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IEEE COMMITTEE ON SOCIAL IMPLICATIONS OF TECHNOLOGY  
New York - June 27, 1973

MINUTES

1. The Chairman, Dr. Barrow, called the meeting to order at 6:30 p.m.

Those present: Bruce B. Barrow, Vice-Chairman, TAB, and  
Chairman - ex-officio  
Anthony Robbi, Vice-Chairman  
Peter D. Edmonds, Staff Secretary

William Bakonyi, representing Student Activities  
Committee

Walter R. Beam, representing EAB  
Don Christiansen, Spectrum Editor

R. M. Emberson, TAB Secretary  
Joseph E. Kaufman - Observer

Victor Klig, Chairman - Procedures Sub-  
Committee and Newsletter Editor

Frank Kotasek, Chairman - Publicity and  
Participation Sub-Committee

William Morsch, Manager TFEA Project  
Marvin Paull - Observer

Michael Pessah, WG - Bioelectronics  
Gerald Rabow, Chairman - WG-Applications of  
Systems Engineering

Paul Stoller, Chairman - IEEE Activists  
Sub-Committee

Stephen Unger, Chairman - Publications Sub-  
Committee

Ted Wernitz, Chairman - Bibliographies Sub-  
Committee

Ed Wilkins - Observer

Those absent: J. Melvern Benjamin, Chairman - Working Group  
on INTERCON

R. I. Clark, Manager - IEEE Washington Office  
W. E. Cory, Director Region 5, representing  
Region 5 (South-West)

J. E. Gaffney, Jr., past Vice-Chairman, Committee  
on Applications of Electrotechnology to Social  
Problems

Einar F. Ingebretsen, Director, IEEE Region 6  
W. A. Higinbotham, Chairman, Working Group on  
Subject Areas  
Arthur M. Killin, representing Division II  
Lester Nagel, representing IEEE Environmental  
Quality Committee  
Lawrence A. Tate, Chairman - Working Group on  
Other Societies' Activities  
E. A. Wolff, past Chairman, C-SIT

2. Minutes

The minutes of the meetings of March 30, 1973 and April 28, 1973 were approved as issued as a correct record of the discussions. Corrections of fact are noted below. The actions of the meeting of April 28, specifically including the appointment of Victor Klig as editor of the C-SIT Newsletter, were thus ratified. [N.B. The presumed resignation of Mr. Gaffney from C-SIT was in error and this part of minute 7.1 and 7.1.3 of the minutes of 4/28/73 are stricken from the record. The Secretary also notes an error on page 6, minute 7.2.3, of the minutes of 4/28/73: The Committee on Professional Opportunities for Women (COMPOW) now reports through USAC instead of EAB, and should be so listed.]

3. Items for the Agenda

The Secretary mentioned as possible additions to the agenda:

- a. Progress reports on bibliographies (Werntz) and on publicity (Kotasek)
- b. IEEE activities concerning advice to state, local and legislative bodies (Emberson)
- c. Organizational forms to recognize international aspects of social implications of technology (Emberson)

ACTION  
(Agenda)

All these items were assigned to item 11. Other business, to be taken up, if time permitted. Items b. and c. were not taken up and were held as agenda items for the next meeting. Dr. Barrow requested formal inclusion of reports from all subcommittees in future agenda.

4. Reports on New Subject Areas Working Groups

In the unexpected absence of the coordinator, Dr. Higinbotham, no overall status report could be presented. Individual reports were received from those chairmen of subject areas Working Groups who were present as detailed below.

Operational Procedures for Working Groups are suggested in Attachment C, in response to an enquiry from Dr. Unger on how to establish positions and how to communicate results of WG activities. Each WG prepares drafts, circulates them, revises them until consensus is achieved and then reports to C-SIT.

4.0.1 Ethics (WG-E)

Dr. Unger reported that he had made an initial mailing to about 30 people. He had provided the Secretary with a file copy. (Attachment D). This mailing comprised an introductory letter, a proposed code of ethics for engineers, and a memorandum from Mr. Joseph Stitelman on suggested means for engineers to be protected (from abuse of their expertise) in the practice of their profession and to maintain professional standards. Copies of this memorandum were distributed at the meeting.

The substantial ethical content of the Joint Societies' Employment Guidelines (reference Spectrum, April '73, p. 57-60) was noted. Dr. Beam reported the position of IEEE/USAC that the Joint Societies' Guidelines do not have sufficient power of sanction, but that IEEE has approved them on an interim basis on the understanding that a second edition will be prepared. It was not known whether an actual effort (by a joint societies' task team) to produce the second edition had commenced. [N.B. IEEE inputs can be submitted to Mr. Leopold Neumann, Chairman, USAC Committee on Employment Guidelines, via IEEE Headquarters, copy to Dr. Unger, or to Dr. Unger for incorporation into a consolidated C-SIT paper for submission to Mr. Neumann.]

Dr. Unger had also received, from the Secretary, copies of the Engineers Council for Professional Development (ECPD's\*) Canon of Ethics. The IEEE U.S. Activities Committee (USAC) had recently casually passed a motion recommending a negative IEEE position on this Code. Dr. Unger took the matter under advisement.

Extensive discussion took place on two case histories involving ethical aspects of the behavior to or by electrical engineers: Bay Area Rapid Transit (BART) and Center for Policy Research (CPR). The Chairman posed the following questions in each case: Is this a matter for IEEE's concern? If so, which IEEE Committee has/should have jurisdiction? If ultimate action/sanction by IEEE is contemplated, what are the options? He noted that the new IEEE constitution bars union activity and collective bargaining, but also that public attention had been called by Ralph Nader to the defenseless condition of engineers who object to their employers' actions on professional matters. Dr. Unger pointed to the American Association of University Professors' (AAUP) procedure of investigation of cases and censure of institutions as a suitable analogue. Mr. Fessah recommended finding out what the IEEE constitution actually permits by experiment, using the two cases

\*ECPD is responsible for accrediting engineering departments of college and universities. IEEE nominates a corps of about 200 electrical engineers who serve on ECPD's inspection teams.

under discussion. Mr. Klug argued emphatically that such cases were not only IEEE's concern, but were also C-SIT's concern as long as other IEEE units had not undertaken sincere and effective investigations. Dr. Beam remarked that the Association of Computing Machinery (ACM) already provided the facilities of an ombudsman to its members. He suggested that IEEE Sections might provide the initial forum for investigation of charges of unethical conduct.

The Chairman determined the consensus to be an affirmative position with regard to C-SIT's involvement in ethical issues having as a component, the social implications of technology.

ACTION  
(Unger)

In the matter of BART (reference: Spectrum article: March '73), Dr. Unger was recommended to bring specific recommendations to C-SIT.

ACTION  
(Werntz)

In the matter of CPE, Mr. Werntz was recommended to submit a written complaint, with documentary evidence, preferably including a sworn affidavit from the principal complainants, to Dr. Barrow and/or Dr. Chestnut, if the principals wished to proceed in that manner.

ACTION  
(Unger)

Dr. Unger agreed to investigate variations on the theme of Stitelman's memo, re: sanctions and means of effectuating them, and to report at the next meeting.

Discussion of possibilities for an IEEE award for public service is reported under minute 6.1.2.

4.0.2 Environment/Energy (WG-E/E)

ACTION  
(Kotasek)

Mr. Kotasek reported that he had been asked by Dr. Higinbotham to chair this working group. The Chairman requested Mr. Kotasek to make and maintain effective contact with Mr. Nagel, EQC representative to C-SIT, and to proceed with recruitment to the WG. Subsequently, co-ordination with the IEEE Power Engineering Society and the IEEE Nuclear & Plasma Sciences Society might be practicable. Dr. Barrow noted that he serves as chairman of a task force on Energy for the Coordinating Committee of Engineering Society Presidents.

4.0.3 Urban Technology/Transportation

No report.

4.0.3 Communication

No report.

4.0.5 National Security

No report.

4.0.6 Data Banks

No report.

4.0.7 Socio-Economic IssuesACTION  
(Edmonds)

The Secretary reports that names and addresses of respondents in this category were transmitted to the Staff Secretary for USAC for communication to the appropriate chairmen of USAC sub-committees. Follow up is necessary.

4.0.8 Education

No report.

ACTION  
(Robbi)

It was noted that Dr. Lewis had found it necessary to resign from chairmanship of the C-SIT sub-committee on Engineering Schools Curricula and that the status of this activity was uncertain. A Working Group on Education could appropriately complete this task. Mr. Robbi will follow up with Drs. Lewis and Higinbotham to resolve the present confusion. (Note interest of Dr. Welch!). Dr. Beam noted the possibility of C-SIT inputs to EAB/ECPD accreditation function. (see minute 6.0.1.)

4.0.9 Bioelectronics (WG-B)

Mr. Pessah had accepted chairmanship of this WG, but would not initiate activities until he had completed his relocation to Los Angeles in July. The Secretary reported that Dr. Benjamin was willing to function as spokesman for WG-B at subsequent C-SIT meetings.

4.0.10 Applications of Systems Engineering (WG-ASE)

Mr. Rabow expressed his willingness to chair this WG. He proposed to prepare guidelines for the methodology of systems engineering as it applies to solving social problems not now being solved and amenable to the expertise of IEEE members. Dr. Beam commented that the engineering management content of social problem solving was not clear, since political factors intervened in the decision-making processes.

4.0.11 Coordination With TF&A ProjectACTION  
(Edmonds)

The Secretary reports that names and addresses of C-SIT respondents in the fields of education, transportation and communications were sent to Mr. Walter Roehr, Chairman, Normative Forecast Committee, TF&A (See minute 6.1.4). Mr. Roehr subsequently requested details on all other respondents.

[N.B. Mr. Robbi, Dr. Higinbotham and the Secretary met informally on 7/10/73 at IEEE Headquarters to reassign responsibility for actions to establish WGs.]

