He moved to New York State in September 1969 to become Engineering Services Manager at Fairchild Electrometrics Corporation, Amsterdam, New York. Marty's prior position was that of EMC Consultant for Aerospace Ground Equipment at the General Electric Re-Entry and Environmental Systems Division, Philadelphia, Pennsylvania.

In addition to writing the "Chapter Chatter" column and occasional feature articles in the Newsletter, Marty chairs the G-EMC Slide-Tape Committee and is active on the Information Retrieval Committee. His membership in the IEEE dates back to 1948, when he joined the AIEE as a Student Member.

Marty holds a BS in EE degree from the Newark College of Engineering, and an MS in EE degree from the University of Pennsylvania. He attended the University's Short Course in EMC in June 1965. He is a Registered Professional Engineer in Pennsylvania.

Marty, his wife Bertha, and their three children live in Niskayuna, New York, a suburb of Schenectady. Both he and his wife are quite active in community and religious affairs in the Niskayuna area.

MEETINGS AND EVENTS

WALSH FUNCTIONS

1971 SYMPOSIUM ON APPLICATIONS

The EMC Group will participate in the 1971 Symposium on Applications of Walsh Functions, together with Naval Research Laboratory and the University of Maryland (Depts. of Math & Electrical Engr.). The Symposium will be held on April 13 - 15, 1971 in the Departmental Auditorium located on Constitution Avenue between 12th & 14th Streets, N.W., Washington, D.C.

Papers reporting the results of research on the applications of Walsh functions in communications, signal processing, pattern recognition, medical electronics, etc., will be presented. The substitution of Walsh functions for the traditional sine-cosine functions creates major problems of interfacing and compatibility. The EMC Group hopes to help overcome these problems.

All papers will be published in a special issue of the IEEE Transactions on EMC.

1971 EUROPEAN MICROWAVE CONFERENCE

AUGUST 23-28, 1971---STOCKHOLM, SWEDEN

The 1971 European Microwave Conference will be held in Stockholm, Sweden, at the Royal Institute of Technology on August 23-28, 1971.

This international conference is the second in Europe to deal comprehensively with the subject of microwaves. It is organized by the Royal Swedish Academy of Engineering Sciences with the participation of IEEE (Electronics Div.), IEEE Region 8, an IEEE Group on Microwave Theory and Techniques, and the Swedish National Committee of URSI.

In addition to short contributed papers, all of which will be orally presented, there will also be invited review papers covering important subjects. The conference will cover research and development in the fields of microwave solid state devices, components and computer analysis, integrated techniques, antennas, microwave acoustics and applications of microwaves.

A tentative conference program and information concerning accommodations will be mailed in April 1971 to those who send their request to:

1971 European Microwave Conference
Fack 23, 104 50 Stockholm 80, Sweden

CALL FOR PAPERS

VEHICULAR TECHNOLOGY CONFERENCE

DECEMBER 7-8, 1971---DETROIT, MICHIGAN

Papers covering contributions in the following or related areas are invited:

Vehicular Communications Techniques
Digital Techniques
Spectrum Utilization
Data Transmission
Antennas
900 MHZ Equipment Technology
Computers

Prospective authors are requested to submit six (6) copies of an 800 to 1,000 word summary of their paper, single-spaced with a two-inch left hand margin and typed in a 4-3/4 inch column. The cover page should include the name, title, company affiliation, and address of the author or authors. Summaries are to be submitted by June 15, 1971, to the Technical Program Chairman:

Mr. A. E. Marshall
Ford Motor Company
23400 Michigan Avenue
Dearborn, Michigan 48124

I. E. S. ANNUAL MEETING IN LOS ANGELES

The Institute of Environmental Sciences will hold its 17th Annual Meeting and Equipment Exposition at the Biltmore Hotel, Los Angeles, California during the week of April 26-30, 1971. Mr. Richard T. Nichols, Lockheed Missiles and Space Company, Sunnyvale, California, is Technical Program Chairman for the technical meeting.

The theme for the meeting is "Living in Our Environment", and the purpose is to bring together the key people in the Physical Sciences with those of the Biological Sciences in an effort to solve the problem of man's hostile environment.

The meeting, which is of international interest, will feature 24 technical sessions with 110 presentations having strong emphasis on environmental earth sciences. Messrs. Andrew W. Breindenbach and Paul DeFalco, Jr., of the Environmental Protection Agency, U.S. Department of HEW will be keynoters for the "Environmental Pollution" session. Mr. Breindenbach is Director, Division of Research and Development in the Agency's Rockville, Maryland office. Mr. DeFalco is Director of the Agency's Water Quality Office located in San Francisco, California.

Mr. Nichols states that other sessions will also have experts in their respective fields as chairmen. Assisting Mr. Nichols in planning the technical program is William H. Smith, General Electric Company, Hayward, California, Assistant Chairman; and Gerald Gallagher, M.I.T., Lincoln Laboratories, Lexington, Mass., who was Technical Program Chairman last year.

The Institute of Environmental Sciences is a professional society of engineers and scientists simulating and testing in the environments of earth and space, for the betterment of mankind and the advancement of industry and science. For further information, contact Mr. G. E. Grady, Publicity Chairman, 16 Puritan Road, Salem, Mass. 01970.

