

# ELECTRICAL ENGINEERING®

## SOCIOTECHNOLOGY

JUDGED BY THE FLOW of literature, IEEE on all fronts is doing its share of talking about engineers' sociotechnical obligations, and demonstrating at least awareness of IEEE members' socioeconomic interests.

The subject has been uppermost in the thoughts of speakers at banquets and at highlight sessions of our March Conventions since 1968. . . The Geoscience Electronics Group's symposium in April devoted entire sessions to it. . . The topic will be a dominant one at Wescon, Los Angeles, later this month. . . At the Conference on Engineering in the Ocean Environment, in September, the Keynote address will be on engineering responsibilities in protecting the environment while developing ocean resources. . . Eascon, coming October, is using the theme "Technology and the Course of Mankind. . . The theme selected for our 1971 March Convention is "Technology for a Better World;" socio-technical issues will be allotted time for full treatment. . . So it goes.

OTHER SOCIETIES ACTIVE, TOO. As a matter of fact, IEEE as a mouthpiece for engineers, has had to concede leadership to sister societies for taking public positions. The American Chemical Society initiated in 1965 and published in 1969 a report "Cleaning Our Environment—The Chemical Basis for Action," in which the society took a position on a lively matter of public concern.

The American Society of Mechanical Engineers (ASME) took a more general approach. In the April 1970 issue of its magazine it published goals to direct its total activity, of which three are quoted here:

"To move vigorously from what is now essentially a technical society to a truly professional society sensitive to the engineer's responsibility to the public, and dedicated to a leadership role in making technology a true servant of man.

"To develop procedures for establishing an ASME position on public issues to which engineering views are relevant, and for expressing such views by the Society's officers or other duly authorized spokesmen.

"To provide government at all levels with technical advice in the public interest and to develop a climate of understanding and creditability that will foster a continuing dialogue."

IEEE OFFICERS and the Board of Directors (BofD) have been fully aware of the sociotechnical groundswell, and have been far from inactive. Readers of "Electrical Engineering" (E. E.) and Spectrum will recall the ferment which followed publication, in June '69, of the Wald article; and the steps taken by BofD culminating in the Statement of Policy on Presentation of Sociotechnical Material (E. E. Feb. '70, pp. 2, 4A), applying to meetings and the printed page. . . President Willenbrock in his "State of the IEEE" message (E. E. Apr. '69, p. 4H) noted that other societies were doing a much better job than IEEE in

supplying the press with significant news; and that we should project an appropriate, favorable image to the public. . . President Granger, in this issue of E. E., p. 4A, finds IEEE lacking in concern with the public interest and in contributions to "the identification and solution" of social problems in our field.

Corrective steps are being taken in several directions. . . BofD will look to the Long Range Planning Committee (LRPC) for recommendations 1) as to what IEEE's policies should be, regarding its involvement in governmental and public issues; 2) a defining of what the present issues are, with a view to producing IEEE position papers on each—seriatim, not en bloc. . . BofD's Executive Committee (ExecCom) has asked General Manager Fink and the IEEE staff to make a study of IEEE participation in socioeconomic programs. Spectrum for July '70, p. 106, carried news of this assignment. He will report to ExecCom by early fall. The article pointed out that our presently defined objectives explicitly preclude attempts to influence legislation, whether for the benefit of engineers or of society at large. If IEEE is to enlarge its programs to deal at first hand with the social and economic factors which influence, or are influenced by engineers, IEEE must prudently consider the consequences, both institutional and financial. The study may go so far as to examine the ramifications of IEEE's changing its U. S. Internal Revenue Service tax status from present 501(c)(3) to 501(c)(6).

Additionally, ExecCom has received from the ad hoc Public Relations Advisory Committee (PRAC) a preliminary draft of a new document "IEEE Public Relations Objectives," which includes the publicizing of sociotechnical objectives, as determined. Coordinator Tanner of PRAC, Don Fink, the LRPC, and members of ExecCom will meet in California this month to exchange views on all these matters.

## CHALLENGES AND OPPORTUNITIES

**MEMBERSHIP GOALS.** The IEEE Membership and Transfers (M&T) Committee has established the goal of a 10% increase in membership for each Section, to be met by the end of this year.

Two things to note: 1) that the year is more than half gone! 2) that 1971 Section rebates are based on enrollments of Dec. 31, 1970.

As E. E. has often reiterated, September applications for October 1 elections are "bargains"—15 months of Spectrum, Group fees, and all other services for the price of 12. (Bylaws 108.5, 405.7, 501.7.)

Depending upon whether BofD in August adopts a recommendation of the May ExecCom, and the timing, this perennial bargain may be upped: in which event August '70 applications for Sept. 1 elections will procure 16 months of service for the price of 12—the greatest bargain ever, and a sufficient reason to go after applications hard in August (wherever you can) and in September, certainly, at your very first fall meeting. The advantage dwindles month by month: 4, 3, 2, 1, zero; so react as quickly as you can.

**M&T OPERATIONS IN THE SECTIONS.** E. E.'s editor asked M. F. Jessen, past-chairman of IEEE's M&T, who happened to be in town, whether Section M&Ts plugged these semiannual bargains. "Alas," he said "Less than 50% of the Sections have M&T committees!"

With that poke, Y<sup>e</sup> Ed. seized his typewriter and tapped out a paraphrase (see pp. 4C-D) of part of a 21-slide lecture which W. L. Sullivan had prepared for RAB and initial tryout in Region 3 (Seymour Cambia, Jr., Regional Director). If you don't think there is plenty of scope for a live M&T committee in every Section of IEEE—big and little—read it and weep!

**BALLOTS FOR IEEE OFFICERS** and for Constitutional changes go out to all members the last week of August. Save the biographies—they contain facts, not

available elsewhere, on some people you may meet this year.

Members in Regions 2, 4, 6, 8 will select their Regional Directors. Ballots for Divisional Directors will be included in mailings to voting members in Technical Divisions 3 and 4—the first ones so to vote in a 3-year voting cycle. For Groups included and explanation of cycle see E. E. Feb., pp. 4M-N.

**CALENDAR OF APPOINTMENTS.** In August, after considering names of all proposed candidates for 1971 chairmen of IEEE standing committees and boards, Nominations and Appointments Committee will submit to 1970 BofD and ExecCom a recommended list of chairmen to be appointed by the 1971 BofD and ExecCom.

Each chairman so recommended will be furnished all nominations for committee members made by organizational units and by the 1970 chairman, and will be asked to recommend slates of members by October 1.

THE UNITED STATES, in 1876, celebrated its 100th birthday with a Centennial Exposition in Philadelphia. There the electrical exhibits consisted of Bell's new telephone, "a Gramme machine (from France) that ran one arc lamp, and another Gramme machine (from Cornell University) wound for electroplating; and a Wallace dynamo (made in Ansonia, Conn.) that operated an arc lamp on top of the building." The telegraph in America was 32 years old.

Now, only 5 years intervene before the 1976 bicentennial comes up. The IEEE History Committee is considering the nature of the Institute's participation, at the ripe age of 92. Any suggestions? Write the chairman, Morris Hooven, at IEEE.

## TOP-SIDE DEVELOPMENTS

LAST 1970 BOFD MEETING will be held November 10-11 at Hollywood, Florida.