4.1 Confirmation of Chairmen of Working Groups, Objectives and Schedules

The Chairman formally confirmed the following appointments:

Unger: Chairman - Working Group on Ethics (WG-E)  
 Kotasek: Chairman - Working Group on Environment/Energy (WG-E/E)  
 Pessah: Chairman - Working Group on Bioelectronics (WG-B)  
 Rabow: Chairman - Working Group on Applications of Systems  
 Engineering (WG-ASE)

ACTION (Unger/  
Kotasek/  
Pessah/  
Rabow) The above four Chairmen were requested to submit one-page statements of objectives and schedules for action of their working groups to the Secretary for distribution with the agenda of the next C-SIT meeting. (Deadline August 6, 1973).

5. Report on Survey of IEEE Activists

ACTION (Stoller) Mr. Stoller reported receipt of about 40 responses to the questionnaire distributed with 'EE' in February 1973. He discerned no obvious conclusions, but undertook to present a summary and report at the next meeting. (Deadline for next agenda distribution: August 6, 1973).

6. Reports from Liaison Representatives on Activities of IEEE Units

6.0.1 Educational Activities Board

Dr. Beam reported the following current EAB activities:

Proposal for certification of engineers  
Development of career planning kit for self-assessment  
Self-study courses  
Cassette colloquia and 'Soundings'  
DATE (dial-access technical education) service  
Accreditation by ECPD (see also minute 4.0.1 and footnote)

Copies of an article from IEEE Transactions on Education, Vol. 16, pages 70-75, May '73: "Continuing Engineering Education and the IEEE" by J.M. Kinn, IEEE Staff Director for Educational Activities, were distributed to those present.

ACTION (All) Dr. Beam confirmed his availability to transmit to EAB opinions of interested individuals on current or suggested EAB activities. He believed that a set of guidelines to ECPD accrediting teams could be developed and would be useful. The result of the C-SIT Engineering Curricula Survey could find application here.

ACTION (Beam) The EAB Committee on Minorities had not been contacted since the 4/28/73 C-SIT meeting. The action item from this meeting is sustained to explore common interests, possibilities for collaboration and specific liaison.

6.0.2 Region 5 (Director Cory)

No report.

6.0.3 Region 6 (Director Ingebretsen)

No report.

The Secretary reports initiation of an intersociety 'Ecology Study' (IEEE contribution funded through USAC) to draft model legislation for environmental protection for the use of state legislatures.

6/27/73

This undertaking is in fulfillment of a commitment given by engineering societies in California during their campaign to defeat Proposition 9/20 on the November 1972 California ballot. Further information can be obtained from Gerald Goldenstern, Manager, IEEE Los Angeles Office, 3600 Wilshire Boulevard, Los Angeles, CA 90010, or the Secretary.

6.014 Division II (Mr. Killin)

No report.

6.0.5 Environmental Quality Committee (Mr. Nagel)

No report.

The Secretary reports that the EQC is working through an inter-society liaison committee on the environment (AISLE) to conduct a workshop on 'Energy and the Environment' for New York State Assemblymen in Albany, New York in January '74. Further details are available on request.

6.0.6 Regional Outstanding Lecture Tour Program

This item, appearing as agenda item 6.2 with attachment, was not taken up due to lack of time. The Secretary reports that this program is run as a staff operation by himself with funding from a TAB central account and without a supervisory committee. (opportunity!). The purpose of this program is to assist Sections in arranging their local programs by subsidizing the travel expenses of certain speakers. C-SIT is hereby invited to consider the social implications of this program, having regard perhaps to the criteria for selecting speakers, the selection and balance of topics offered (See guidelines), and the implications of disseminating certain information, e.g., techniques of detecting metal objects carried by persons boarding aircraft. Please refer to the attachment to the 6/27/73 meeting agenda for details and respond to the Secretary.

ACTION  
(All)

6.1 Liaison With Additional IEEE Units

6.1.1 Conference Board/INTERCON Program Committee

Dr. Barrow reported on correspondence from Mr. Raper, Chairman, INTERCON '74 Program Committee, which is exhibited as Attachment E. Mr. Raper's 6/19/72 letter indicates that C-SIT should plan to reserve meeting room space on Monday 3/25/74 or Friday, 3/29/74. Dr. Emberson recommended Monday because of supplementary information that the Statler Hilton Hotel had made a commitment of the same meeting rooms to another organization for an event starting Saturday, 3/30/73.

Mr. Kiig drew attention to omissions from the 6/19/73 letter namely, in paragraph 2: a) The source of the answer that the measure

to be used (in determining whether or not the program is a success is overall attendance at INTERCON"; b) the details of the logical (?) argument linking the overall attendance criterion with financial viability and "the decision that the program must be tied as closely as possible to the exhibition and the business areas which it represents"; and, in general, c) whether the events to be organized on Monday and Friday will be considered an integral part of the INTERCON program and publicized in the official program on every occasion.

ACTION  
DEFERRED

The Chairman deduced, by implication, an affirmative answer on c) above. Mr. Klig requested formal written confirmation. The Chairman elected to defer committing himself to obtaining it until a firm proposal for C-SIT-sponsored activities had been prepared. (see Minute 8.2.)

ACTION  
(All)

Mr. Klig requested reactions to the Blecher report on Long Range Plans for INTERCON, dated 9.5.72. A form (enclosed) was provided for rating the suggested Key Technologies for future INTERCON programs and exhibits. Completed forms should be returned to Mr. Klig by July 15, 1973 (or immediately on receipt of these minutes).

Liaison with the INTERCON Program Committee will continue to be provided by Dr. Barrow.

#### 6.1.2 Awards Board

ACTION  
(Barrow)  
(All)

Mr. Werntz made some suggestions on IEEE Awards Board procedures (Attachment F). These suggestions were regarded as a useful and constructive first draft for a proposal from C-SIT concerning IEEE awards, except for the third paragraph referring to The Harry Diamond Award. The Chairman undertook to correspond with Mr. Werntz to prepare a revised draft which would be circulated to C-SIT by mail for approval prior to referral to the IEEE Board of Directors/ Executive Committee and Awards Board. Inputs from members of C-SIT should be made to Mr. Werntz without delay.

ACTION  
(Unger)

In the course of an earlier discussion (relating to minute 4.0.1) of a possible IEEE award for public service, Dr. Emberson offered the following separation into three aspects: examination of the terms and procedures for existing IEEE awards; preparation of a proposal for C-SIT and Awards Board approval; consideration of nominees suitable for such an award. In addition, sources of funding for the public service award should be identified. Dr. Unger agreed to investigate these aspects and report at the next meeting.

#### 6.1.3 USAC (U.S. Activities Committee)

USAC has the responsibility for all activities funded by special \$5 per member regional assessment in Region 1-6. These



ties are described in an article in Spectrum, June 1973. Dr. Beam summarized them briefly. Potential interfaces are indicated on Attachment 8.

Dr. Unger is in contact with Mr. Neuman, Chairman, Employment Practices Committee.

Mr. Klig is in contact with Dr. Apter, Chairman, Committee on Professional Opportunities for Women. A newsletter article and a liaison representative may result.

The Secretary has ascertained from Mr. Wood, Chairman, Government Relations Committee, that direct liaison may be acceptable to GRC, despite reservations expressed by one of its members.

Dr. Beam is Chairman of USAC Employment Activities Committee and thus embodies 100% liaison. The sole function of this Committee is to enhance employment opportunities for IEEE members and attempt to match specific candidates to specific openings.

The function of the USAC Survey Committee is to coordinate an annual survey of a representative sample of IEEE members (1973: one in five). Component questionnaires may be submitted by IEEE units for possible inclusion in the 1974 survey.

New USAC committees (authorized 6/14/73) are concerned with Consumer Product Standards and Cable TV Guidelines for local authorities.

The Technology Forecasting and Assessment Committee reports financially to USAC and operationally to TAB (See minute 6.1.6)

#### 6.1.4 Standards Board

As noted above, a Consumer Product Standards Committee has been authorized to operate under the Standards Board; chairman is Professor Benjamin Leon, Purdue University. Dr. Barrow drew attention to a N.Y. Times article (6/25/73) on audio equipment and the need for standards to benefit the consumer. Mr. Werntz had expressed interest and had been asked by Dr. Barrow to prepare a draft for review. Mr. Werntz reported that he and three colleagues were preparing the draft; he agreed that operation through the Consumer Product Standards Committee was appropriate and will contact Dr. Leon.

ACTION  
(Werntz)

The Secretary reports that copies of the titles of all active IEEE Standards projects are available on request for perusal concerning possible social implications. Since this is a bulky document, copies are not being attached to these minutes. Anyone interested should contact the Secretary.

ACTION

6.1.5 Group/Societies

The Secretary reiterated the view that certain G/S should be regarded as valuable resources for aid in C-SIT activities.

ACTION  
(Klig)

The Professional Communications Group offers expertise in techniques of communication ("software"). Mr. Klig will contact G-PC Vice-President Jim Lufkin and report progress to Mr. Robbi.

ACTION  
(Robbi)

The Education Group offers expertise on educational methodology. Mr. Robbi will follow up previous contacts with G-Ed President Joseph Biedenbach concerning interest in the Engineering Curricula survey (see minute 4.0.8), coordination with an Education Working Group of C-SIT (minute 4.0.8) and possibilities for a 1974 symposium.

ACTION  
(Edmonds)

The Engineering Management Society is clearly connected by the activities of its members to the social implications of technology. It offers expertise in management methodology and training. An interface with the C-SIT Ethics Committee should be established. The Secretary will contact S-EM Vice-President Henry Bachman and report to Mr. Robbi and Dr. Unger.

ACTION  
(Rabow)

The System, Man and Cybernetics Society has appointed Mr. S.M. Shinnars as its representative to C-SIT. Professor S.M. Altmann, SUNY, also offers liaison to S-SMC, which is a source of expertise on systems engineering. Mr. Rabow will make contact with Mr. Shinnars and Professor Altmann and report progress to Mr. Robbi.