PUBLICATIONS

NDT OF EED'S

By pulsing an electroexplosive device with a safe level constant current and examining the resistance variation of the bridgewire, it is possible to explore the electrothermal behavior of the bridgewire-explosive interface. The bridgewire, acting as a resistance thermometer, provides a signal which describes the average wire temperature and the heat sinking to the explosive and enclosure. Report describes equipment and observations specific to nondestructive testing of 1-W/1-A no-fire devices. "Nondestructive Testing of Insensitive Electroexplosive Devices by Transient Techniques," by L.A. Rosenthal and V.J. Menichelli, Jet Propulsion Laboratory, Technical Report 32-1494, July 15, 1970. Order as N70-355563 from Nat. Tech. Info. Service, U.S. Dept. of Commerce, Springfield, Va. 22151.

NEW NBS PUBLICATIONS FOR CONSUMERS

Everyone wants to spend his money wisely. And today, more than ever, that's hard to do. New products are constantly appearing, old products are changing, designs are complex, quality varies, and good advice is hard to come by. To help the consumer make informed decisions in the marketplace, the Bureau has initiated a Consumer Information Series. The booklets in this series contain accurate, informative material, well illustrated and easy to read, on a variety of consumer topics. Three booklets are already available--on fibers and fabrics, tires, and adhesives--with many more to come. The Series is but one part of the Nixon Administration's program to provide practical assistance to the consumer.

The first of the Series, Fibers and Fabrics (NBS Consumer Information Series 1, by Josephine Blandford and Lois Gurel, 65 cents) provides the information needed to select and care for fabrics, apparel, furnishings, and other textile products.

Buying tires is a difficult decision, one with decided safety overtones. And properly using and maintaining tires is often as important a factor in tire service as making the purchase decision. Tires, Their Selection and Care, (NBS Consumer Information Series 2, by F. Cecil Brenner, 65 cents).

Adhesives for Everyday Use (NBS Consumer Information Series 3, by Karl F. Plitt, 40 cents) describes the adhesives now available, and lists their major uses.

Five more booklets are now in various stages of development: Hearing Aids, Care of Books and Documents, Flooring, Plywood, and Seat Belts. Each is being prepared by Bureau personnel expert in their particular field, under the general direction of James E. Payne, editor for the Series.

The three booklets described here, and all subsequent booklets in the Series, can be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

G-EMC TRANSACTIONS CONTENTS FOR MAY

Calculation of the Near Field of a Circular Aperture Antenna Using the Geometrical Theory of Diffraction. . . T.E. Cherot, Jr.

Missile Circumferential Current Density for Plane Wave Electromagnetic Field Illumination . . . . . C.W. Harrison, Jr.

Transient Currents Induced on a Metallic Body of Revolution by an Electromagnetic Pulse . . . . . D.E. Merewether

Interaction of Magnetic Fields and Ferromagnetic Shields . . . . . D.A. Still

Pseudo-Random Coding for Improved Antenna Range Measurements . . . R.A. Cantrell et al.

A Spectrum Prediction Technique for AM Pulses of Arbitrary Shape . . . . . S. Gutsche

Multiple and Partial Correlation between Atmospheric Noise Levels at Different Frequencies . . . . . P.J. Joglekar

Prediction of Mixer Intermodulation Levels as Function of Local Oscillator Power. . . . . E.F. Beane

Measurement of Rocket Engine Spark Gap Ignition EMC . . . . . L.F. Babcock

The August 1971 Transactions will be a special issue covering the Walsh Functions Symposium with the addition of our own editorial. The next regular issue will be November, 1971.

IEEE PUBLISHES NEW STANDARDS CATALOG

A new, enlarged catalog of standards and related publications is now available from the Institute of Electrical and Electronics Engineers. Listing more than 200 standards documents, the IEEE Standards Catalog features an extended, easy-to-use subject index and a thoroughly revised format.

Included are listings of publications on definitions, methods of measurement, test procedures, recommended practices, specifications, guides and associates documents. Listings of American National Standards developed within IEEE and available from IEEE are detailed.

Copies of the catalog can be obtained without charge by writing:

Standards Office, Catalog Dept.
Institute of Electrical and Electronics Engineers
345 East 47th Street
New York, N.Y. 10017

1969 SYMPOSIUM PROCEEDINGS AVAILABLE

A few copies of the 1969 EMC Symposium proceedings are available at no cost on a first come, first served basis. If you have a need for a copy, write to Mr. John J. O'Neil, Symposium Chairman, at the following address:

Mr. John J. O'Neil
U. S. Army Electronics Command
ATTN: AMSEL-NL-C
Fort Monmouth, New Jersey 07703

PROGRESS & PRODUCTS

AEL EMC TEST CHAMBER SWALLOWS HELICOPTER

American Electronic Laboratories, Inc. subsidiary AEL Service Corp., whose aircraft section is located at Monmouth Airport N.J., recently "Swallowed" a Bell Iroquois Helicopter within its 20' x 44' x 16' shielded enclosure. The AEL Service Corp. engineering staff submitted the aircrafts' electronic gear to electromagnetic compatability tests.

Use of the shielded enclosure permitted AEL Service Corp. to test newly developed aircraft equipment installations for susceptibility to electromagnetic energy radiation in a range of 2 MHz to over 1 GHz . . with complete freedom of choice of frequencies.

Transmitting equipments operated in the helicopter during the tests included 400 W PEP HF SSB, 25 W VHF-FM, 50 W VHF-AM, 25 W UHF and 1 kW peak "L" band ATC transponder.

To have tested the helicopter outside the enclosure would have required extensive frequency coordination efforts with civil and military agencies and many compromises with respect to frequency usage.

Use of the enclosure not only provided flexibility in frequency selection but also enabled AELSC to complete the testing with significant time savings.