"IEEE SOCIETIES." BofD, August, will have before it three petitions from Groups, each desirous of becoming an IEEE Society. October E. E. will carry a report if BofD acts.

RAB/TAB MEETING. Regional Directors of the Regional Activities Board (RAB) and Divisional Director of the Technical Activities Board (TAB) will meet August 21 to discuss the RAB/TAB interface in such activities as the Sections' Group Chapters and college Branches and major conferences.

RAB and TAB affairs are due to be presented in depth to BofD at its November meeting.

**NATIONAL AND TRANSNATIONAL ROLES.** The January BofD adopted a Statement of Policy (E. E. Feb., pp. 2-3), now numbered #22-B, on IEEE's engagement in activities specifically national in character, distinguished from non-national. (Constitution, Art. I, Sec. 3; Spectrum, Jan. '70, p. 31). In support of these dual policies, President Granger expressed his personal philosophy in a report to BofD in March. It is printed in full on p. 4A of this E. E.

**OF AND FOR YOUNG PROFESSIONALS.** BofD's ad hoc committee of new talent (see E. E. Feb., p. 2) met in June to organize, and late in July to define their scope and choose a name. The members, "young and bright," were hand-picked by Directors, to advise BofD on ways IEEE can better serve young members and the public. Past President Willenbrock, chairman of LRPC, saw them off to a good start in June.

## PUBLICATION NEWS

**NEW EDITOR FOR SPECTRUM.** David De Witt, Program Manager of IBM's Comments Division, has accepted appointment as Editor of Spectrum, to take effect with the September 1970 issue if approved by August BofD.

IEEE PUBLICATIONS BULLETIN, (gratis), gives ordering information to librarians and information centers for all IEEE's new conference publications, special journal issues, new information services, and new standards publications. The Bulletin will be prepared by Information Services department, will be released in mid-August and appear bimonthly thereafter. It will cumulate information over a one-year

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E. E. is sent without cost beyond dues to officers of IEEE Groups, Committees, Boards, Councils, Conferences, Regions, Sections, Subsections, Chapters, and Branches of IEEE. Second-class postage is paid at New York, N. Y.

period; the sixth issue will be a wrap-up for the year. Format, for convenience, will be 8 1/2" x 11", punched for 3-ring binders.

BACK COPIES. Walter J. Johnson, Inc., and Johnson Reprint Corp. have signed agreements with IEEE to handle back orders for Proceedings, Group Transactions and Journals, "Electrical Engineering" (old style!), AIEE Transactions, and IEEE Spectrum, 5 years old or older; and translated journals produced under National Science Foundation (NSF) grants, 3 years old or older. (For details on translated journals, call Alex McKenzie).

AUGUST SPECTRUM, p. 113, will carry a progress report on the recent reorganization of technical activities.

#### CONFERENCE NEWS

MARCH 1971 CONVENTION. The technical program committee met in mid-July, decided upon session titles, and named the organizers... The practical how-to-do-it sessions at the Coliseum on technical applications, and the film theatre there, both of which unified the exhibits and technical program at 1970 Convention and proved popular, will reappear in expanded form... The Groups have been asked to submit suggestions and actively participate. While all speakers appear by invitation, the committee will consider suggestions. (Submit through Howard Schumacher.)

#### REGION AND SECTION NEWS

OF 205 SECTIONS, 94% operate July-to-June. All over the world, many of our key administrators are getting an initial "feel" of not-too-familiar jobs.

SECTION OFFICERS' INDOCTRINATION. Some of it can be picked up from the rainbow of manuals furnished the Sections, and listed in the Section Manual (E. E. Aug. '69, p. 4; Oct. '69, p. 5) and from the Section Manual itself.

A year ago Emily Sirjane offered a 7-point check-list for Section chairmen (E. E. Aug. '69, p. 4). She now underlines this with an invitation to attend the all-day Section Workshop to be held Aug. 26 at Los Angeles Hilton's New York Room. The RAB's M&T slide-lecture, referred to in this issue of E. E., under Membership Goals, and on pp. 4C-D, will be given, among other features.

Here is Emily's "real-time" spur for August 1970—that is, right now:

The immediate big job facing the new chairman is the organization of his committees... He cannot do the job single-handedly. He needs help—a lot of help—from local members who are interested, able, and willing to devote their services to the Institute... Outstanding members, with special talents and capabilities, must be found to chair standing committees and each committee, in turn, must have an adequate membership to get the job done... Manuals lighten the burden of the Section chairman by providing suggestions for the operations of the several Section committees so vital to a successful Section. The written word is necessary for day-to-day guidance... But there is nothing to take the place of the face-to-face interchange provided at a Section officers' Workshop.

REGIONAL COMMUNICATION. RAB is encouraging experimental methods leading to better Region-Section communications. In Regions 2 and 4, the experiment will consist of periodic "Regional Reports," prepared by the respective Region Directors for their Sections.

SECCION CENTROAMERICA. A note from chairman Rodolfo Koenigsberger of this new Section (welcomed in E. E. June, p. 6) says: "The headquarters of our Section was established in Guatemala." (E. E. had incorrectly said Nicaragua.) Every two years it will pass to another country determined by elections, and every 10 years will be rotated again in the same order."

A thought-out plan for maintaining interests! IEEE has many Sections in North America and elsewhere covering large geographical domains, which have problems of

## REPORT OF THE PRESIDENT TO THE IEEE BOARD OF DIRECTORS

I should like to express two points of personal philosophy with respect to the IEEE and comment briefly on each.

#### Institutional Concern with Matters of Public Interest

Martin Meyerson has said that "a profession is not only the trustee of a body of learning, it is a commitment to service." I am certain that every member of the IEEE would accept that definition - though most of us might encounter some difficulty in particularizing it. Viewing the IEEE as a professional society, from the perspective of Meyerson's definition, it seems to me that we have done very well indeed with respect to our trusteeship for the body of learning identified with electrical science and technology. Our publications and meetings are widely recognized, by members and non-members alike, as preeminent. On the "service" side, however, we encounter more difficulty in "pointing with pride." Certainly, the work of our volunteers as members of the Joint Technical Advisory Council in its studies of radio frequency spectrum utilization is a service to society as a whole (however indirect.) Our role in the accreditation of engineering curricula through the Engineers Council for Professional Development is also a service, though the principal beneficiaries of this particular service tend to be ourselves. In the sense that a commitment to service implies an institutional concern with matters of public interest, and a conscious effort directed towards contributing professionally to the identification and solution of social problems which involve our particular expertise, however, the IEEE has done very little. I have proposed that the Long Range Planning Committee, under the chairmanship of Dr. Willenbrock, consider this area and make recommendation to this Board on the particular programs which IEEE might undertake in this area, and on the organizational approach we might best employ.

#### Trans-national and National Environments

The second area on which I would like to comment is the IEEE's national and trans-national characteristics. Our "national" character is implicit in IEEE's historical background and is evidenced explicitly today by the involvement of IEEE (Regions 1 through 6) in such specifically national concerns as the Joint Technical Advisory Council, Engineers Council for Professional Development, National Academy of Sciences and National Academy of Engineering. It is natural and reasonable that IEEE be heavily involved in matters of a distinctly national flavor. After all, 87 percent of our members reside in Regions 1 through 6, and there is no other strictly National society which could adequately serve the needs of that group. Our overseas members, for the most part at least, recognize that some of the primary values IEEE offers to its membership - its publications programs, for example - are the result of effort expended within (and principally on behalf of) our particular national environment. We need not be embarrassed by our national character, but we must distinguish carefully between our role as a trans-national society and those situations in which our role is dictated by our specific national character.