6.1.6 Technology Forecasting & Assessment

Dr. Morsch summarized the status of the TF&A project, including reference to the normative forecasting questionnaire prepared and distributed by Mr. Roehr. Copies of this questionnaire were distributed. They should be returned to:

Mr. Walter Roehr or to:	Dr. William Morsch
DCA SEF	IEEE Washington Office
1860 Wiehle Avenue	2029 K. Street, N. W.
Reston, VA 22070	Washington, D.C. 20006

from whom additional copies can be requested for the use by interested persons. Anyone returning a completed questionnaire will be included in the second round request for updated responses for this Delphi Study.

Dr. Beam recommended use of C-SIT as a resource in the assessment phase of the TF&A project. Dr. Emberson pointed out that the technological forecasting phase dealt with matters of universal validity and potential interest to all IEEE members world-wide, while the assessment phase would need to take into account local conditions. Thus, many assessments would be needed and performed on the basis of the technological forecast.

6.1.7 Publications BoardACTION  
(Edmonds)

Mr. Christiansen noted that Dr. Balabanian is C-SIT's representative to Spectrum Editorial Board. The Secretary will communicate with Dr. Cotellessa concerning additional liaison.

6.2. Sub-committee on IEEE ActivitiesACTION  
(Edmonds)

This sub-committee, originally chaired by Mr. Sarasohn, had been inactive. Since a continuous monitoring function was appropriate, and since the necessary information was first available only to the IEEE staff, Dr. Barrow directed that this become a staff function. The Secretary took cognizance of this additional function. The sub-committee on IEEE activities is considered to be abolished.

7. Sub-Committee on Engineering Schools' CurriculaACTION  
(Robbi)

The Chairman of this sub-committee, Dr. Lewis, had submitted a letter of resignation citing supervening commitments. As noted in minute 4.0.8, Mr. Robbi will determine how to complete the tasks of this sub-committee, including a report on the results of the curricula survey. Coalescence with a Working Group in Education (WG-Ed) was anticipated.

8. Major IEEE Conferences8.1 NEREM '73

Dr. Barrow reported that attempts to arrange a session entitled: "Would you want your daughter to marry an engineer" had terminated because the ad hoc organizing committee had been unable to surmount the customary dilemma: how to invite 'big names' when the size of the audience might be embarrassingly small vs. how to attract a sizeable audience without inviting 'big names'. No further action was contemplated.

8.2 INTERCON '74ACTION  
(Benjamin)

See minute 6.1.1 for background information. Mr. Robbi requested reactions to his proposal of 4/26/73 distributed with the agenda. Approval was expressed mildly. Dr. Benjamin was nominated as organizer of C-SIT activities at INTERCON '74 and was drafted unanimously. Dr. Benjamin should coordinate with Mr. Robbi in preparing more specific proposals for activities and communicate these to Dr. Barrow. (See minute 6.1.1)

9. Sub-Committee on Publications9.1 Newsletter

The Secretary reported that C-SIT Newsletter #3 was to be mailed 6/29/73. [N.B. Copy received by mail at IEEE Headquarters on 7/10/73].

Mr. Klig, Newsletter Editor, reported that he had material on hand for #4, for which the copy deadline is July 15, 1973. He has some

ACTION (All) associate editors/correspondents. Articles are continuously desired from all sources.

9.2 Chairmanship

Under C-SIT procedures as approved, Dr. Unger relinquishes chairmanship of the sub-committee on publications upon assuming chairmanship of the working group on Ethics (WG-E). It was proposed that the functions of publications and publicity be combined under Mr. Kotasek. Noting that Mr. Kotasek is in a similar situation, having accepted chairmanship of the Working Group on Environment/Energy, the Secretary will place the matter on the agenda for further discussion on the next meeting.

ACTION (Agenda)

10. Participation

ACTION (Observers) Dr. Barrow invited all observers at the meeting and other interested IEEE members to participate in C-SIT activities by making known their interests to the Chairman of the appropriate working group or to Mr. Robbi if they wish to begin a new activity. (Don't wait to be asked!)

11 Next Meeting

ACTION The next meeting will be held September 5, 1973 at 6:30 p.m. at IEEE Headquarters, New York. Items for the agenda will include:

(All) reports of all active sub-committees and working groups (deadline for distribution with agenda, 8/6/73)

(Klig) re-evaluation of C-SIT structure

(Beam) presentation of socio economic information to C-SIT (specific proposal by 8/6/73 . . . please Walter!)

as well as items noted in the margin of the foregoing minutes.

12. Adjournment

The meeting adjourned at 10:30 p.m.

Peter D. Edmonds  
Secretary

Issued: JUL 18 73

- Attachment A: Current roster of C-SIT
- B: Structure of C-SIT and interfaces with USAC
- C: Suggested operational procedures for Working Groups
- D: Working Group on Ethics - first mailing: SHU 5/21/73
- E: Correspondence re: INTERCON '74: JAAR 6/19/73; BBB 5/31/73
- F: Suggestions re: IEEE Awards: TW 6/26/73

**Enclosures:**

Summary of Action Items

Evaluation form for Blecher report on INERCON plans, 9/72 \* Blecher Committee's priorities (2 pages)

**Distribution:**

C-SIT members and Staff (R.M. Emberson, P.D. Edmonds)

**Observers and potential participants:**

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R. B. Goldner  
E. D. Klema  
M. Koiker  
E. J. M. Skalenko  
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J. Jackson  
A. Bronwell  
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W. Welch  
M. C. Paull  
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J. Kaufman

H. Chestnut  
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(Revised 7/11/73)

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LIAISON REPS.

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Region 6, Ingebrechtsen  
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EQC, Nagel  
SAC, Bakonyi  
SMC, Shinnors

To  
Spectrum Editorial Board, Balabanian  
USAC Employment Guidelines Com., Unger

**CSIT**  
Chairman Barrow  
Vice Chairman Rabbit

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- Procedures, Kilg
  - INTERCON, Benjamin
  - Publicity, Publications & Participation, Katasek
  - Newsletter, Klig
  - Engineering Schools Curricula (vacant)
  - IEEE Activists, Staller
  - Other Societies' Activities, Tate (Inactive)
  - Bibliography, Wemtz
  - Subject Areas, Highinboitham
- WORKING GROUPS
- Ethics, Unger
  - Environment/Energy, Katasek
  - Education (vacant)
  - Bioelectronics, Pessah
  - Applications of Systems Engineering, Rabow

AD HOC ACTIVITIES

- Awards (Wemtz/Barrow)
- Audio Equipment Standards (Wemtz/Barrow)

(major commonality of interest)

SUBCOMMITTEES

- Pensions, Backe
- Ecology (Calif.), Ingebrechtsen
- Government Relations, Wood
- Manpower Planning, Astorino
- Surveys, Spltzer
- Employment Activities, Beam
- Professional Opportunities for Women, Apter
- Consumer Product Standards, Leon
- Employment Guidelines, Neuman
- CATV (vacant)
- Technology Forecasting & Assessment, Rowe (TAB Project)

**USAC**



Guidelines for Working Groups or Expository  
Check List

THIS IS A DRAFT

(Executive pardon for  
the following use of  
imperatives is being  
sought)

1. You can only start from here and now.
2. Pick a topic you feel personally committed to work on:
  - if you have a draft of your thoughts, use it.
  - if you don't, write it.
  - reflect now on your personal priorities; will you devote adequate time to this project? If yes, GO! If no, tell Vice-Chairman Robbi now.
3. You need help and/or comments:
  - maybe you can get it from people you know; list them, including all from previous C-SIT activities and correspondence, as available from staff Secretary.
  - write a form letter explaining your objectives, attach your first draft, list of recipients. Invite their comments and their similar initiative to write down and circulate their own drafts on related topics they are committed to: distribute personally or via IEEE Headquarters; form an interacting working group that intends to work.
  - specify dates for desired response. Allow one week for distribution, two weeks for contemplation, and one week for response, total four weeks, not less and not much more.
  - send a copy to C-SIT Secretary.
4. Don't be surprised if members of your WG neglect to reply. They also have their own priorities. Recall that they may have been brainwashed to expect repetitions of the message, follow-up phone calls or post cards, postponed deadlines, reorganization instead of action, hypocrisy, double-think and irresponsibility.
  - remember your own deadlines;
  - anticipate minimal response; be prepared with post cards and/or phone on the deadline date -- "Are you still there?" "Are you serious?" "What's your response to my draft?" "Please

.....OVER

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write it down now and mail it to me."

- it's your ball, carry it'

5. Assuming you get replies, set your own deadline for consolidating responses and preparing second draft; consider dispassionately the other commitments of your time; meet your own deadline:

- circulate the second draft; attach distribution list.
- compare progress with objectives; identify deficiencies, plan remedial actions; what are the necessary resources? Who has them? Go, get them; apply them; measure effectiveness. Hope for the best, but be prepared for the worst.

6. Assuming you get insufficient replies:

- is the topic viable? - Too narrow? Too hazy?
- can you "go it alone"? - read the significant background literature, keep abreast of other concurrent activities, generate an output to satisfy an unmet need? If yes, GO!; if no:
  - are there additional sources of potential respondents? people who have written to Headquarters recently; people whom your initial contacts can recommend (the pyramid principle); another IEEE committee that you could contribute to or influence?
  - try publishing your draft to generate reactions. (with approval of C-SIT newsletter editor)

7. Communication costs are reimbursable from IEEE Headquarters for direct costs of duplicating, mailing, phone. Please keep records, receipts and submit them to C-SIT Secretary when the total becomes large enough to be interesting. Travel costs, wages, and fees are not reimbursable unless specifically approved by the C-SIT chairman in advance in each instance. Such approval is unlikely. Approval for documented reasonable communication costs is routine.