For information contact AEL Service Corp., Mail Stop 1362 at P.O. Box 507, Lansdale, Pa. 19446

STANDARD IMPULSE CALIBRATION UNIT

HISH & ASSOCIATES, INC., announced their Model IC 7010 which provides a direct link between your impulse generators and National Bureau of Standards. Calibration of Impulse Generator Spectral Intensity is readily accomplished with accuracies which have never been achieved in the past.

Model IC 7010 is capable of calibrating Impulse Generators with less than 0.3 db uncertainty. The key to this accuracy is due to a new method representing a conceptual breakthrough by Autometics, Division of North American Rockwell.

Spectral intensity in terms of db/uV/MHz is provided by digital readout.

For more information, contact Andy Hish, 5401 Burnet Ave., Van Nuys, Calif. 91401.

ELECTRICALLY CONDUCTIVE TEXTILE

A new line of electrically Conductive Textile Products is available from Technical Wire Products, Inc., 129 Dermody St., Cranford, N. J. 07016. Included are 30 denier conductive nylon monofilament and a selection of knitted, woven or spun-bonded textile fabrics having a resistivity of less than 10.0 ohms per square. Silver coating is applied to nylon substrates which provide high strength, light weight, moisture and chemical resistance.

The conductive monofilament yarns are knitted or woven into nonconductive textile fabrics to eliminate static electricity build up. This is a prime safety consideration when dealing with highly explosive or flammable materials. Other uses for Conductive Textile Products include reflectors for inflatable antennas, EMI/RFI shielding curtains, protective "corona" suits for high voltage lineman and body contacts for electromedical use.

PEAK CURRENT: ENERGY INDICATOR

The following item appeared in the January 1971 issue of "Explosives & Pyrotechnics", published monthly by The Franklin Institute Research Labs in Philadelphia:

Transient currents damage sensitive electronic equipment. These transients have now been measured with a simple, tapered piece of metal foil (manganin in this instance), coated with Tempilaq, a material that changes appearance when a certain temperature is exceeded. A current pulse applied to the strip causes a temperature gradient and melts a distance along the strip (thin end to thick end) that is proportional to $\int i^2 r dt$, which is the energy applied to the strip. Measurement of the distance allows computation of $\int i^2 r dt$. Device has possibilities in the EMC and EED field both as a simple field diagnostic tool and laboratory research device. Patent has been applied for. ["A Passive Technique for Measuring High Transient Currents," by Robert Parker, Report UCRL-71967, preprint for 25th ISA Conference. Lawrence Radiation Lab., University of California, Box 808, Livermore, Calif. 94550.]

HEATH KIT ASKS FCC PROTOTYPE OVEN CERTIFICATION

The Heath Company, manufacturers of the do-it-yourself Heath kits, has asked the Federal Communications Commission to come up with new EMI certification rules for microwave ovens. In petitioning the FCC for prototype rather than pre-use certification, Heath complained that it lost the 1970 Christmas market. The Company said, "Type-approval, which is available to all factory assembled microwave ovens, is not available to kits. The pre-use certification, which is the rule-provided alternative to type approval would be so costly and burdensome to the purchaser as to be totally impracticable."

Heath also asked the Commission for a temporary waiver of its rules to permit the company to market its oven kits on a type acceptance basis, pending resolution of the matter through a formal FCC inquiry. [Excerpted from Microwaves, Jan. '71]

INTERFERENCE LOCATOR

The Sprague Model 600A is a completely solid-state interference locator that is expressly designed for electric utilities, laboratories, and industries concerned with detection and location of r-f noise sources. It can prove effective in preventive maintenance programs because many incipient faults begin to emit detectable radio noise before actual service failure occurs.

Easy-to-operate, the Model 600A has a wide frequency range tuning from 540 kHz to 220 MHz in 6 bands. This range covers standard AM broadcast, AM shortwave, FM broadcast, and VHF-TV spectrums. The unit has meter indications proportional to the quasi-peak value of the interference or carrier as well as a sensitivity of 2 microvolts or better, for 5% meter deflection over the entire tuning range.

Rugged and compact, the instrument is readily portable. Measuring $4\frac{1}{2}$" high x $16\frac{1}{2}$" wide x 11" deep, it weighs 17.5 pounds, including batteries. A detachable shoulder strap is provided for convenient field use. In addition to the basic instrument, a complete set of accessory items is available to facilitate use of the Locator in tracing all types of interference.

For additional information, write to: Sidney L. Chertok, Director of Information Services, Sprague Electric Co., North Adams, Mass. 01247; (413) 664-4411.

ACQUISITION OF B. F. GOODRICH MICROWAVE ABSORBER PRODUCT LINE BY EMERSON & CUMING

An agreement effective December 31, 1970 transfers the entire B. F. Goodrich, Shelton, Connecticut microwave absorber and anechoic chamber product lines and business to Emerson & Cuming, Inc., Canton, Massachusetts.

Emerson & Cuming, Inc. thereby, is able to offer the largest and most comprehensive product line in the world not only for microwave anechoic chambers, but also for all types of microwave absorbers and glossy dielectric materials (according to the announcement).