It is helpful, I believe, to picture IEEE's interests as falling in three general areas, which differ as regards the degree and substance of the national/trans-national dichotomy. Our interests and activities in basic technology (such as circuit theory, electrical noise, semi-conductor metallurgy) have no uniquely "national" connotations. Applications of technology to devices and systems do, in contrast, involve national (or regional) considerations in the sense that any application implies a particular economic, social or cultural context which exerts a strong influence on the engineering alternatives involved. Familiar examples include: frequency allocations, power systems standards, and television standards. Matters of public policy are by definition specifically "National", since they relate directly to legislation and regulation and considerations of national priorities.

Within the IEEE and its organizational structure, these differences tend to be submerged in the "background noise" of Institute policies, budgeting, editorial practices, etc. From the standpoint of the non-member, or of the vast majority of members whose perspectives are not strongly influenced by personal involvement in our institutional affairs, the image IEEE presents in this regard is not a continuum, but rather a series of discrete impressions which arise from the unique interface between the individual engineer and the IEEE. Each such interface is specific to the individual involved, reflecting his special interests and his particular environment. For this reason, IEEE activities and the positions taken by individual contributors to IEEE publications and technical meetings may (and frequently do) appear quite differently to the individual engineer who is our "customer" than they do to those of us who sit nearer to the "center of things." It is obvious, for example, that the ABM controversy which was dealt with (very objectively, I believe) in a recent issue of SPECTRUM has entirely different connotations for the U.S. reader than for, say, the Japanese reader or for our members in the U.S.S.R. While balanced, accurate, discussion of the technical considerations involved and their implications for (U.S.) national policy are unquestionably a real contribution in the public interest, we must never lose sight of the fact that for the IEEE, as a trans-national society, more than one public has a legitimate claim on our concerns and the "interests" of these different "publics" may be (almost always are, to some degree at least,) quite different from those tacitly assumed by the author and editor.

The IEEE has chosen, of its own volition, to adopt a trans-national posture in some - but not all - of its affairs. In my opinion, this choice is a wise one and permits the IEEE to extend its institutional services into many important areas where our technical contributions may prove to be of great value. Having undertaken this task, however, we have a clear-cut and inescapable responsibility for carefully distinguishing between our national and our trans-national perspectives. We must be especially careful, I believe, to avoid the implication of international or trans-national applicability of IEEE policies or of material published in IEEE journals when, in fact, the material is specifically relevant to a particular national environment.

## FUNCTIONS AND OPERATIONS OF A SECTION MEMBERSHIP AND TRANSFERS COMMITTEE

THE BROAD OBJECTIVES For the Section's Membership and Transfers Committee (M&T) are simply these:

To enroll every potential member in the Section's geographical area;

To retain the present members insofar as this is possible; and

To promote transfers in grade to the end that every member of the Section will occupy the highest grade for which he is qualified.

### ENROLLING POTENTIAL MEMBERS

New member recruitment is, of course, at the top of M&T's list. This is the major activity and it goes on the year around; it is the primary source of new members.

Where do we find potential new members?

### At Section and Chapter Meetings

Personal contact with potential members who may not be visitors at a meeting or conference—fellow employees, neighborhood friends, or other members of the engineering profession—may produce enrollments.

But visitors at regular Section and Chapter meetings are more likely to be potential members. They should be invited to join right there! They should be furnished promotional literature, and possibly application forms.

Their names should be added to the prospect list and followed up at a later date if necessary. Every M&T Committee should maintain a current, up-to-date list of prospects.

Large Sections should set up a special membership table at meetings, with brochures, application forms, and other materials, near the registration table; Section and Chapter meetings should be so covered.

M&T Committees should take the initiative in greeting visitors and new members at every meeting. Some means should be established to recognize new members who show up for the first time, as well as visitors.

The same procedures can be used in a more formal way at conferences and symposia where many non-members normally are registered.

### In Industry

One important activity to be assigned to several of the workers on the M&T Committees of Sections and/or Chapters is representing the major employers. If large numbers of members come from the same employer, several committee members should be assigned to that one employer.

Visits to top management of various major employers of electrical engineers, to enlist them and interest them in the IEEE is an effective way to reach their engineers who are not members.

Promotion through employers is so productive that, beginning this year, IEEE headquarters is making available for the first time printouts of the Section membership by employers. This makes it possible for a Section to see where the present members work, to compare this with the potential that is known to exist in the various companies, and to determine where additional membership emphasis needs to be made. Then specific assignments can be made to committee members who are employees of those companies.

So here is a three-step special method: first, order the membership list from headquarters by employer to determine where the Section members come from; second, estimate the potential members in each of the major employers; and third, compare the two. Then make assignments to committee members to work in those companies where there is obvious potential for increased membership (but not neglecting the smaller ones).

### At Meetings of the M&T Committee

Recruiting is selling. Just as any good sales manager must have regular sales meetings with his salesmen to stimulate them and to get feedback from them regarding progress, problems, etc., so should the M&T Committee chairman hold regular meetings with his members—his salesmen, so to speak—who are out doing the job. The Committee meetings should be constructively used to conserve time of the members yet allow them to share experiences with one another and to organize their work, to report progress, and to establish new goals and objectives.

An effective M&T Committee is a well-trained committee. Every worker who has not served on the Committee before needs certain indoctrination. Those members who have served previously should also have refresher training or instruction so that they are prepared to do the best possible job. Indoctrination sessions should include instructions in all the pertinent IEEE rules and regulations regarding membership, requirements for the various grades of membership, procedures for filing applications, etc., and in all the materials, promotional and otherwise, that are available for use.

At M&T meetings, time should be allotted to review the current prospect list, determine follow-ups and disposition of names, and decide upon ways of adding others.\*

Consideration should be given to report of membership activities at Section and Chapter meetings, by way of supervision so that they will not fall into neglect.\*

Members should be thoroughly familiar with the wealth of printed material available for use by M&T. Hot off the press in 1970 is a new, updated, more adequate Membership and Transfers Manual. There are various pieces of promotional material. There is an IEEE membership kit listing the benefits of membership, regulations regarding grades of membership, and application forms. There is a new brochure just released this year that outlines the advantages of IEEE membership to electrical engineers. There are reinstatement forms, and application forms for the various grades.

One item that has proved very useful is a little self-addressed post card on which the name of a potential member can be furnished headquarters. These cards should be available to Section members at meetings and other places. Headquarters will mail direct to the prospect the required information and applications—a very useful device.

An M&T meeting is the proper place to launch mail-outs to potential members whose names are furnished or on the prospect list.

While new-member recruitment is a year-round activity, to keep it from becoming routine there are special methods that can be used to "jazz up" the membership emphasis from time to time. One month might be singled out as membership month. Get the whole Section and all the Chapters talking about new members, and interested in helping M&T to do its job.