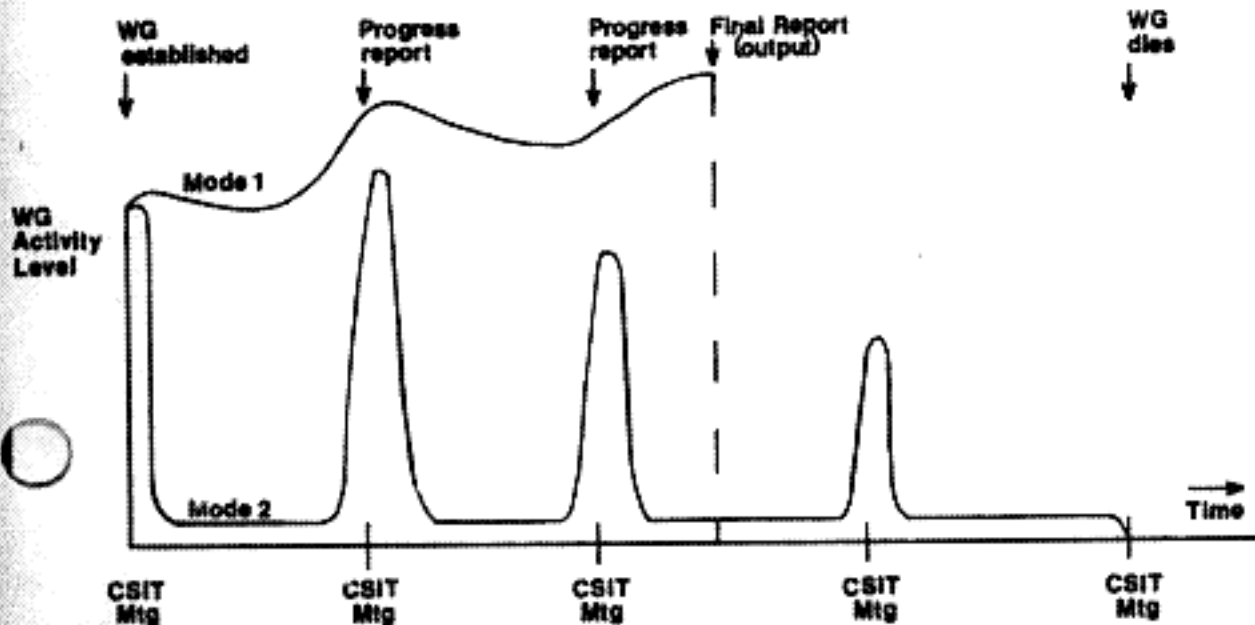
.....OVER

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8. OUTPUT: Documents expressing a consensus of a working group should be submitted promptly to the C-SIT Secretary for reproduction and distribution by mail to C-SIT for review. Please state which actions are desired: comments, approval for internal IEEE use, approval as (a component of) an IEEE positions paper, approval for publication, etc. Include minority viewpoints and all the angles. Ensure that suitable account is taken of other related work within and without IEEE; beware of charges of naivité and lack of awareness of material published elsewhere-- working in vacuo leads to suffocation.

Comment. . additions and deletions are invited concerning these draft guidelines--PDE - 7/12/73

9. To emphasize that the effectiveness of WG's depends greatly on what is done between C-SIT meetings, please consider the two extreme modes of operation indicated schematically by the following figure. Mode 1, the creative mode, is effective. Mode 2, the reflex mode, is ineffective.



COLUMBIA UNIVERSITY  
Department of Electrical Engineering and Computer Science  
New York, N. Y. 10027

ATTACHMENT D  
C-SIT Minutes 6/27/73

May 21, 1973

Dear

This letter constitutes an invitation to you to help form a Working Group on Ethics (W G E) being set up by the IEEE Committee on Social Implications of Technology (C-SIT). The mailing list for this letter (see enclosure) was derived principally from responses to the C-SIT questionnaire on areas of concern.

A few words about C-SIT may be in order. This committee of the IEEE Technical Activities Board was formed about a year ago in response to a petition signed by over 600 IEEE members calling for the formation of a Group on Social Implications of Technology. The present chairman is Dr. Bruce Barrow, and the committee meets (in Manhattan) about every two months. Members of C-SIT are defined as those heading its various sub-committees, or serving as liason members from other IEEE entities. Despite the fact that we live in the "age of communications", this has meant, in practice, that membership has been essentially limited to those who can attend meetings in New York City. Working committees on various topics of concern, such as the W G E may develop into a mechanism for actively involving more people. Any of you not on the mailing list of the C-SIT Newsletter may remedy this omission by writing to Dr. Peter Edmonds at IEEE headquarters.

A glance at the mailing list for this letter will indicate that the communications problem referred to above will apply in full to W G E. Suggestions on how to operate effectively in this situation would be most welcome. Meanwhile, as the "founding" chairman, I shall make some initial proposals to get things moving.

With respect to procedure: we can communicate with one another via informal meetings, direct mail and telephoning, by using the chairman as a central node and thru the C-SIT Newsletter. Articles can be submitted to the Newsletter or, if wider circulation is deemed appropriate, they can be sent to Dr. Norman Balabanian who, as informal C-SIT liason member of the Spectrum Editorial Board, can try to arrange for publication in that journal. Workshop sessions at various IEEE meetings are another important tool. Some very fruitful, tho not heavily attended, sessions of this kind were held concurrent with Intercon '73.

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With respect to subject matter, I shall also make some proposals, altho it should be emphasized that these in no way preclude other topics that have been or may be suggested.

- (1) A natural topic for an ethics committee is the development of a code of ethics. A draft of such a code (which was presented at the aforementioned Intercon related sessions) is enclosed. It might serve as a basis for discussion. Comments, criticisms or alternative proposals are earnestly solicited. An article including a version of this code along with critiques is planned for a future issue of the C-SIT Newsletter and possibly a still more refined article might then be submitted to Spectrum.
- (2) In order to make a code of ethics meaningful, some machinery for supporting the employed professional is necessary (this point is touched on in the paper mentioned above.) An interesting proposal in this direction is outlined in the enclosed memo by Mr. Joseph Stifelman. Again, as with respect to (1) above, comments, refinements, criticisms, and alternatives are invited.
- (3) Related to both of the preceding items, the recent series of Spectrum articles on BART makes a passing reference to several engineers who were discharged as a result of their having protested against what they regarded as unsafe aspects of the system being developed. I am now in the process of gathering information about this situation, with a view toward using it as a case study showing the kinds of pressures under which the employed engineer operates. Information on the BART engineers (including those working for BART contractors) or other participation in this investigation is hereby invited.

Similar studies of other such cases would make very worthwhile projects for WG-E members.

Other topics that might be the subject of studies by WG-E include portable pensions (these bear directly on the professional independence of the employed engineer), patent agreements, the ethics of engineering managers, and the responsibilities of engineers engaged in war-related work. Any other ideas?

Hopefully our committee, in addition to serving as a forum for discussions (a most valuable function) might also come up with some concrete proposals to present to IEEE on such matters as a code of ethics, backing up the responsible engineer, portable pensions, etc.

I hope to hear from you soon.

Yours truly,

SHU:es

Stephen H. Unger

Stephen H. Pifer  
Dept. of Electrical Engineering  
and Computer Science  
Columbia University  
and the Center for Policy Research

March 25, 1975

(To be presented at the IEEE C-81<sup>st</sup> Open Forum, afternoon of March 29)

A code of professional ethics for engineers would serve to remind individual practitioners that they have obligations beyond simple commercial contracts with their employers (or, in some cases, clients). It may also be useful in legitimizing difficult stands that individuals may sometimes feel called upon to take for ethical reasons.

In order to be effective, the code must satisfy three somewhat opposing constraints:

- (1) wide acceptance within the profession,
- (2) applicability to a wide range of situations that cannot be anticipated in any detail,
- (3) significance, in that it has consequences in real situations - not a restatement of "motherhood".

The first two conditions require the principles enunciated to be of a basic nature, leaving to the individual the problem of adapting them to specific cases according to his own judgement and moral precepts. A code of professional ethics cannot by itself be a complete guide to behavior. It can in general only be one of the factors considered in the decision-making process. Hence two people agreeing to the same code might come to different conclusions in a particular situation because of variations in their interpretations of the relevant facts, or because they differ on certain ethical points beyond the scope of the code.

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An example of the latter might be an engineer asked to solve a problem encountered in the production of whiskey. One person might decline the task because he regards whiskey as a social evil. Another, seeing no harm in whiskey itself, might have no such qualms.

Whether or not a particular code is more than a bland exposition of existing common practice (requirement (1) above) can be judged by the extent to which clear conflicts with the code are occurring.

Even if a set of principles satisfying the above three conditions, and otherwise being satisfactory, is found, there is still a question as to whether it would be useful beyond having a mild educational effect. Such doubt is based on the fact that most engineers (particularly electrical engineers) are employees subject to the dictates of management. Especially at times when the employment market is tight, it may be argued that not many people will give up or forego jobs on ethical grounds.

This very important point cannot be properly treated in a short note. (For a somewhat more extensive discussion see Ref. 1-4). However it is worth pointing out here that one can often take meaningful stands on ethical questions arising on the job without "laying one's career on the line". Furthermore, in the important cases where an engineer finds that a serious clash with his management is necessary on grounds of professional ethics, he should be supported in an organized way by his professional society, as is done in analogous cases by the American Association of University Professors (Ref. 5). Bringing about a situation in which engineering societies will act this way should be a primary goal of concerned engineers.

These preliminary remarks now precede a statement of the proposed code of ethics. The code suggested here is intended as a basis for discussion. It is doubtless incomplete and in need of revision and editing. Thanks are due by the author to his students at Columbia University, who contributed useful ideas and formulations (principally in the form of answers to a final examination question in a course on technology and society). See also Ref. 6.