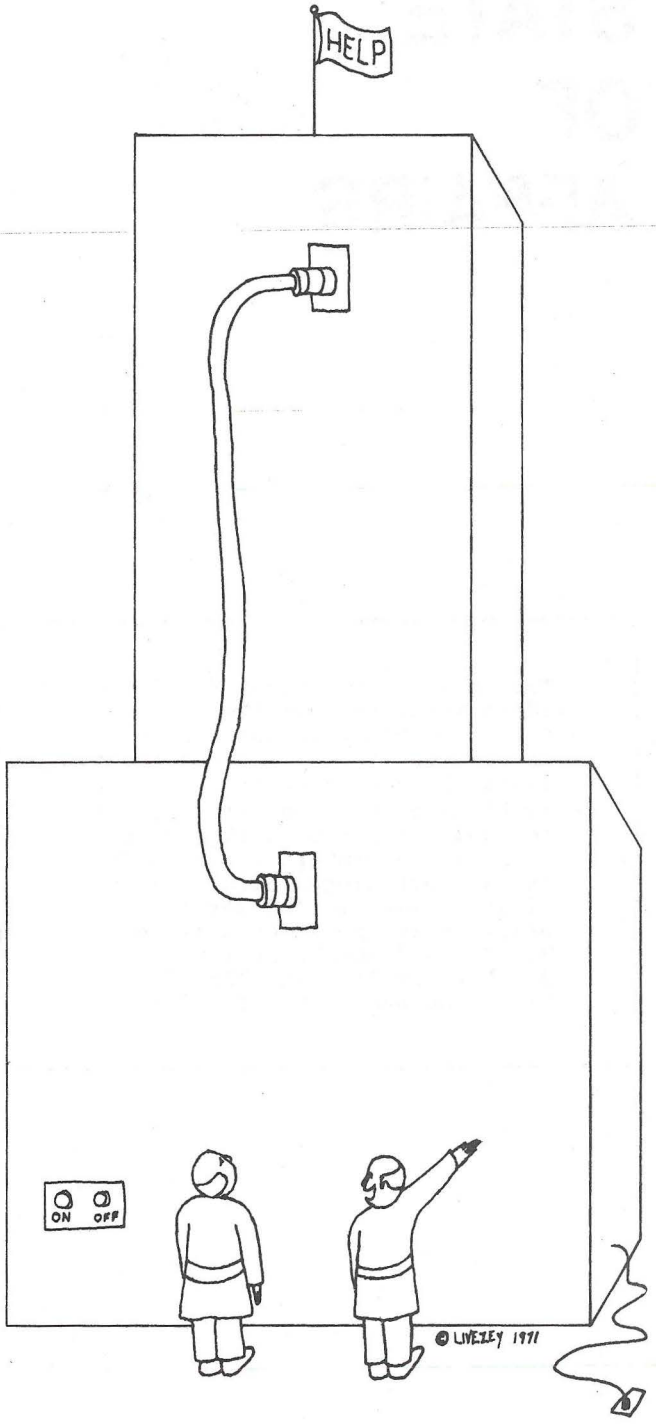
The transfer includes all pertinent patents, machinery and special equipment, complete current inventory of microwave absorbers, special microwave testing equipment, and all technical know-how.

GEORGE UFEN JOINS SIGNALITE

George R. Ufen, the Chairman of last year's EMC Symposium in Anaheim, has been appointed Western Manager for Signalite, division of General Instrument Corporation. In this capacity he will serve, administer, support and train the network of manufacturers representatives west of the Mississippi River. George's office is located at:

229 North Central Avenue
Suite 601
Glendale, California 91203
213-247-6190

Signalite manufactures neon glow lamps, noise sources and spark gaps in Neptune, New Jersey.



"It would have been portable but we forgot to design in interference suppression."

STATE OF AFFAIRS

The annual nominations for G-EMC administrative Committee are currently being accepted. Chapter chairmen are requested to assist by notifying their membership. Nominees are required to submit a petition signed by at least 15 members of the G-EMC, and a short biographical sketch of approximately 100 words. Deadline for petitions will be May 31, and may be sent to J.F.Fischer,Jr., 769 33rd St., Manhattan Beach, Calif. 90266.

IEEE ENTERS ENVIRONMENTAL QUALITY AND SOCIAL PROBLEMS FIELDS

In response to the recommendations of its Vice Chairman in 1970, Dr. John R. Whinnery, for action on the impacts of electrotechnology on environmental quality and social problems, the Technical Activities Board (TAB) has authorized two new TAB committees: The TAB Environmental Quality Committee and the Ad Hoc Committee on the Application of Electrotechnology to Social Problems. The first Committee will be operational and, therefore, permanent while the second will be active just so long as social problems need to be identified from an electrotechnical standpoint. The Environmental Quality Committee is now in the process of being organized and will include representatives from all IEEE Groups wishing to participate.

The Purpose and Activities of the TAB Environmental Quality Committee have been approved, as follows:

PURPOSE

To coordinate and stimulate the efforts of the IEEE Groups in the field of environmental quality to better apply electrotechnology and make information available to those that need it.

ACTIVITIES

1. Arrange with other engineering, scientific and governmental groups and societies for the establishment of technical meetings on environmental quality that may be expanded later to international meetings.
2. Document the technical areas of activity and interest of the IEEE.
3. Plan the dissemination of information on IEEE activities in this field.
4. Arrange for sessions at IEEE regional meetings and conventions.
5. Document the availability of resources for use by the Institute and others.

The roles of the Ad Hoc Committee on the Application of Electrotechnology to Social Problems will be as follows:

(a) To identify more clearly and specifically the problems to which IEEE might contribute solutions;
(b) To identify relevant present interests and activities of the Groups;
(c) To coordinate and otherwise facilitate joint efforts, particularly to support new activities, program and projects;
(d) To serve on behalf of TAB and the IEEE with respect to general intersociety arrangements that may need to be negotiated;
(e) To recommend how TAB might best organize its efforts to support this social problem area on a continuing basis.