Is one month as good as another? Not so! Applicants signing up in September become members Oct. 1; the year's dues they pay are for the following calendar year beginning in January; they get free full services and subscriptions for the intervening months—October, November, December. M&T Committees ought to feature this bargain. There is a secondary one for applicants signing in March for the last half of the year; they get April, May, June services free. All this applies to dues, Group and other fees, and subscriptions; see Bylaws.\*

Contests and incentives can be used at times during the year to stimulate interest in membership.

More and more women engineers are coming on the scene. M&T Committees should search out the location of women electrical engineers. Seek to enlist them, encourage them to attend Section and Chapter meetings and become full fledged members of the profession. Some Sections are doing this, but in most Sections no special effort or special methods have been used to enlist them.

The M&T Committee should assign to some of its members responsibility for promoting Group membership. Many IEEE members still do not belong to any Group; yet to gain full advantage of IEEE membership each should belong to the Group or Groups that represent his specialized interest. Statistics indicate that IEEE members who are members of Groups are less likely to fall by the wayside than those who are not—here we have another reason for pushing Group memberships.

Another source of Section members are Student members who are graduating. In many Sections these Students are neglected at the time of their graduation, although they are automatically transferred to member grade for the remainder of their first year out of school. They should be contacted and shown some special attention if they are to be retained in the early years of their professional life.

Some Students upon graduation remain in the same geographical area and become members of the parent Section. Many Students move to other locations and automatically become members of other Sections. It is important that the monthly information on new members, received by the Section Secretary, be carefully screened to identify new members who are transferred from Student grades; they can be identified by the recent graduation date shown on the printout. These should be brought to the attention of M&T for followup. Special efforts should be made to find places of responsibility in Section or Chapter work for them, to keep them interested and to show Section interest in their progress. These young members are important members; every effort must be made to retain them.

#### M&T Committee's Communications

The Membership and Transfers Committee cannot operate in a vacuum. It must establish and maintain adequate communications. A case in point is with any Subsections that exist, for their cooperation on all points must be enlisted.

In view of what has been said about Groups and Students, it is obvious that M&T must work hand-and-glove with the Section committees having cognizance: Group Chapters and Student Activities.

If a Fellowship Committee exists, M&T would work closely with it in the matter of its activities at meetings.

The Publicity Committee should be called upon by M&T for help they can give in publicizing membership activities and especially campaigns launched to meet specified goals. The use of Section publications for the same purposes should not be overlooked, and contact should be maintained with the Editor of such publications.

M&T's communication with others should be two-way, furnishing incentives and information to these other groups and receiving from them reports, information, and guidance as to how M&T can best serve them and the Section.

#### RETAINING PRESENT MEMBERS

It is one of the specific duties of the Membership and Transfers Committee of each Section to work on the reinstatement of members. Each March 31st, the headquarters office furnishes the Sections the names of the members who are in current-year's dues arrears. It is the duty of the chairman of M&T to assign to its members the task of making personal contact by a call, a visit, or a letter with each of the named members-in-arrears to find out why he has not renewed membership by paying his dues when due.

In many cases it will be simply a matter of having overlooked the invoice (bill).. In other cases the member may, by non-payment, have deliberately withdrawn from IEEE, having no intention of continuing his membership. In some cases he may have doubts about continuing, but with some encouragement from the local Section he will agree to do so. Experience has shown that many of these people can be reinstated with this little extra effort by the M&T committeeman; in fact, it is much easier to reinstate many of these members-in-arrears than it is to recruit a new man.

In all instances it is important to find out why the member feels as he does. There may be complaints that can be corrected at the local level. In many cases this will not be true, and the complaints must be referred to the Regional Director and to headquarters. It is extremely important that this feedback be furnished through channels to those who can do something about it.

The large number (not large proportion) of members who each year fail to renew means that somewhere we are not meeting their needs. The only way to find out why this is so is to ask. The M&T Committee can play a major role in doing just this. At the same time many members in dues arrears can be encouraged to reinstate their suspension (not yet termination), and we have thereby saved a member.

#### PROMOTING TRANSFERS IN GRADE

The final item of M&T responsibility concerns transfers—the upgrading of members. Many people ask why we should concern ourselves: this ought to be the responsibility of each individual member, they say. If he is not interested in upgrading, why bother?

There are advantages to the member, and M&T should make them known. Statistics indicate that members occupying the higher grades of membership are less likely to drop out. So there is an advantage to the Institute in the upgrading activity.

Here are some of the advantages to the member himself. The higher grade is a badge of achievement. It carries with it an eligibility for office. (Example, an Associate Member cannot hold Section office.) It carries with it voting privileges. (Student members, for example, are not entitled to vote.) Certificates are available for Members and Senior Members which many of us like to display on the office wall. There is a sense of personal satisfaction involved in occupying a higher grade of membership. In some instances there may be enhanced professional opportunity when the biography of a member indicates a higher grade. Again, there is a certain amount of prestige.

Some of these are more important than others, but there are obvious advantages in occupying the highest grade of membership possible.. M&T must promote this and assist Section members with the necessary applications to upgrade wherever justified.

To assist M&T in identifying Section members qualified for upgrading, IEEE headquarters will furnish on request, lists of members holding Associate Member or Member grades for ten years or more. (It is to be understood that years-in-grade is only one of the criteria applied in the process of upgrading.)

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\*Note by Editor of "Electrical Engineering"—The foregoing was extracted from, rearranged, and in some places paraphrased from a 21-slide lecture prepared for Region 3 internal training use (Seymour Cambias, Jr., Regional Director 1970-71). Three paragraphs ending with an asterisk were interpolated by E.E. in editing. Omitted perforce was much valuable material on Section M&T organization: officers; size of committee; choice, qualifications, experience, and representation of members of M&T; division of responsibility; goals. The slide-lecture format is not only more complete but is decidedly superior for oral presentation and point-by-point roundtable discussion.

August 1970

The Aerospace and Electronic Systems Group has three types of publications:

1. Newsletters
2. AES Transactions
  - a. Regular issues, mailed bimonthly to all members
  - b. Published Conference Records.

As 1 and 2a are regular publications common to all groups of the IEEE, they will not be discussed here. We will concern ourselves with explaining our policies and procedures for handling 2b - Transactions-published Conference Records.

The object of having the AES Conference Records published by the AES Transactions is to:

- ...Maintain the highest possible quality of material that is printed
- ...Achieve the widest possible distribution of the title and abstract of Conference Record publications, and enhance retrievability
- ...Eliminate duplicate publication--i.e. there is no 'upgrading' of conference-published material and republication in the Transactions
- ...Provide 'Publication of Record' for worthy material
- ...Reduce costs to the absolute minimum.

Ever since AES was formed by the merger of four groups, in 1965, this has been AES' policy, with regard to conferences or technical symposia that meet the following criteria:

- ...The conference or symposium must be sponsored or cosponsored by AES
- ...The conference technical program chairman must establish, review, and accept criteria for conference material to be published that is satisfactory to the AES Transactions Editors; with the criteria published in the Conference Record

#### THE U.S. AND THE METRIC SYSTEM

Over the years, organizations within the United States have been involved in problems posed by standardization on a world-wide system of units. Such standardization will obviously revolve around the Metric System.