#### PROPOSED CODE FOR ENGINEERS

1. Do not falsify data or make dishonest or unrealistic estimates.
2. Do not violate established laws or codes.
3. Maintain high work standards—do not participate in the production of shoddy products.
4. Accept responsibility for personal errors.
5. Do not discriminate against colleagues or co-workers on irrelevant grounds such as race, religion or sex.
6. Assist junior colleagues, technicians etc. in developing their skills.
7. Give proper credit to others for their contributions to your work.
8. Seek, accept and offer honest criticism of work.
9. Encourage colleagues and co-workers to act ethically with respect to their work; support them when they do so.
10. Promote safety in work situations.
11. Make available to others clear accounts of developments that may be of value to them.
12. Keep reasonably abreast of current events, particularly in areas that may be affected by your work.

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- 13. Give yourself credit for the responsible preservation, protection, and maintenance, immediate and remote, of subjects you are working on.
- 14. To the greatest extent possible, focus your efforts on activities you deem of value to be of positive value to humanity. Refuse to work on projects that are basically detrimental.
- 15. Where abuses of the public interest are encountered in the course of professional activities, and where normal channels are ineffectual in averting them, speak out in whatever form is best calculated to lead to a remedy.
- 16. Help inform the lay public about technological developments and of the alternatives they make available.
- 17. Contribute professional skills to worthy public causes.

REFERENCES

- 1. Paschkin, Victor, "Moving Toward Responsible Technology", ASME Winter Ann. Meeting, December 1971, paper 71-WA/WV-1.
- 2. Unger, Stephen H., "The Need for Heroes", Computer (IEEE Computer Society), Jan./Feb. 1972, pp. 22-23.
- 3. ----- "Personal Responsibility of Engineers for Their Work", IEEE Convention Digest 1972, Session 6P, pp. 322-323.
- 4. ----- "Engineering Societies and the Responsible Engineer", N.Y. Academy of Sciences Conf. on Social Responsibility in Engineering, April 15, 1972, Vol. 196, Art. 10, pp. 433-437.
- 5. Van Alstyne, William, "Tenure: A Summary, Explanation, and Defense", AAUP Bulletin, 57(3).
- 6. Code of Ethics of the National Society of Professional Engineers.

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MEMORANDUM

TO: Mr. J. Malvern Benjamin, Jr.

FROM: Mr. Joseph Stitelman (Member, IEEE; formerly Member,  
IEEE Information Retrieval Committee)

SUBJECT: Suggestions For Means For Engineers to be Protected in the  
Practice of Their Profession and to Maintain Professional  
Standards

(Submitted at the request of Mr. Benjamin during a meeting  
of the Committee for Social Implications of Technology  
at the IEEE Convention, March, 1973)

DATE: April 10, 1973

The stock in trade of the engineer is information and control--but the control is not always in his hands. Being, usually, a salaried professional, decisions based on the engineer's information and recommendations are made by others. Also, engineers are sometimes required to modify or suppress information and to not interfere too much in situations involving interests in "intellectual property". In contradistinction, the engineer as a citizen feels impelled to speak out; he should have that right. Professionally, he is required to assume responsibility for the information and recommendations he may furnish; so, too, he should have a similar right to exercise his rights as a citizen according to professional standards of conscience without fear of penalties imposed upon him for exercising such rights.

In addition to individual responsibilities and rights engineers as a group have rights and responsibilities both technically, and as citizens. I suggest that the Institute has a professional duty to speak out and be heard on public issues about which it has a special expertness or in which the members have, by some regular, democratic process, expressed enough interest to justify the IEEE as a whole taking interest in the matter.

How is the engineer to be protected in exercising his professionalism? 1) I suggest that the Institute set up an ad hoc committee whose purpose would be the establishment of professional standards for salaried and self-employed professionals. 2) This committee would design model individual contract forms between professionals and their employers for the purpose of safeguarding the rights and securing the "tenures" of professional engineers. 3) These contracts would require arbitration boards which take member grievances, including alleged unfair employment practices, and also employer grievances relating chiefly to the said professional standards--such might include, for example, complaints against engineers who fall below those professional standards either technically or socially--hold hearings, deliberate, and then act in a manner which is binding, legal, and practical.

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This Ad Hoc Committee should have a varied membership to protect the interests of all. Included should be representatives from the federal government, from management, from the engineering academic world, from recent engineering graduates, and from certain interdisciplinary groups and organizations (such as FAS or SSRS), as well as standard and professional engineers. In addition, it should hold its hearing in a circuit of various IEEE chapter locations so that the IEEE rank and file may be heard.

The model contracts would be so drawn as to give the decisions of the arbitration boards legal and binding force. One certain penalty against engineers found guilty of unprofessional conduct or against firms found guilty of not respecting professional rights and standards would be a citation for such unprofessional conduct, such citation to receive appropriate publication to the IEEE membership.

Such machinery would be based on adversary proceedings and would require a legal staff to represent 1) the plaintiff, 2) the defendant, and 3) the IEEE and the Committee, in their role as amicus curiae. Paying for this legal representation might require some form of insurance comparable to the physician's malpractice insurance; this would be particularly necessary for self-employed engineers. It might be wise to set up Group Legal Services; hopefully, this would be best done on a local basis.

Actors Equity is both a professional and a union organization and has had to deal with individual contracts for many years. Other organizations either wholly or partially outside engineering who have dealt with similar problems are the National Association of Internal Revenue Agents and the Counsel to Scientific, Professional, and Cultural Employees of the APL-CIO.

2301 S. Jefferson Davis Hwy.  
Apt. 423  
Arlington, VA 22202

**GENERAL ELECTRIC**  
**COMPANY**

ELECTRONICS DEPT. SYCAMORE BLVD. W. 1220 TEL. AREA 315 DIAL 456 PINE EXT 7

ATTACHMENT E

B. B. BARROW  
C. SIT Minutes 6/27/73  
122 1973

**ELECTRONICS**  
**LABORATORY**

June 19, 1973

Dr. Bruce Barrow  
GTE Laboratories Inc.  
40 Sylvan Road  
Waltham, Mass 02154

Dear Bruce,

As I indicated in my recent letter, I wanted to delay a response to your letter of May 11 concerning the Intercon Program until after a meeting of the Conference Board on June 18. Since that meeting was held yesterday I thought I ought to report on its outcome.

In planning the 1974 program, some serious questions have been asked concerning the criteria which will be used in determining whether or not the program is a success. The answer has come back that the measure to be used is overall attendance at Intercon. Unless Intercon is financially viable there will be no Intercon. As a result, it has been decided that the program must be tied as closely as possible to the exhibition and the business areas which it represents. In order to achieve this, the following schedule has been arranged.

The exhibition will run all day Tuesday, Wednesday, Thursday and half of Friday. The overall Intercon activities will, however, run for the whole week - Monday to Friday inclusive. The technology areas to be covered by the Technical Program have their counterparts at the Exhibition and will be covered by sessions running concurrently with it, with the exception of Friday morning.

The areas which have been selected are "Computers and Information", "Solid State", "Marketing", "Electro Optical", "Communications & Data Transmission" and "Instruments & Instrumentation". In consultation with the presidents of the appropriate societies I have been recruiting Vice Chairmen to handle these areas.

On Monday and Friday of Intercon week, meeting rooms of all sizes will be available at the Statler Hilton, 1974 Intercon Headquarters, to accommodate activities of interest to those organizations within the Institute which do not

RT

GENERAL ELECTRIC

Dr. Bruce Barrow

-2-

June 19, 1973

relate directly to the business interests of the Exhibition, but which look to Intercon as an annual forum. I assume that your committees will want to take advantage of this arrangement. If this is so, I suggest that they make known their room requirements early so that all such requests may be integrated in an orderly fashion.

I hope this method of operation will be beneficial to all concerned.

Sincerely yours,

*Jack*

J.A.A. Raper, Chairman  
1974 Intercon  
Technical Program Committee

JAAR/rec

CC: F. Blecher  
J. Dillard  
C. Killen  
H. Schumacher



INSTITUTE OF  
ELECTRICAL AND  
ELECTRONICS  
ENGINEERS, INC.

MEMBERS

Office of the Vice Chairman,  
Technical Activities Board  
Technical Activities Board

MEMBERS

Office of the Vice Chairman,  
575 Massachusetts Ave.  
40 Sylvan Road  
Westford, Massachusetts 01194

May 31, 1973

Mr. Jack A. A. Raper  
General Electric Co.  
Room 115, Bldg. 3  
Electronics Park  
Syracuse, N. Y.  
SYRACUSE, N. Y.

Dear Jack:  
Dear Sir:

I have recently received word that you have accepted appointment to the Chairmanship of the Intercon 1974 Program Committee. I have also had a chance to study the report of the ad hoc committee on long range plans for Intercon.

This report provides (page 5) for the program chairman to consult the society presidents on some of the program committee appointments. Presumably the intent is to effect a closer relationship between Intercon and the technical activities represented by TAB. I therefore would like to consult with you concerning Program Committee members to represent the Environmental Quality Committee and the Committee on the Social Implications on Technology. If we can take care of this coordination in a timely fashion, we ought to be able to avoid the frustration and irritation that we ran into in early 1973.

May I please hear from you.

Very truly yours,

Bruce B. Barrow

BBB:gc  
BBB:gc

cc: H. Chestnut  
cc: J. Dillard  
B. Manheimer  
A. Robb  
R. Kaberson  
P. Edmonds  
T. Edmonds



IEEE Awards Procedures; Some Suggestions

Ted Werntz

The adoption of the new IEEE constitution by the IEEE membership should trigger a thorough review of long established IEEE behavior patterns (such as the criteria used in awarding IEEE AWARDS) in order to determine that these activities are in harmony with the provisions of the new constitution.

Article 1, Sec 2 mandates that

"The IEEE shall strive to enhance the quality of life for all people throughout the world through the constructive application of technology in its fields of competence."