The first activity in which the Environmental Quality Committee will participate will be a Joint Conference on Sensing of Environmental Pollutants to be held in Palo Alto, California, November 8, 9 & 10, 1971. The Conference is being sponsored by AIAA, ISA, ACS, IEEE, NASA, and NOAA. A call for papers has already been issued; three copies of drafts or abstracts must be submitted by May 14, 1971 to the Technical Program Chairman:

Dr. Robert L. Chapman
Beckman Instrument Company
2500 Harbor Boulevard
Fullerton, California

The G-EMC Group will be represented on the TAB Environmental Quality Committee by:

Rexford Daniels
P. O. Box 129
Concord, Mass. 01742

All members of G-EMC who wish to participate in the Group's contributions to the Environmental Quality Committee's work, or who feel that they can make an immediate electrotechnical contribution should get in touch with Mr. Rexford Daniels.

All members of G-EMC who wish to participate in the Group's contribution in this field should get in touch with the Group Chairman.

EMPLOYMENT, RECRUITMENT, PORTABLE PENSIONS, AND SELECTIVE INFORMATION SERVICE

Presented below is the substance of a letter from Harold Chestnut, IEEE Vice President, Technical Activities, and Chairman of the Technical Activities Board, to the IEEE Board of Directors.

1. At a meeting of the Technical Activities Board on December 7-8, there was much discussion about the employment (or unemployment) problems of many IEEE members, IEEE assistance with recruitment, and portable pensions. Almost without exception, the Group Chairmen reported numerous contacts with IEEE members (both currently employed and unemployed) that reveal strong undercurrents of dissatisfaction, or disaffection, with respect to IEEE's official position and performance in the 1970 employment situation. There are grass-root member feelings that IEEE produces much talk but little constructive and helpful action on these problems.

2. TAB developed recommendations, or statements, on specific aspects of the employment problem, with the hope that these would be constructive and helpful steps. A separate memorandum on the matter of 1971 dues and fees payments was submitted to the IEEE Executive Committee at its December 11 meeting; this memorandum suggested several possible courses of action that would give relief to hardship cases with a minimum financial burden on IEEE, while maintaining a close tie to the individual member.

3. In view of the large amount of unemployment among electrical engineers, TAB unanimously requested me to suggest a 1971 moratorium of the IEEE policy statement #18, forbidding any recruitment or job-placement activities at IEEE-sponsored conferences. TAB recommended that orderly and dignified job-placement procedures be established for the 1971 major conferences and International Convention.

4. Because the American Chemical Society is known to be working on a portable pension plan, TAB felt that the IEEE membership should be kept informed. Accordingly, it was suggested that the informative report prepared by General Manager Fink and published in the November issue of Spectrum be supplemented with brief but regular news items about recent developments. The first such item should appear in the first available issue of Spectrum, to indicate to the membership that IEEE is continuing to give attention to this matter.

5. Many members expressed a willingness to pay increased dues to IEEE if, in turn, IEEE would provide information and services tailored to meet current needs. These include both technical needs, e.g., a more selective information service, as well as more general support of the electrical engineering profession. In some cases, the relative advantages and disadvantages and costs of converting to 501 (c) (6) status was at issue. It was even suggested that a clear and factual comparative statement on the 501 (c) (6) issue might be a proper matter for a membership referendum. A proper sampling of membership opinion might reveal unsuspected support for a revision of IEEE dues and services and such a sampling is suggested as a part of the current efforts to improve the IEEE posture.

IEEE GROUP INSURANCE PROGRAM

As the Institute's Group Insurance Program enters its tenth year, the following has been announced by Donald Fink, IEEE General Manager:

> A 50% dividend credit for the Life Insurance Plan.
>
> A 20% increase in benefits for the Hospital Dollars Plan.

These improvements are possible because the results of all favorable experience are given to participating members in the form of dividend credits, rate adjustments and benefit increases.

The program is composed of five separate Plans, each with multiple options to suit your personal preference and financial needs. The cost to IEEE members is below what the same protection would cost if they were to purchase it individually.

The Institute incurs no expense and receives no financial benefit as a result of this Program. (The entire cost of mailing material about the Insurance Program to our members is paid by the Administrator and the insurance companies.) It is hoped that this service will be of interest to you. In reply please address:

Administrator, IEEE Group Insurance Program
1707 L Street, N.W., Suite 800
Washington, D.C. 20036
Tel. (202) 296-8030

IEEE REDUCES DUES FOR UNEMPLOYED MEMBERS

IEEE members, who are currently unemployed through involuntary termination and are actively seeking re-employment, may continue their IEEE membership through December 1971, with all privileges, publications and services covered by membership dues (and by Group or Society fees, and subscription fees, if any) by payment of <u>one-half</u> of the established dues and fees. To take advantage of this arrangement, a signed statement must be submitted to IEEE Headquarters indicating that the member is involuntarily unemployed and seeking re-employment. No action to reduce the dues or to rebate payments already

made can be taken until such notification is received at IEEE Headquarters.

The unemployment notification can be accepted until July 1, 1971. Membership will be resumed when the notification is received and publication services will be carried back to the first of the year, subject to availability of back issues.

Any member, who is unemployed and has already paid the full dues and fees for 1971, will be sent a rebate for the excess paid upon receipt of his unemployment notification and a request for rebate.

NEW SOCIETIES FORMED WITHIN IEEE

Major changes in the organizational structure of IEEE have been announced. The changes involve the creation of three Societies within the Institute's framework; and the merger of two of its Groups.