The latest coordination activity toward United States adoption of the Metric System has been under the auspices of the Engineering Foundation. A National Metric Study Conference is scheduled, in conjunction with a study by the National Bureau of Standards, to determine what action should be taken in the United States toward increasing domestic use of the Metric System. The conference will take place in August at Deerfield Academy in Massachusetts. Technical societies and industrial organizations will be presenting position papers on the subject and IEEE will be among them. A preliminary meeting was held at the United Engineering Center in early June, at which background information and a

- ...The publication cycle established by the AES Transactions Editor must be adhered to with no deviations
- ...The AES Transactions Editor controls the entire publishing cycle, including determination of the quantity to print for the conference, OOPs, and post-conference sales
- ...Cost-sharing between the Conference and AES Transactions is accepted
- ...Indexing information and all other author specifications are handled by the AES Transactions
- ...Covers and interior layout are designed by the AES Transactions to insure a familiar relationship.

The above method of operation has reduced the total number of regular AES Transactions pages printed each year by 20-25%. AFS now publishes between five and six records each year.

Abstracts of each Conference Record paper appear in a regular issue of AES Transactions. The yearly index includes references to each abstract and to each full paper. Our year-end index thus becomes a record of the publications of the AES Group, and usually runs over 20 pages in length. (See Nov. 1969 issue.) Copyright requirements and Export License requirements are completely complied with, and the one "continuing printer interface" is fully aware of the pitfalls and capabilities of its suppliers. Business is not done on a "one-time-only" basis. Quality is continuously upgraded by repeat engagements. Costs have been held to the minimum; reductions have been achieved over the past five years, and last, but most important, small conferences (Attendance - 100) can afford conference records.

Disadvantages? Yes, two. Conference Technical Program Chairmen must meet a higher level of quality and papers published this way are not eligible for the Baker & Thompson awards---yet. Interested in more details? Look at our year-end index and other small records. Then, if necessary call Mr. David B. Dobson, (617) 272-4000 Extension 2272.

progress report on the National Metric Study were presented to representatives of the technical societies.

Many organizations have been examining their position on this difficult subject. The Society of Automotive Engineers has conducted a survey among the other technical societies on the implementation of metric units. Thirty-six societies responded and the general posture ranged from relative disinterest to complete conversion to SI units.

The IEEE position has been well defined since the appearance of an article prepared by Dr. Bruce Barrow in the March 1966 Spectrum. It is formalized in IEEE Standard #268, "Recommended Practice for Units in Published Scientific and Technical Work," which is available from headquarters at \$1.50 per copy to members and \$3.00 to non-members.

Some EE readers may have received the last issue of the CADAR Newsletter. The front-page editorial certainly indicated that CADAR was being terminated. Some important questions were raised, and some left unanswered. Why this rare IEEE action of stopping something? What is planned for the future?

It is well to recall that about three years ago, when the CADAR (Computer Aided Design, Analysis, and Reliability) Committee was established, it was the intent and hope of the TAB Chairman and OpCom that the CADAR Committee could base all its activities on two broad and important functions:

- 1) Bring into focus the principles and technology of computer-aided-design as applied to any engineering field, e.g. to civil, aeronautical, and mechanical engineering problems; and
- 2) Coordinate the application of the CAD principles within IEEE's fields of interest, e.g. in the design of array antennas, solid state circuits and filters, magnetic circuits, power systems, and other areas.

In 1969, the TAB Chairman began to receive protests that the CADAR Committee was in practice ignoring its broad assignments. Instead, the Committee was, it was pointed out, competing with a number of groups in a relatively narrow technical area peripheral to Circuit Theory, Electron Devices, and perhaps Microwave Theory and Techniques and Reliability.

An Ad Hoc Committee was established to review the situation and recommend appropriate actions. There emerged a strong TAB position that the CADAR Committee should be terminated immediately, even if there were no plans to reorganize and coordinate IEEE's computer aided design programs through some better mechanism. OpCom felt that termination without an alternative plan was irresponsible and asked Mr. Samuel Levine, Divisional Coordinator, to convene representatives of all interested Groups and to develop a plan.

The Groups representatives met on March 26, and laid the ground work for a reorganization. As a result, a new TAB Committee on Computer Aided Design has been established under the Chairmanship of Dr. H. Freitag, with S. Levine as Divisional Coordinator. Other members are L. K. Kirchmayer, S. K. Mitter, W. S. Newell, C. J. Baldwin, W. Getsinger, C. Purdue, R. A. Rohrer, and D. Varon. This Committee met on May 5 and agreed to the following:

Computer Aided Design as a field of interest is rapidly expanding in scope and in magnitude of activities. It is growing more rapidly interdisciplinary in the nature of its tools, techniques, and methodology. Therefore, the responsibility for CAD cannot and should not lie in any particular Group but must be the responsibility of all Groups insofar as applications in their own areas of interest are concerned. However, there is a need to coordinate and centralize the dissemination of information concerning CAD and hence only an inter-group organization can fulfill this role. In parallel with this there is a need to educate newcomers to CAD techniques; that is, to have something more than experts talking to other experts. The committee therefore recommended:

- A) That the application of CAD principles and techniques in the fields of the respective Groups should be the responsibility of those Groups, and
- B) That the Computer Group should be responsible for coordinating and carrying forward programs on fundamental CAD principles and techniques.

TAB OpCom, at its May 20th meeting, accepted these recommendations and, further, offered to consider any necessary subsidy to insure that all IEEE members, regardless of Group membership, might be served by, and have access to, this work.

Reprints of this statement in Electrical Engineering are being mailed to the former CADAR Newsletter distribution list. Individual recipients are urged to review their CAD interests, needs, and potential for helping others and to write with specific comments and suggestions to their respective Group Chairmen.

There is still an urgent need for each Group to develop plans to stimulate interest in CAD activities and to provide the basic tutorial efforts that will be necessary to give every engineer some understanding of CAD processes and procedures, even though his own activities might not require a specific CAD expertise at the moment. The CAD committee will be glad to assist Groups in their attempt to define such activities for themselves, and all suggestions for effective effort will be most appreciated. In particular, it is hoped that the Group Newsletters will become the media for regular information and announcements on CAD as it affects a particular group.

## INDEX - "ELECTRICAL ENGINEERING" Full Year 1969 - First Half 1970

- A - C -

Abstracts, electrical-electronic. See Institution of Electrical Engineers (London)

Access, ready

Member to Board of Directors Apr69p1  
Any unit to Executive Committee Apr69p1  
Member to management of Spectrum Apr69p3

Activists, engineers as Apr69p1

Advertising, display

Analysis of Spectrum readership Jun69p6  
Discussed at March Convention Jun69p6,4B  
Vice President Granger's thoughts Jun69p6  
IEEE award for advertising Jun69p4  
Standing committee, Publication Dep't Dec69p4  
IEEE advertisements in Spectrum Apr69p6 Jun70p3  
Affiliate grade, modification planned Jun69p4G,5

American Federation of Information Processing Societies (AFIPS), recently incorporated Dec69p6

American National Standards Institute (ANSI) Successor to USASI Oct69p3 Dec69p7

Annualized dues. See Membership, calendar bargains

Annual reports. See also Secretary's report

IEEE annual report 1968 Jun69p4 Oct69p6  
Year-end reports due Dec69p1

Appointments. See under name of unit. See nominees for office

Calendar of appointments Oct69p2

Arrears. See Dues and fees, dues in arrears

Assembly, annual

1969 Assembly, list of members Feb69p3  
1970 Assembly, elections Dec69p2

Authors, IEEE, information for. See also Publication

Authors Guide Feb69p7  
Preparation of manuscripts; photo-offset Dec69p4

Awards Board

Changes in, contemplated Aug69p2  
Centennial review 1970 Jun69p4 Dec69p5 Apr70p8  
Fortescue Fellowship increased Jun70p2  
Institute Prize Paper Award discontinued Jun70p2

Awards

Deadline dates Feb69p1 Apr70p1  
Group awards, procedures Aug69p4F  
Nominations for 1970 awards Apr69p5  
Proposals for awards, how to make Feb69p1  
Recipients, where listed as information Apr69p4  
Balance Sheet, IEEE Feb69p3

Ballots for IEEE officers and directors

Employment information, photos, to be included Jun69p3  
Mailed. Vote! Aug69p1

"Bargains" in dues. See Membership, calendar bargains

"Best in Show" award. See "Electrical Engineering."