The decision of the existing Awards Board to present during NEREM the 1973 Harry Diamond Award to a senior scientist at the U.S. Army Electronics Command for research "with application to the fields of imaging and surveillance" illustrates the problem.

It is recommended that the procedures and policies set forth in section 305 of the Bylaws and IEEE policy statement #17 be amended to include specific instructions to mandate that the criteria used for award selection be in accord with the above quoted section of the constitution. This would be in contrast to the existing criteria of "recognition of excellence" irregardless of the uses to which this excellence is applied.

To help the Awards board it is recommended that every nomination for an award carry with it a statement estimating "the influence of such technology on the public welfare".

It should also be appropriate to request that the Awards Board recommend to the Board of Directors changes in the awards structure required to fulfill the intent that the awards be in accord with the above provision of the constitution. It is possible that section 305.1 of the bylaws, obligates the Awards Board to attend to this matter upon the adoption of the new constitution. If not, an alternative approach, bypassing the Awards Board, should be developed.

6/26/73

PLT  
7/17

IEEE COMMITTEE ON SOCIAL IMPLICATIONS OF TECHNOLOGY  
New York - June 27, 1973

ACTION ITEMS

Please refer to numbered minute for action requested (deadlines in parentheses).

<u>All</u>	<u>Barrow</u>	<u>Beam</u>	<u>Benjamin</u>	<u>Edmonds</u>
6.0.1	6.1.2 (now)	6.0.1 (now)	8.2 (now)	4.0.7 (now)
6.0.6		11. (8/6/73)		4.0.11 (now)
6.1.1 (7/15/73)*				6.1.5 (now)
6.1.2				6.1.7 (now)
6.1.4				6.2
9.1				
11. (8/6/73)				

9/5/73 Agenda

3b, 3c  
9.2

<u>ig</u>	<u>Kotasek</u>	<u>Pessah</u>	<u>Rabow</u>	<u>Robbi</u>
6.1.5 (now)	4.0.2 (now)	4.1 (8/6/73)	4.1 (8/6/73)	4.0.8 and 7. (now)
11. (9/5/73)	4.1 (8/6/73)		6.1.5 (now)	6.1.5 (now)

<u>Stoller</u>	<u>Observers</u>	<u>Unger</u>	<u>Werntz</u>
5. (8/6/73)	10. (now)	4.0.1 - Stitleman (9/5/73)	4.0.1 (9/5/73 or earlier)
		4.0.1 - BART (9/5/73 or earlier)	6.1.4 (now)
		4.1 (8/6/73)	
		6.1.2 (9/5/73)	

Other Recipients

10. (when motivated)

\*or immediately on receipt of minutes.

[N.B. The minutes of the 6/27/73 meeting contain information that could not be announced at the meeting due to time constraints. Please make a particular point of reading them--PDE]

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THE INSTITUTE OF  
ELECTRICAL AND  
ELECTRONICS  
ENGINEERS, INC.

Enclosure 2  
C+SIT Minutes - 6/27/73

345 EAST 47TH STREET, NEW YORK, N.Y. 10017 AREA CODE 212 752-6800

KEY TECHNOLOGIES FOR FUTURE INTERCON TECHNICAL PROGRAMS AND EXHIBITS

Blecher Report  
May 7, 1973,  
page 6

C-SIT Member  
Rating 6/27/73

Social Implications of Listed Topics  
That Should be Included in INTERCON

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

Additional Topics of Importance:

- x
- x
- x
  
- x
- x
- x
- x
- x

- 6 -  
4. Data for Exhibitors

Arrangements should be made to provide exhibitors with the necessary data to plan their exhibits in an optimum manner. This might include traffic volume as a function of time of day and booth location, profiles of registrants, areas of interest to be used as the basis for structuring the technical program, etc.

5. Social Functions

It is recommended that the IEEE annual spring meeting include one large social function, an old-fashioned cocktail party followed by a good dinner, some first-rate entertainment and dancing. The only formal part of the program would be a brief welcoming address by the President (5 minutes) plus one or two award presentations without speeches. The major dinner address should be eliminated.

Other functions such as Hospitality and Ladies Program should be continued.

KEY TECHNOLOGIES FOR FUTURE INTERCON TECHNICAL PROGRAMS AND EXHIBITS

The following technologies are listed in estimated order of importance:

1. Integrated circuits for consumer electronics - electronic calculators, watches, timers, automotive applications, small computers for the home.
  2. Computers - large scale scientific computing, biomedical applications, management information and control system, mini-computer applications.
  3. Medical applications of electronics - prosthesis using electronic control, mass screening techniques employing pattern recognition (i.e. X-rays, electrocardiograph), advanced techniques for measuring physiological functions, simulation studies.
  4. Energy Crisis - power sources, power distribution and control, pollution problems.
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5. Data communications - interconnecting computers, credit card verification, stock market data distribution, access to large data banks.
6. Marketing and business topics - the importance of market share in today's electronics industry, methods of financing extraordinary R and D, measuring the effectiveness of technical sales promotion, sources of market research for the electronics industry, measuring the productivity of an engineering staff.
7. Video signal transmission and display - CATV, picturephone, solid-state cameras and displays.
8. Large scale integration - semiconductor memory, digital logic, switching matrix for telecommunications.
9. Environmental monitoring instrumentation - pollution control of air, water, sound.
10. Safety equipment - industrial, automotive, home, marine, aeronautical.
11. Intrusion alarm techniques and devices for civilian use - protection of the urban population.
12. Diagnostic techniques for simplifying the servicing of electronic equipment - consumer, industrial, mobile.
13. Higher efficiency in the design of consumer products to save power - TV sets, air conditioners, refrigerators.

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345 EAST 47TH STREET, NEW YORK, NY 10017 AREA CODE 212 752-6800

June 7, 1973

IEEE Committee on Social Implications of Technology

Meeting Notice

The next meeting of C-SIT will be held:

Wednesday, June 27, 1973 - 6 p.m.  
IEEE Headquarters - 10th floor, Board Room  
345 E 47 Street  
New York, NY 10017

The meeting is open to those IEEE members prepared to undertake assignments or to volunteer aid. This is not a dinner meeting. Please make your own arrangements for survival.

A G E N D A

1. Introductions
2. Minutes of 3/30/73 and 4/28/73 meetings
3. Items for the agenda
4. Report on new subject area working groups (Higinbotham)
  - Ethics (Unger), Environment/Power, Urban Technology/  
Transportation, Communications, Education, Bioelectronics  
(Pessah), Applications of Systems Engineering, Consumer  
Products.
  - 4.1 Confirmation of chairmen of working groups
  - 4.2 Objectives
  - 4.3 Schedules
5. Report on survey of IEEE activists (Stoller)
  - Association with working groups and sub-committees
6. Reports from liaison representatives on activities of IEEE units
  - (Beam - EAB, Cory - Region 5, Ingebretsen - Region 6,  
Killin - Division II, Nagel EQC) -- social implications?

.....OVER

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- 6.1 Liaison with additional IEEE units:
  - (Conference Board/INTERCON Program Committee, Awards Board, EAB/Committee on Minorities, USAC/Committees, TAB/Standards, G-PC, G-Ed, G-EM, S-SMC, TF&A, Publications Board) -- need, methods?
- 6.2 Social implications of current IEEE programs.  
Example: Speaker Series (Attachment), re: "balance".
- 6.3 Sub-committee on relevant IEEE activities - chairman?
7. Report on curricula survey (Lewis)
  - schedule for writing up and publication
- 7.1 Possible 1974 conference on curricula [Robbi, Jackson (?)]
8. Reports on major IEEE Conferences activities
  - 8.1 NEREM '73 (Barrow)
  - 8.2 INTERCON '74 (Robbi) (Attachment)
  - 8.3 Others
9. Report of publications subcommittee (Unger)
  - 9.1 Newsletter - editor, correspondents
  - 9.2 Chairman
10. Next meeting date and arrangements
  - 10.1 Presentation (Boas)
11. Other business
12. Review of action items
13. Adjournment

PDE:gd

Attachments: 5/23/73 memo, R.M. Emberson to TAB;  
A. Robbi's proposal (4/28/73 agenda)  
Speaker Series guidelines and list

Distribution:

C-SIT Roster	M. Schwartz	A. Bromwell
R. B. Goldner	E. Pugh	W. Welch
E. D. Klema	G. Rabow	M. C. Paull
M. Kolker	S. M. Altman	E. Sable
E. J. Maskalenko	S. M. Shimmers	A. Bernstein
R. Bruce	C. Barus	J. Kaufman
N. Balabanian	J. Jackson	

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ENGINEERING, INC.

345 EAST 47TH STREET, NEW YORK, N.Y. 10017 AREA CODE 212 752-6800

May 23, 1973

To: All Members of the Technical Activities Board  
From: Richard M. Emberson, Secretary TAB  
Subject: LONG-RANGE PLANS FOR IEEE INTERCON

1. Vice President Dillard has asked that the attached report (originally dated September 5, 1972, and revised May 7, 1973) be distributed for your information and use.

2. Mr. John A. A. Raper, who served as the INTERCON Technical Program Committee Chairman for 1973, has agreed to serve in that same capacity for 1974. I understand that a call-for-papers will be distributed shortly. An advance copy is attached; you will note that it lists the principal technical themes for 1974.

RME/ek  
Attachment

cc/ All Group/Society Vice Presidents  
" " " Secretaries  
" " " Treasurers  
" " " Secretary/Treasurers  
All Council Vice Chairmen  
" " " Secretaries  
" " " Treasurers

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THE INSTITUTE OF  
ELECTRICAL AND  
ELECTRONICS  
ENGINEERS, INC.