Effective January 1, 1971, three entirely new Societies were created by action of the IEEE Board of Directors. The three Societies are: The IEEE Control Systems Soceity; The IEEE Computer Society; and The IEEE Power Engineering Society.

The creation of these Societies resulted from the recognition by the IEEE Board of Directors, that these specific areas of technology have shown consistant growth and have made significant contributions to Man's welfare. In addition, it was felt that these areas of technology will continue to develop and provide further contributions to the well-being of society.

The IEEE Control Systems Society's field of interest includes the science and technology that underlies systems, and which can be represented by common mathematical symbolism.

The IEEE Computer Society's field of interest includes theory, design and practices relating to digital and analog computation and information processing.

The IEEE Power Engineering Society's field of interest includes planning, research, development, design, application, construction, installation, and operation of apparatus, equipment, structures, materials and systems for the safe, reliable and economic generation, transmission, distribution, conversion and control of electric energy for general industrial, commercial, public and domestic consumption.

G-EMC IN GOOD HANDS

The following paragraph has been excerpted from a letter to Dr. Heinz M. Schlicke, Allen-Bradley Co., from Dr. R.M. Emberson, Director, IEEE Technical Services:

"The history of man reveals many cases in which outstanding leadership appears at a time of crisis. I have never understood how this happens, but it does. The 1970 EMC Symposium puts G-EMC into a crisis situation, which I really think has been burning for a number of years. It has been our good fortune that your steady hand has been at the helm---to restore financial stability to the Group, to reorient its drive towards long-neglected areas, and to give moral support and encouragement to those who badly needed a boost. Few recognize and fully appreciate your outstanding leadership at this time."

10 WAYS TO KILL A PROFESSIONAL GROUP

1. Boycott all meetings.
2. If you don't boycott come late with a bored look.
3. If the weather is predicted as favorable, hope for 2-feet of snow.
4. Find fault with all officers and contributing members.
5. Never accept an office yourself.
6. However, if you're not appointed for a committee or nominated for office, get sore.
7. Say nothing at meetings but tell everyone afterwards exactly how things should have been done.
8. Do nothing and when other members start things moving, murmur and howl that everything is run by a clique.
9. Always agitate things when programs go smoothly.
10. Never try to get new members. Instead, discourage present members with intensified and continued effort on the previous nine points.

For good measure---always start a side discussion while the main event is taking place. Be noisy.

OCEANOGRAPHIC JOBS TO INCREASE

A new Vocational Guidance Manual, "Opportunities in Oceanographic Careers," by Mr. Odom Fanning, a member of the White House staff, contains an authoritative, although unofficial, estimate that oceanographic jobs in the U. S. will increase from today's 5,800 to 100,000 by 1980. By the end of the next decade, about 20,000 oceanographers will be employed by the civilian agencies of government; a similar number will be employed by the Navy. Ten thousand will be employed by universities and institutes and 50,000 by the private sector--the author forecasts. [Vocational Guidance Manuals, 235 E. 45th St. New York, N.Y. 10017, if you want to buy the book]

IEEE AND NSPE ENTER AGREEMENT ON MEMBERSHIP AND SERVICES

In an action that leaders of the two organizations hailed as a most significant step toward cooperation within the engineering profession in decades, members of the IEEE now will be able to avail themselves of certain services and publications offered by the National Society of Professional Engineers.

The new services will be available at varying fees, and will include eligibility to participate in such activities as the NSPE Employment Referral service and retirement program, NSPE legislative programs, receipt of many NSPE publications, as well as some participation in state and local services.

Commenting on this agreement, Dr. James H. Mulligan, Jr., President of the IEEE stated: "The leadership is well aware of the increasing interest of many of its members in

matters of economic, social and political involvement. IEEE has traditionally limited its activities to the dissemination of technical information concerning electrical and electronic technology. In contrast, the NSPE has limited its activities to the nontechnical area and has developed programs and accumulated expertise in many areas in which IEEE members are presently expressing concern. In addition, NSPE appears to have the particular form of organization needed to be effective in these areas.

"Until 1970, the NSPE confined membership to registered engineers and this prevented many IEEE members from being a part of their activities. With the revised criteria permitting non-registered membership in NSPE, a large number of IEEE members can now become NSPE members. It seemed apparent, however, that if some mechanism could be worked out whereby more IEEE members might take advantage of NSPE's activities, this would provide an immediate opportunity to fulfill their express desire for greater involvement in the nontechnical areas of the profession."

NSPE PUBLICATIONS AND SERVICES

Legislative Bulletin - This publication is issued monthly, summarizing Federal legislation introduced into Congress and as it progresses through the legislative process. It is a four-page bulletin.

Legislative Opinion Request - This publication requests the opinion of those receiving it as to their position on various legislative proposals which may be introduced from time to time. It attempts to summarize with sufficient details to be understood the elements of proposed legislation.

Legislative Action Report - This is issued as legislation progresses through the various stages of consideration. It suggests to those receiving it the desirability of contacting their legislators with the position of the Society and is the mechanism by which the profession can be most effective.

Practice Section Newsletters - NSPE has four newsletters, one each for engineers employed in government, industry, private practice and education. The newsletters primarily report significant developments in the area of employment for each group of engineers. Items reported range from significant statistical information, reporting on studies of value to that type of employment, employment practices, salary and economic considerations and similar concerns.

Professional Engineers Employment Referral Service (PEERS) - This service to which only members of NSPE are eligible permits an unemployed, or soon to be terminated, engineer to place his name and a short resume on his experience on file with NSPE.