Bills for dues. See Dues, fees - billing

Blackmon, Hendley, check-chart for chairmen Dec69p4G-I

BOARD OF DIRECTORS (BoFD). See also "Topside", each issue

Composition of 1969 BoFD Feb69p2,8  
1969 BoFD, tabulation Feb69p8  
Composition of 1970 BoFD Feb70p1,8  
1970 BoFD, tabulation Feb70p8  
Geographical dispersion of BoFD members Feb69p3  
Meeting dates, 1969 BoFD Feb69p3  
Meeting dates, 1970 BoFD Feb70p1  
Occupational dispersion of BoFD members Feb69p3  
Problems facing BoFD Jun70p2  
Special presentations at BoFD meetings Aug69p2  
Two-day meetings for 1969 BoFD Feb69p1

Books authorized by IEEE units, quality of. See Publications, commercially-published books

Boundaries. See Regions 7 to 10, boundaries

Branches (college). See Students, branches

Brereton, D. S., paper Jun69p4A,6

Budget, IEEE

1969 Budget Feb69p3  
1970 Budget being prepared Dec69p3

Business Publications Audit (BPA), updating Aug69p1

Current reprint Aug69p6 Feb70p2 Apr70p4  
Changes reported Feb69p4 Jun69p2 Oct69p2 Dec69p2,3,6,7 Feb70p2 Apr70p8

Certain Statements of Policy to become Bylaws Feb69p3

Cable Television (GATV)

Subject before Technical Activities Board Jun69p4H  
Calendar. See Membership, calendar bargains; Nominees for office

Calumet, new Section Apr70p6

Career guidance. See also Educational Activities Board, career guidance

Junior Engineering Technical Society Feb70p7  
Minority groups, careers open to Oct69p2  
R.e.s.i.s.t.o.r.s Feb70p7

Cassettes (recorded tapes). See also Educational Activities Board, several entries

Cassette interlocked with Proceedings Jun70p2  
First cassette issued Oct69p3  
"Soundings" subscription cassettes Jun70p3  
Supplementary to "E. E." Oct69p4  
Training medium for Section officers Aug69p5

Centerfold pages in "Electrical Engineering" Proposed by Technical Activities Board Feb69p2  
Superseding "Supplements" Apr69p2,4A Jun70p6

Central America Section, new Jun70p6

Certificates

Local award in appreciation Apr69p4 Dec69p6  
New format adopted Feb69p7  
New form for Fellow certificate Jun69p7

Channels of communication. See also Communications, internal

Access of members and units to governance Apr69p1

CHAPTERS, Group, in Sections

Appointment of committees in Chapters Jun69p1  
Chapter Bylaws Oct69p5  
Chapter/Section relationships Jun69p3,4C-E Jun70p4  
Dissolution of Chapters Apr70p8  
Joint Chapters Apr70p8  
New Chapters reported Feb69p8 Jun69p8 Aug69p6 Oct69p6 Dec69p8 Apr70p6 Jun70p6 Jun69p1

Planning fall programs

Check-chart for committee chairmen Dec69p1,4G-I

"Clustering" of Groups. See Technical Activities Board, Divisions

Colleges. See Career Guidance; Students, Branches; Educational Activities Board

Committees. See individual committees by name; Standing Committees and Boards; Sections, committee appointments

Chairmen for 1969, names added Feb69p3  
Chairmen for 1970, recommendations Apr69p2  
Members' "Homework" Oct69p1

Communications, external. See Intersociety Relations Committee; Obligations to society; Public Relations

Communications, internal (IEEE). See also Crosstalk; "Electrical Engineering"; Feedback; "Spectrum"

Channels, correspondence, telephone Feb70p8  
Communications through Section publications Apr70p4G-F  
Importance of internal communications Aug69p4  
Lines of internal communication Apr69p4  
Philosophy of internal communication Apr70p4E-F,8

"Company" (employer) backing of members IEEE

Nominees for office Feb69p4A(white)

Computer, IEEE's

Gutover impending Feb69p1  
Description Oct69p6 Aug69p4A-D,8  
Shakedown period Jun69p7

CONFERENCES. See also Convention

Advance programs available Feb69p6  
Names, dates, etc., responsibility for approval to Regional and Technical Activities Boards Feb70p6  
Publications, overseas prices Aug69p4E  
Publications, warehouse inventory Aug69p4F  
Scheduling in far future Dec69p6

IEEE Conference Board

Plans in making Feb70p5,6  
Appointments to Board and committees Apr70p8  
Governing Bylaw Apr70p8

Constitution, IEEE, amendments proposed Jun70p2  
Constitution, Section, moved to IEEE Bylaws Dec69p2

Controversial material. See Socio-technical material

CONVENTION, INTERNATIONAL (March)
1969 Convention
Advance program
Registration
Report of Convention
1970 Convention
Aids for Sections, Chapters
Chairman of technical program
Convention Digest
Convention Guide
Director appointed
Films available for re-use
International flavor
Notes on convention
Pre-convention prospectus
Press releases
Statistics
Transitional organization
1971 Convention
Conference Board, IEEE, to manage
Conference Board committees staffed
Coordinators, Executive Committee
Coordinators 1969, listed
Coordinators 1970, listed
Life Member Fund coordinator
Regional Activities Board
Gopp, Will, signs off
Correspondence courses. See Educational Activities Board, Home study
Councils (of Sections)
As Regional subdivision
Central Canada Council
Eastern Canada Council
Councils placed under Regional Activities Board
Counselors (College). See also Student Branch
Discuss obligations to society
Relations with Sections
Courses, study. See Educational Activities Board
Crosstalk, Institute. See also Interdisciplinary Cooperation
By correspondence, telephone, etc.
Sharing accomplishments
Through "Electrical Engineering" feedback