## IEEE GROUP CORRESPONDENCE

Bell Laboratories  
600 Mountain Avenue  
Murray Hill, NJ 07974

September 5, 1972

To: All Members of the IEEE Conference Board  
Subject: Ad Hoc Committee of the IEEE Conference Board -  
Long Range Plans for INTERCON

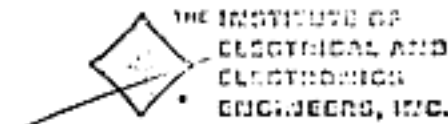
An Ad Hoc Committee of the IEEE Conference Board was established to study long range plans for INTERCON and to make recommendations for improving participation by both conferees and exhibitors. The committee consists of the following members:

Franklin H. Blecher - Chairman  
Clarence J. Baldwin  
Frederick J. Van Veen  
Jack A. A. Raper

### INTRODUCTION

It is the Committee's opinion that INTERCON should continue as a combined technical conference and exhibits exposition. In considering any proposal to eliminate exhibits it is necessary to recognize that four to six times as many people attend the exhibits than attend the technical sessions. Consequently, without exhibits, INTERCON would be a relatively small technical meeting competing with the many other technical conferences sponsored by groups, societies and sections. We do not feel that this is an appropriate format for the IEEE's annual meeting. In fact we feel there is a need to move in the other direction, that is, to better coordinate the exhibits and the technical program and to emphasize the exhibition as a unique feature of this meeting. This approach we feel will be advantageous to both the conferees and the exhibitors.

*TS/17  
Sent to Dr. E.*



*(1) Refer to JKD  
(2) Copy is.*

IEEE GROUP CORRESPONDENCE

Bell Laboratories  
600 Mountain Avenue  
Murray Hill, NJ 07974

May 7, 1973

Messrs. C. J. Baldwin  
R. M. Janowiak  
C. G. Killen, Jr.  
T. S. Saad  
J. H. Schumacher  
F. T. Van Veen

Attached is a slightly modified version of the Ad Hoc Committee report on Long Range Plans for INTERCON. With reference to page 5, last paragraph, the wording of the first and second sentences was changed.

*F. H. Blecher*  
F. H. Blecher

Att.





Before making any specific recommendations, the committee would like to make the following observations:

1. It must be recognized that the concept of INTERCON as including a technical conference for the engineers and a separate exhibit exposition for marketers is obsolete. Technical sessions and papers should be reviewed on the basis of commercial relevance as well as technical excellence. The technical program and the exhibits should be coordinated in order to minimize both the technological and physical separation between these two parts of the conference.
2. It should be recognized that the large majority of conferees who attend the technical sessions do not come to hear about the latest advances in many different specialized theoretical fields (i.e. circuit theory, information theory, automatic control, etc.). This need is better served by the many group and society sponsored conferences which are directed to relatively narrow audiences. The majority of engineers who attend INTERCON would like to learn about progress in a few relatively broad fields of application interest (i.e. computers and information processing, communication and data transmission, energy utilization and control, etc.) Furthermore, since most of the conferees are not specialist in a particular field, the technical material must be presented at a level suitable for an audience with a relatively wide range of practical technical backgrounds. Speakers must be selected not only for their technical expertise, but also their ability to hold the attention of a relatively large audience many of whom are not expert in the field under discussion.
3. There should not be two types of technical sessions. So-called technical applications sessions should be integrated into the technical program, and should be

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presented in the same conference rooms as the other technical sessions. We should continue to increase the number and importance of application oriented sessions. All technical sessions in a particular area of technology should be physically as close as possible to the corresponding exhibits.

4. There is going to be a continual increase in the application of electronic technology to economic-social problems. Consequently, both the technical sessions and exhibits should adequately cover this increasingly important field.
5. It is the opinion of the committee that the electronics industry on the East Coast cannot support more than one major annual conference and that the best locations for this meeting are New York, Boston and Washington.
6. There is an important need to provide INTERCON exhibitors with more data than presently made available in order for them to effectively plan their exhibits. This includes data on traffic volume as a function of day, time and booth location, profiles on registrants, broad areas of interest covered by the technical program, etc.
7. A deficiency at INTERCON is the lack of a big social function, the one evening where everyone gets together and has a good time.

RECOMMENDATIONS

Using the above observations as a guide line, the Committee makes the following recommendations:

1. Location of Meeting  
INTERCON and AEREM should be merged into one IEEE annual spring meeting held alternately in New York and Boston and managed by a single board. Eventually it may prove desirable to include Washington in the alternation.

2. Local Arrangements

It is essential that the technical sessions and exhibits be physically as close as possible. Since high quality conference rooms are not available in the Coliseum, it is recommended that the conference, when located in New York, be held in two relatively close hotels such as the New York Hilton and the Americana. There should be a strong tie between the technical sessions and the exhibits in each of the hotels. It is anticipated that by 1977 or 1978 new conference facilities would be available in New York which would permit housing the entire conference under one roof.

In the case of Boston, excellent facilities are available (Sheraton-Boston Hotel and War Memorial Auditorium) for housing the conference under one roof.

3. Technical Program

The following recommendation is based on the program format adopted by the 1973 Technical Program Committee which is entirely consistent with observations 1-3. It is recommended that the technical program be structured into a number of areas of interest each paralleling a corresponding exhibit area. This structuring would be carried out by the program chairman in consultation with the Convention Director and the Exposition Manager. Within each area, the sessions would cover a wide range of audience interests from technology through marketing, including sessions that emphasize the social-economic impact of technology. For this format to be fully effective, all of the sessions in a particular technical area should be contiguous and held in the same room located physically as close as possible to the corresponding exhibits area.

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This format has advantages both for the conferees and the exhibitors. A conferee will be able to conveniently attend the technical sessions in his particular field of interest (held contiguously and in the same room) and can readily view the exhibits which have also been separated into the same areas of interest.

The Committee supports the procedures presently used to generate the Technical Program but recommends that more attention be paid to Group/Society support. This could be accomplished by having the Program Chairman consult with Group/Society Presidents on some of the program committee appointments. The program committee proposes technical sessions for each of the areas of interest and selects session organizers. In order to ensure high caliber technical papers, most of the authors are invited. However, a "call for papers" is also issued in order to encourage submission of papers by those who are doing significant work in the areas of interest but who may not have established a reputation in the field. The IEEE Groups and Societies participate in the program by their representation on the program committee and by submitting suggestions for sessions, session organizers and individual authors. These suggestions of course must fall within the technical areas of interest previously identified.

An important advantage of this mode of operation is that it leaves complete responsibility for the technical program in the hands of the program committee but gives the Groups/Societies an important role through their representation on the committee. This will permit us to regulate to a large extent the technical level of the material presented (keeping in mind the wide range of audience backgrounds) and to coordinate the technical sessions with the exhibits.

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4. Data for Exhibitors

Arrangements should be made to provide exhibitors with the necessary data to plan their exhibits in an optimum manner. This might include traffic volume as a function of time of day and booth location, profiles of registrants, areas of interest to be used as the basis for structuring the technical program, etc.

5. Social Functions

It is recommended that the IEEE annual spring meeting include one large social function, an old-fashioned cocktail party followed by a good dinner, some first-rate entertainment and dancing. The only formal part of the program would be a brief welcoming address by the President (5 minutes) plus one or two award presentations without speeches. The major dinner address should be eliminated.

Other functions such as Hospitality and Ladies Program should be continued.

KEY TECHNOLOGIES FOR FUTURE INTERCON TECHNICAL PROGRAMS AND EXHIBITS

The following technologies are listed in estimated order of importance:

1. Integrated circuits for consumer electronics - electronic calculators, watches, timers, automotive applications, small computers for the home.
2. Computers - large scale scientific computing, biomedical applications, management information and control system, mini-computer applications.
3. Medical applications of electronics - prosthesis using electronic control, mass screening techniques employing pattern recognition (i.e. X-rays, electrocardiograph), advanced techniques for measuring physiological functions, simulation studies.
4. Energy Crisis - power sources, power distribution and control, pollution problems.

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5. Data communications - interconnecting computers, credit card verification, stock market data distribution, access to large data banks.
6. Marketing and business topics - the importance of market share in today's electronics industry, methods of financing extraordinary R and D, measuring the effectiveness of technical sales promotion, sources of market research for the electronics industry, measuring the productivity of an engineering staff.
7. Video signal transmission and display - CATV, picturephone, solid-state cameras and displays.
8. Large scale integration - semiconductor memory, digital logic, switching matrix for telecommunications.
9. Environmental monitoring instrumentation - pollution control of air, water, sound.
10. Safety equipment - industrial, automotive, home, marine, aeronautical.
11. Intrusion alarm techniques and devices for civilian use - protection of the urban population.
12. Diagnostic techniques for simplifying the servicing of electronic equipment - consumer, industrial, mobile.
13. Higher efficiency in the design of consumer products to save power - TV sets, air conditioners, refrigerators.

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1974 INTERCON  
CALL FOR PAPERS

Intercon '74 will be held in New York City during the week of March 25-29, 1974. The Technical Program will be presented at the Statler Hilton while the Exhibition will be conducted at the Coliseum.

Continuing the policy initiated last year, the Technical Program will provide several groups of sessions, each group concentrating on a particular aspect of the industry. Consequently, in issuing a "Call for Papers", the Program Committee wishes to emphasize that it will only be able to consider papers which fall within the selected subject areas.

The areas to be covered by the 1974 Intercon Technical Program are as follows:

- Solid State
- Communications & Data Transmission
- Computers & Information
- Instruments & Instrumentation
- Electro Optical
- Marketing

Authors should submit a 35 word abstract and a 500 word summary of papers which they would like to have considered by the Technical Program Committee. The deadline for submission is August 10, 1973. Films related to the above topics will also be considered for showing at the Film Theater to be presented at the Coliseum. Abstracts, etc., should be sent to Jack A.A. Raper, Chairman, Intercon Technical Program Committee, c/o IEEE Headquarters, 345 East 47th Street, New York, New York 10017.

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Intercon 74 A Proposal

Intercon, unlike the specialized conferences, brings together a cross-section of IEEE membership and IEEE officers and activists. Assuming that there is an Intercon 74 I propose CSIT play a more active and useful role than it did in 1973. In order to do so our public activities must be acknowledged in the Official Program.