NSPE Retirement Program - This program is a combined annuity and mutual fund program to which NSPE members are eligible, providing for an investment program with guaranteed annuity through an insurance aspect and a variable annuity return via the mutual fund.

Salary Survey - The NSPE conducts a biennial survey of the income of its members and reports the results in a variety of breakdowns by age, field of employment, type of work assigned, and degree of responsibility.

The alternatives now open to IEEE members are:

Subscription to NSPE Services - Available at a fee of $15 a year, these services available include: eligibility for the Professional Engineer Employment Referral Service (PEERS); eligibility for the NSPE retirement program; receipt of LEGISLATIVE BULLETIN, Legislative Action Report, Legislative Opinion Request and one practice section newsletter (except PEPP newsletter); participation in the NSPE Salary Survey; subscription to the Professional Engineer magazine; and member rate on all NSPE publications.

Services from State Society Organization - Available at a fee of $30.--$15. to be service charge to National, $15. to be service charge at state level. In addition to the above services, IEEE members would receive the state publication and such other state services and participation as might be available, but would have no vote in state society or National activities. Several states have programs of discussions with employers on desirable employment practices for engineers.

In addition, membership in NSPE is available to IEEE members, subject to eligibility provisions of NSPE which relate the grade of membership available to the specific professional qualifications of the individual engineer. Such membership may be had at fees ranging from $35 to $75, depending on state and chapter in which member functions. As a member, he would receive all services of the National, state and local societies and have voting privileges. Membership would enable participation in all activities of the local, state and National societies in such matters as improving the status of engineers, public relations, community involvements, ethics, career guidance, committee participation, holding office, voting on policy matters, and related activities.

President Mulligan noted further that the cooperative action by the two societies might lead to similar arrangements with other technical organizations.

1970 EMC SYMPOSIUM A FINANCIAL FAILURE

Although the final figures from the 1970 EMC Symposium have not yet been established, indications are that the G-EMC has taken a financial loss of close to $18,000. This result has just about eliminated the surplus from the Group's treasury.

The Symposium Record with the student supplement has been printed in sufficient quantities for free distribution to all G-EMC members and should be received by them in the near future. However, it is unlikely that all members will receive copies of the forthcoming 1971 Symposium Record, unless they attend the symposium or purchase them at $6.00 each.

Obviously, the 1971 Symposium will not operate on a deficit budget. Although no great surplus is anticipated, it will be financially self-sustaining as well as technically rewarding to all those who attend. Your support as an attendee, sponsor or exhibitor will help the Group demonstrate its technical worthiness as exemplified in the technical program.

EMC - A TOPICAL STUDY IN ENGINEERING RADICALISM

by

Neal Orkin

"I want the system changed, and I want it changed now!" Was this the ultimatum of a student radical, an SDS revolutionary? Definitely not! It was an EMI Engineers' demand upon a design engineer to alter the ecology of an electronic system. But what was the reason for such a peremptory demand, and why was it presented in so powerful a tone? Let us examine the causes for such a confrontation.

To begin with, today's engineers have been brought up in a society so permissive, that many of them think nothing of the effects of electromagnetic interference upon other engineers' designs, whether these designs are spacecraft or computers. It is because of this small "effete corps" of technical eunuchs, whose most comfortable position is straddling the engineering fence, that there are so many EMI problems today. The aims of these masochistic and supercilious individuals are shrouded behind a cloak of technical omniscience, a technical omniscience that many times excludes the concepts of good compatible design. Some of these people have even suggested a period of "benign neglect" for those engineers involved in electromagnetic compatibility in order for them to pollute our airwaves with an annoying contaminant known within this tiny fraternity of privileged men as "hash". These people are basically charlatans of technical competence and omniscience.

The time of appeasement has come to an end. When a fire takes place, a man does not run into the room and whisper, "Would somebody please get the water?"; he yells, "FIRE!", and I am yelling fire, because I think fire needs to be called here. There is a cocophony of seditious drivel, and to penetrate that drivel we need a cry of alarm, not a whisper. But today's establishment engineers have asked us, the EMC community, to work within their system. They have even had the audacity to ask us to seek repeal of the Orkin amendment to Ohm's Law: notably, "E = IR, if, and only if there is EMC." It is my belief that we involved in EMC should unite behind a clenched fist and join in the slogan, "Electric Power".

Let me tell you the story of Euclid, the father of modern geometry and Ptolemy, king of Egypt. The great ruler had asked his erudite subject to teach him all there was to know about geometry, giving Euclid little time for preparation and instruction. The great mathematician answered his king in a venerable tone, "There is no royal road to geometry." Today, there is no royal road to electromagnetic compatibility. If we of the EMC community are to "join the system", then let us do so by sheer education of these design engineers; education that involves the use of good EMC design procedures; education that will lessen the pollution of our airwaves, and education that will safeguard the electronic ecology.

If we are to persuade others that EMC is a necessary entity, then let us use a militant persuasion. Let us not use sick invective to convey our thoughts to the design community; but let us use novel concepts to communicate our ideas to the "non-believers". Let us not be charlatans of technical competence and omniscience, but let us be humanitarian ambassadors of good will and harmony. Let there be an end to the rampant permissiveness of the design engineering community, but let us NOT make the mistake of returning to the era of "Apple Pie and Motherhood". Let us seek a newer engineering world within which there is no generation gap between the design and EMC communities.

Dear Fellow Members:

Bob Goldblum sent me the solicitation letter to amend the IEEE Constitution for approval concerning publication in the EMC Newsletter.