Interlock of Cassette with Proceedings issue
Management Games seminar
Seminars at Conventions
Short Courses
Subscription cassettes foreseen, issued
Summary report, EAB
Elections. See Ballots
Election and Appointments calendar. See Nominees for office
"Electrical Engineering" (E.E.)
Additional information on tap
Adequacy of distribution questioned
"Best-in-Show Ribbon" awarded
Circulation lists changed
Copies available to retirees from office
Crosstalk among units desirable
Distribution of E.E.
Duplicate mailings, what to do about
Glossary built-in, abbreviations
How to read and use E. E.
Items may be freely reproduced
Quality of readership
Save E.E. and keep six in binder
Second Class postage applied for
Granted
Supplementary cassettes, suggested
Title "Electrical Engineering" available
Electronic Methods of Publication, paper
Employee Benefits (Staff)
Employers
Backing up of IEEE member-volunteers
College influx, IEEE opportunity
Cooperation in IEEE recruiting
Section rosters by employers
Engineering education. See Educational Activities Board
Engineering Index, Inc. See Information processing
Engineering in Medicine & Biology Group
Affiliate memberships modified
Engineering Management Group, field redefined
Engineers Council for Professional Development (EGPD)
Career guidance program, IEEE interest in
IEEE representative to sit on Intersociety Relations Committee
Entrance Fee
Increased
Waived reciprocally
Eta Kappa Nu (honorary fraternity)
Cooperation with IEEE
Exchange Member (new grade)
EXECUTIVE COMMITTEE of Board of Directors (ExecCom).
Actions not indexed. See "Topside" items each issue.
Chairmen of Publications Board, Technical Activities Board, Educational Activities Board, to be members
Meeting dates
Exhibits, an adjunct to technical programs
Extra-mural honors
R. C. G. Williams
Hugh Heffner
Feedback. See also Crosstalk
By Sections:
Cleveland
Denmark
Milan
Nebraska
Pittsburgh
United Kingdom and Republic of Ireland
Kitchener-Waterloo, Univ. of Waterloo Branch
E.E. criticized as worthless
Feedback through E. E.
Fees. See Dues and Fees; Educational Activities Board, Seminars, Short courses.
Fellow
Certificate, new form of
Elections in 1968
Elections in 1969; proposals for 1970
Proposals invited
Procedures to be re-examined
Regional endorsements
Section handbook on Fellows
Finance Committee
Organization, objectives
Investments
Group funds

Section funds
Subcommittee on investments appointed
Fink, D. G., Standard Handbook
Forms, nominee for office
Forum of Section chairmen. See also Workshops
To be held, March 1969
Admitted at Wescon, August 1969
Last Forum held
Replaced by Regional Workshops
Fraum, Jack, paper on IEEE's computer
Gannett, E. K., paper on electronic publication
Geoscience Electronics, oceanographic studies
Government of IEEE derived from members
Granger, J. V. N., remarks
Greece, new Section
GROUPS. See also Technical Activities
Annual reports due
Appointment of standing committees
Awards made by Groups
Awards, IEEE, proposals for
Certificates for recognition
Fellow proposals by Groups
Funds, investment of
Group chairman
Passes on new Chapters
Recognition pins for
Seminar, orientation for chairmen
Groups to be evaluated and monitored
Groups, merger of
Groups, termination of
Group overlap
Group publications
Discussed at Convention
Transactions managing editor appointed
Transactions, thoughts by editor of Spectrum
Group-Section-Chapter relationships, Granger
Groups, transferable among Divisions
New Groups, philosophy
Newsletter Manual, Groups
Nominations for IEEE standing committees
Memberships in Groups
Technical interest profiles
Guidelines, guides
Authors Guide to IEEE publications
Public Relations Guidelines
Recommending nominees
Headquarters, IEEE. See also Staff
Space, layout
History Committee, documents, artifacts
Holiday schedule, staff
Holmes, L. C., paper, unit relationships
Home study. See Educational Activities Board, home study course
Hosting visitors, guidelines
IEEE. Alphabetically omitted in index
"IEEE and Standards," paper
Indexing, IEEE publications. See Information processing
India Section, new
Industry. See also Employers' cooperation
College influx, Section opportunity
Information processing
Domestic (U. S.)
Index tapes; "Reflex"
Status
Vocabulary
Information services, IEEE
Combined index 1968-1969
In-House coordinators, Section
Initiative, encouragement of
Publication of books
Section rosters with street addresses
Institution of Electrical Engineers (IEEE-London)
IEEE-IEE cooperation, summaries
Interdisciplinary cooperation
Dialogs needed
"Splintering"
Intersociety Relations Committee (ISRC). See also the individual societies; interdisciplines
Annual reports due
IEEE representative to EGPD to be a member
Investments, IEEE. See Finance committee, investments
Iran Section, new

Joint Sections. See also Sections
Redefined by Bylaw
Responsibility placed in RAB
Joint Technical Advisory Council (JTAC)
Change of name
Recommendations adopted
Junior Engineering Technical Society (JETS)
Life Members
At 1969 Convention
At 1970 Convention
Life Member Fund
Derivation of funds
Purpose and uses of Fund
Long Range Planning Committee (LRPC)
All standing committees & boards to "make input"
Composition of LRPC changed
Took quick action on Regional Activities Board
Suggestions wanted for long-range plans
Mail, postage
"E.E." applies, is granted, Second Class
Savings in postage, declare "non-profit" status
Third Class mail, delays
Mailing lists. See also Sections, roster
Abuse of
Confidential nature of
Management Games Seminar
"Man Bites Dog," students give course to elders
Manufacturing technology, Group responsibility for
Maps, regional boundaries
Meetings. See also Conferences; Parliamentary procedure
Master Meeting Schedule
Resuming meetings in fall
Use of socio-technical material at
MEMBERSHIP. See also Access; Directory; Dues & Fees; Travel, members
Attrition of membership
Calendar dues "bargains"
Card, membership, uses
Dues-in-arrears, causes
Growth rate in membership total unsatisfactory
Operation G-I-T, growth-interest-transfers
Privileges of membership
Advantages of membership
Listed on membership card
Members' motivations (Granger)
Opinions re "Spectrum" welcome
Recruiting for members
Man-to-man confrontation
Recruiting methods
Students as a source of members
Total membership, significance
Year-end totals:
Dec. 31, 1968
Dec. 31, 1969
Microfiche editions. See Publications, microfiche
Minority groups. See Negroes; Underprivileged; Women
Moon expedition, IEEE members' participation
Multiple publication. See Publication, multiple
National roles for IEEE. See also Non-national
Policy
Neckties, IEEE, ordering
Negroes
IEEE activities encouraged
Profession open to all
U. S. Government grants for training
"New Blood." See Young men
Newsletters. See "Electrical Engineering"; Group publications, Section publications
New Technical & Scientific Activities Committee
Discontinued
NOMINATIONS
Nominations & Appointments Committee (N&A)
Change in term of office
Personnel 1970-71 (not in current Roster)
Nominees for office
Appointments calendar
Guidelines for nominations
Named by Board of Directors for 1970
Named by Board of Directors for 1971
Nominations-by-petition
Nominees for office
Officers for 1971, nominations
Selection by N&A Committee





Transactions. See Group Transactions  
 Traveling, members  
 Lecture-travel program Apr70p1  
 Making contacts with Sections Apr69p5 June70p5  
 Tripartite Committee  
 Information "action plan" Dec69p3  
 Plan not acceptable Apr70p2,3  
 Turnover  
 "Electrical Engineering" available Jun69p2 Feb70p1  
 Ex-Chairmen a pool of talent Feb70p1  
 Tutorial courses at 1969 Convention Feb69p4  
 United Engineering Center (UEC), no Twin Tower Dec69p7  
 United Engineering Information System. See Tripartite Committee  
 United States Information Agency  
 Lecture-travel program open to IEEE members Apr70p1-2  
 Visitors. See Hosting visitors; Traveling, members  
 Voting  
 Write-in votes considered Aug69p1

Bylaw and clarification Oct69p2 Dec69p2  
 Willenbrock, F. K., paper Apr69p4E-K  
 Wintringham, W. T., paper Feb70p4Q-0,5  
 Women, encouraged as IEEE members Jun69p5  
 Workshops, Section. See also Forum  
 Established at 1970 Convention Dec69p6  
 Report of Convention Workshop Jun70p4  
 Workshop idea extended to Regions Feb70p6  
 World Federation of Engineering Organizations (WFEO)  
 IEEE participating Aug69p2  
 Write-in Voting. See Voting  
 Young Men; "New Blood"  
 Board of Directors encourages Feb70p1  
 Eta Kappa Nu "Outstanding Young Engineer" award Apr70p5  
 Junior Engineering Technical Society (JETS) Feb70p7  
 Nominees for office, young men preferred  
 Representation of "young professionals" Feb70p2  
 R.e.s.i.s.t.o.o.r.s, youth in computer field Feb70p7  
 Systematic search for younger men Jun69p3

cohesion like those the Central America Section anticipates and is thus preparing to meet. — Ed.

The Section started out strong, with an inaugural convention held July 30 - Aug. 2.

SECTION HELPS BRANCH. ExecCom in May approved New Hampshire Section's contribution to University of N. H.'s IEEE Student Branch, in support of a sub-Regional Prize Paper Contest of which the Branch is the responsible organizer.

AN UNUSUAL PANEL PROGRAM was put on by Cleveland Section in February with the provocative title: "But what are you going to do for me in the '70s, IEEE?" Advertised as "the most talked-about meeting of the year," it was described as "a searching, audience-participation, panel discussion of non-technical problems of the engineer's employment, with a view toward defining what should be done about them and who could best do the job." Video tapes and a tape cassette were made and are available from IEEE on request. (Contact Mrs. Emma White.)

Banking on the indulgence of Section Chairman Herb Heller, you might ask him for a copy of his meeting flyer, which itself packed a wallop; and of his "postnatal postscript" which he wrote for Cleveland's Section News for March.

#### STUDENT NEWS

STUDENT MEMBERSHIPS. Under side-heading "Membership Goals" above, it will be seen to be fairly certain that initial applications made in August or September with dues for 1971, will carry a new Student member from the beginning of this fall term right through to Dec. 31, 1971. Counselors should maintain touch with Bob Loftus to find out what BofD does on Aug. 22-23.

STUDENT NOTES. A periodic newsletter to Counselors from the coordinator of Student activities, Bob Loftus, has been inaugurated... With the early-fall mailing of supplies to Branches will go a special

form to simplify Student application remittances, for use of Counselors who prefer to remit by "blanket" check rather than by individual Students' checks. Previously this method was discouraged.

STUDENT ACTIVITIES COMMITTEE (SAC) is shown in March 1970 Organization Roster, on the organization frontispiece chart and at page 7, as reporting to the Educational Activities Board (EAB). EAB feels that SAC might well be transferred to RAB, but if so its chairman should be a member of EAB and there should be a formal liaison between SAC and TAB. The matter will come up at Los Angeles this month. (Suggestions promptly to Vice President Mulligan at IEEE, please.)

DEGREE IN COMPUTERS. EAB has endorsed the concept of undergraduate Computer Engineering options for Electrical Engineering in appropriate educational institutions, as presented in the COSINE (Computer Science in Engineering) Committee report, and has so informed the Engineering Education and Accreditation Committee of the Engineers' Council for Professional Development.

PRE-COLLEGE STUDENTS. Should some of them be granted IEEE Student (or Associate Student) membership privileges?

EAB brought in an affirmative answer recently, and the question is being given further study by RAB and the M&T Committee.

#### "FOR YOUR INFORMATION"

SELF-HELP FOR NOVITIATES. You may be receiving E.E. for the first time. A bimonthly copy goes with the office you now hold. Skim all of it. Tick off the items you may wish to refer to again.

Save 6 issues of E.E., with centerfold pages separately if you wish. We punch for 3-ring binder. For the benefit of newcomers we repeat some items on an annual basis but not sooner. To save space we refer back.

We do not print what Spectrum prints, but often refer to its articles, especially administrative and policy. So save 12 issues of Spectrum for E.E. references.

Further to keep our items short, we often suggest you send for more information. A cryptic "(Information, Jack Kinn)" tacked onto a paragraph, means that John M. Kinn, Director, Educational Services, IEEE, 345 East 47 St., New York, N. Y. 10017, phone (212) 752-6800, will be glad to send you more dope. See footnote on last page of each E.E. and page 4 of every Spectrum.

WHO GETS E.E. ? Section Chairmen get 4 copies of E.E. Three are for their convenience in marking items and referring them to others.

So that you may know who is reading E.E. along with you, our distribution is to Directors; members of all standing committees and boards listed in Bylaw 304.2. Under Awards Board: its committees. IEEE representatives to outside organizations. Under TAB: Group AdComs, Editors; members of standing committees. JTAC. Chairmen of conferences. In the Regions: Regional assistants, Council officers. In the Sections: Chairmen, vice-chairmen, secretaries and treasurers; Section offices; Subsection chairmen, secretaries, treasurers; Group Chapter chairmen; IEEE counselors; Section editors; publicity chairmen. IEEE staff, active and retired. Past Presidents. Retired officers (first year, upon request only.)

EXTRA-MURAL HONORS. Past President Willenbrock is using 6-months' leave of absence as Provost of the Faculty of Engineering and Applied Sciences at the State University at Buffalo, N. Y., to act as a Special Adviser on Engineering Education to the Chancellor, on the Central Staff of the State University at Albany. One aspect of his work will be development of a plan to merge Polytechnic Institute of Brooklyn into the State University system over the next five years.

CHALK UP G-AES FOR AN "ASSIST." A reader's attention was caught by two items on electrical engineering education for minority groups which E.E. ran in Oct. '69 p.2, and Dec., p.3. He saw them in the newsletter of Aerospace and Electronic Systems Group whose editor had copied them. (Great!) He wrote IEEE of his desire to contribute to BofD's future pursuit of the subject. He had had actual experience in teaching engineering to Negroes at Morehouse, and was now on leave at Stanford. It was a simple matter to arrange direct input to BofD through a Regional director — to everybody's benefit.

"International Communication" is E.E.'s function. It is made doubly effective when some perceptive Group or Section newsletter editor picks up an item and broadcasts it.

AN INDEX TO E.E. for all 6 issues of 1969 and the first 3 issues of 1970 will be found on pp. 4G-L.

#### WELCOME ABOARD!

All new officers and officials in the Sections.

#### New Council of Sections:

Brazil Council, Region 9, consisting of Rio de Janeiro and Sao Paulo Sections.

#### New Subsection:

Tamil Nadu Subsection of India Section. (The State of Tamil Nadu was formerly Madras State.)

#### New Group Chapter:

Pittsburgh Section - Management Chapter

\* \* \* \* \*

#### Centerfold Pages:

	<u>Pages</u>
White - Report of the President	4A - 4B
Blue - Membership & Transfers	4C - 4D
Green - TAB News	4E - 4F
Ivory - Index, E. E.	4G - 4L