I agree to have this letter, by Drs. Galindo and Duncan, published.

In this context, I would like to add the following brief comments:

I have full confidence in Dr. Jim Mulligan, our new IEEE President, that he is fully aware of the situation and capable of solving the problems confronting us, within the constraints given and controllable.

There are some questions "revolting" members should consider:

1. Are we willing to pay higher fees for more and vital services?
2. Isn't the whole difficulty so basic that it exceeds the resources of the IEEE, even if it were completely restructured?
3. Are we willing to develop and relearn new skills to meet needs of higher priority, rather than trying to force the use of our skills developed to overcapacity for things of less priority now?

My letter to Dr. Mulligan, which follows, on the same subject, is indicative of the work going on for quite some time, and with quite some heat, in the managing circles of the IEEE.

In other words, let us define the real problem, its objectives and constraints, before we act hastily.

What is true for the IEEE as a whole, holds also, though in a more restricted way, for G-EMC. Your AdCom, all volunteers, is trying to expand the scope of the group activities to accommodate the exploit shifts in needs. Let's look at this as an opportunity and not as a calamity. Your comments would be very much appreciated.

Sincerely yours,

H.M. Schlicke
Chairman
G-EMC AdCom

Dr. James H. Mulligan, Jr.
National Academy of Engineering
2101 Constitution Avenue
Washington, D. C. 20418

Dear Jim:

I am very sorry that I had to change plans and cannot come to see you on February 17 to discuss member needs.

But, here is my input on member needs, based on broad grassroots observation, which I shall not prettify. We should not overlook these very dominant feelings and make excuses about how difficult it is to change.

We are here concerned with a basic human need: S e c u r i t y. This the IEEE does not satisfy.

The guilds in medieval times, and now the unions and professional societies, like AMA, ABA, and so on, were/are concerned with the welfare and status of their members; except most Engineering Societies. Most restrict, narrowmindedly, their work to publications. This is sufficient only in boom times.

The need for security for engineers can be divided into:

a. Elimination of the "serf" system; resulting e.g. from the non-portability of pensions.

b. Practical, continued education to avoid obsolescence.

As to a.

The only presently feasible way seems to increase social security drastically. This might be most acceptable and would not only apply to Engineers. [No company can be expected to make privileged pension provisions for engineers, and not for accountants.] Is our coupling with the NSPE suffieient for this purpose.

As to b.

Very few read the Proceedings, "except professors", but the majority of our membership is constituted by practicing engineers. I would recommend to relegate the Proceedings papers to respective Transactions. I know that eliminating the Proceedings is a heretical thought, but economy measures always hurt. We could save a lot of money and could be more effective in areas of real membership interest and concern. The Spectrum is much more accepted, read and found practical. Let's build it up. I recommend also to go full speed on the IEEE Press with timely tutorial monographs. I have already contacted Dr. Cotellessa with a specific proposal.

May I suggest a questionnaire, in the Spectrum, to all members, bringing out the points discussed in this letter, so that you get a real feel of what the majority of the members think. Maybe there should be three questionnaires, so that each member can give two to non-members to tell why they have not joined, or why they have quit, the IEEE.

With best personal regards,

H. M. Schlicke

SOLICITATION OF IEEE MEMBERSHIP SIGNATURES

FOR AN AMENDMENT TO THE IEEE CONSTITUTION

Dear Colleagues:

The petition form, when appropriately signed in sufficient numbers, will require the IEEE Board of Directors to place this constitutional amendment before the membership for their decision by ballot.

The need for an organization of electrical engineers with at least the partial purpose of seeking the engineers' economic well-being is patently clear. All other professional groups devote themselves to their membership's welfare. The American Association of University Professors' constitution is typical in that its "purpose is to advance standards, ideals and the welfare of the academic profession." All trades organizations, skilled and unskilled, look after the economic interests of their membership. Church groups do the same. This is how our democracy works. Engineers, however, are not functioning as other professions and special interest groups do, with the result that our economic destiny is not even influenced, much less controlled, by ourselves.

The crux of our difficulty lies in the fact that the IEEE constitution defines the purpose of the IEEE to be purely scientific and educational. This year's president has stated that no economic action can be taken by the IEEE "in view of its present constitution," in either short or long range objectives. We must, therefore, change the constitution.

The enclosed petition offers an amendment which will add an economic purpose to our present scientific and educational purpose. The economic purpose is made primary so as to resolve ambiguities. For example, right now the IEEE has an official "Pre-College Guidance Committee" which is spending membership dues for films and literature which attempt to induce junior and senior high school students to go into electrical engineering. While this may be educational, it does conflict with engineers' present desperate economic plight.

A "lawful" petition of 1/3 of 1% of last year's voting membership (less than 600 signatures) is needed to require the Board to place this before the membership. ONLY 1971 VOTING MEMBERS (NO STUDENT MEMBERS) CAN SIGN. PLEASE COMPLETE THE FORM NEATLY IN INK. DEFINITELY INCLUDE MEMBERSHIP NUMBERS. THE PETITION FORM MAY BE REPRODUCED IF YOU NEED MORE COPIES.

MAIL THE COMPLETED FORM TO:

Drs. Victor Galindo and/or
James W. Duncan, M5/1454
TRW Systems Group
One Space Park
Redondo Beach, Calif. 90278

Mail the forms as they are completed if possible. Solicit others to help. Please act now!

Sincerely,

William Imbriale
Paul Ingerson
Samuel Sensiper

Victor Galindo
James Duncan
William Wong

Members of the IEEE

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