Recommendations:

(A) Name of program - The program should not be called "Technical Program". IEEE is no longer a purely technical society. The Intercon 74 program name and content should reflect this fact. Possibilities - Professional Program, Official Program, Intercon Program, etc.

(B) Workshops - I felt our Open Forum sessions were at their best when they "degenerated" into give and take sessions. What was lacking was attendance, a theme attendees could anticipate, sufficient time, and output beyond newsletter copy. A persistent malaise of all large organized bodies, such as IEEE, is that the leadership is out of touch with the membership. Surveys may point to areas of trouble but the human interaction at a workshop level provides an opportunity to explore alternative courses of action, or inaction. I suggest all-day workshops with a short lunch break, one hour. Attendance by invitation and public notice. Sponsorship should be joint in many instances. Possible themes:

- (1) Engineering education - What are its responsibilities? Is it meeting them?
- (2) Professional employment guidelines - Do they go far enough? Are they being met? Do engineers need a union or guild?
- (3) Indochina - What technology is being used there? What was used there? Was it effective? What are the moral implications?
- (4) Public view of engineering - What is the image? Is it false or true? Political status of engineering - NSF, DOD, etc. News coverage of technology.
- (5) State and local government - What can engineers do locally to improve the public welfare in their communities, their regions, their states?
- (6) And others.....? Subject areas active

(C) Special Session (evening) - take a social look at some aspect of technology. That is apply the Limits to Growth Session strategy to a smaller, more tractable dilemma than world catastrophe. Examples: Cities and transit - does improvement help? The automobile society - a boon or a curse? Communications - is man better off?.....  
What I suggest here is to magnify Walter Bearn's suggestion of a sociologist talking to CSIT. Three or four such, with differing viewpoints, talking to IEEE on a technology/society question of sufficiently small dimensions so that a few engineers might be persuaded to take some action on it.



The following Guidelines were reviewed and approved by IASG staff on at the January 1967 meeting. Inquiries and proposals should be addressed to Dr. J. Lee M. Johnson, IASG, 140 E. 47th Street, New York, New York 10017, Telephone (212) 760-1341, ext. 242.

Section officers are requested to submit recommendations for the program to the Staff Coordinator at the following address:

Section Officers, IASG, 140 E. 47th Street, New York, New York 10017

Section officers on January 1, with recommendations for the following year.

1. Subjects: The Staff Coordinator will submit annually in March with emphasis on a two-month response time. A similar request shall be presented by the IASG Secretary at the annual briefing for Section officers in March and September.

2. Speakers: The Staff Coordinator will submit annually in March with emphasis on a two-month response time. A similar request shall be presented by the IASG Secretary at the annual briefing for Section officers in March and September.

3. Criteria for Listing Speakers:

- a. The appropriate G/S Technical Committee includes letter C/S committees or its officers must certify that the nominee is technically competent in the subject listed.
- b. A member of the appropriate G/S Technical Committee or a peer reviewer is recommended to write a letter of recommendation from personal knowledge of the nominee that he/she is an audible, coherent and interesting speaker capable of communicating effectively with non-specialists in the subject topic.
- c. The nominee must agree to be generally available to accept invitations, subject to adjustment for compatibility with prior commitments and scheduling constraints of hosts and employers.
- d. A speaker shall be normally listed until the end of the second calendar year following his/her initial listing. A fallow period of one year will normally ensue prior to relisting upon recommendation as in b. above. In the event of unusual demand or unusually favorable reports from hosts, a speaker may continue to be listed on an annual basis beyond the normal two-year period. Relisting after the fallow period constitutes a new initial listing.

4. Budget: The Staff coordinator will submit annually a budget for the following year's operations of the program to the appropriate IEEE Committee as required.

5. Limitations:

- a. A Section and its Chapters and Branches (which shall be considered together as one hosting entity) shall be entitled to request visits by two speakers during any year beginning July 1. Requests for additional speakers will be handled if sufficient funds are available due to lesser demand in other Regions. Student Branches must coordinate requests with their Section or Chapter officers.

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6. Implementation:

The Staff coordinator at IEEE Headquarters shall be responsible for receiving invitations, securing acceptances by the speakers, establishing agreed itineraries, informing all parties of details of the itineraries, reimbursing expenses to speakers upon submission of documented expense statements, obtaining verbal reports from speakers and hosts, and submitting summary progress reports as required. The host Section or Chapter officers shall be responsible for all phases of each event between receipt of notification of an itinerary and despatch of a letter of thanks to the speaker. These phases are detailed in the form letter appended to and considered a part of these guidelines (Appendix 1.)

7. Publicity:

Opportunities to publicize the program shall be offered to the editors of Spectrum, Electrical Engineering, G/S Newsletters and Section bulletins at least annually for publication in the first issue after July 1 and on a continuing basis as lists of topics and/or speakers are revised. General publicity serves the following purposes:

- a. to alert Section and Chapter officers, and members to the resources of the program;
- b. to alert C/S officers and members to the continuing need for recommendations of additional topics and speakers; and

c. to alert all concerned to the special circumstances involving international travel (See 9a below).

Host Sections and Chapter officers shall be responsible for publicizing specific events, using local knowledge and custom, but in consultation with the speaker concerned (See Appendix 1, paragraph 1).

8. **Review:** The RAB/TAB Technical Meetings Committee or its successor entities shall be responsible for overall review and guidance of the program. The report of the staff coordinator shall be taken into account in determining whether a listed speaker shall be continued or dropped.

9. **Special Circumstances:** A sustained effort in communication is required for the international aspects of this program. Lead times of three months are mandatory. Information on international travel plans is required on a continuing basis and of value only for the contemplated trip in question.

a. International travel is not normally reimbursable under this program. It is anticipated that the primary motivation for intercontinental travel will be business or pleasure financed from non-IEEE sources. Deviation from the primary itinerary to fulfill engagements under this program are cause for reimbursement to the extent that the cost of following the actual itinerary exceeds that of the primary itinerary. Intracontinental travel is covered under Guide 5c.

Exceptions to this Guideline require specific authorization of the chairman of the TMC or its successor entities in each instance.

b. In the event that projected year-end expenses are significantly less than the amount budgeted under this program, the Staff coordinator will so inform the TAB Secretary on or before September 10 in order that surplus funds may be offered to the G/S to support their Speakers Bureaus.

Appendix 1: Form letter to hosts and speakers, with sample itinerary.

To: Speaker  
Host Section Chairmen  
(with copy for Host Section Program Chairman)  
Host Section Bulletin Editors

Gentlemen:

Re: IEEE Regional Outstanding Lecturer Tour

I enclose partial details of the lecture tour which has been arranged in accordance with your wishes as far as these are compatible. The remaining aspects of lecture titles, transportation, accommodation and publicity are best arranged by direct communication between speaker and hosts. Appropriate spaces have been provided on the enclosure for inclusion of these details.

Attached are abstracts of lecture(s) and biographical data to the extent provided by the speaker. Host Sections officers named on the itinerary sheet are now asked to take the initiative in making the following arrangements (given in the form of a checklist to avoid uncertainty):

1. To check on transportation schedules appropriate to the arrival and departure of the speaker.
2. To consider publicity media and distribution to be used to announce the lecture.
3. To call the speaker and confirm and lecture title, request additional abstracts, if needed for publicity, discuss distribution of publicity materials the speaker may be acquainted with colleagues or institutions in your Section who should be

informed of his visit, explain how the Section/Chapter meeting will be conducted, determine arrival and departure times, modes and locations, arrange a specific meeting point (usually the airport of arrival) and, if necessary, advise on itineraries of local transportation, confirm hospitality and hotel arrangements.

4. To ensure that the lecture is featured in the Section Bulletin and otherwise publicized for attraction of the best possible audience. The event can be distinguished from other Section meetings by reference to the IEEE Regional Outstanding Lecture Program.

5. To meet the speaker on arrival, escort him to the lecture location and provide appropriate hospitality during his visit.

All transportation expenses will be reimbursed to the speaker upon submission of an expense account to me at IEEE Headquarters following the tour. Ticket stubs and major receipts should be presented and submitted with the account. An advance of funds can be provided on request.

I trust that we are all clear how to proceed and that the result will be a very successful tour affording satisfaction to all concerned. If I can be of any further assistance, please do not hesitate to call. (212/342-6800 Ext. 333). I shall welcome your comments, also.

Sincerely,

Peter D. Edmonds



## IEEE REGIONAL ORNSTADT LECTURES TOURS

These sheets contain a complete, updated list of available speakers. Section and Chapter officers are encouraged to request visits by them or to describe a topic of interest; then a matching speaker will be sought. IEEE general funds may travel expenses in full if it is necessary within constraints of its guidelines (IEE. Feb. 76, pp. 46 and 47).

To request a speaker or for other information, contact IEEE Headquarters (Peter Edmundo, 21217 Redwood Ave., Irvine, Calif. 92714). Hosts should not contact the chosen speaker directly because he has been advised to expect invitations under this program from Headquarters. Hosts should be diligent in seeking best cost-effective travel arrangements. Hosts outside North America receive additional notices advising them when speakers are planned to travel to their Region. After (but only after) receipt of such advance notices, prospective hosts may and should invite speakers directly.

<u>SPEAKER</u>	<u>INSTITUTION</u>	<u>TOPIC</u>
David Allen	National Bureau of Standards	NBS atomic time scale Statistics of atomic frequency standards.
Richard J. Backe	Sperry Rand	Pension plans for engineers
J. Malvern Benjamin	Bionic Instruments	"How does company loyalty affect engineering design?"
Roger W. Bolt	Consultant	Automation - management, technology and popular mythology
Joseph E. Casey	IEEE (staff)	Manpower planning, salaries and fringe benefits and career development.
Seville Chapman	N.Y. State Assembly Scientific Staff	Application of science and technology to the solution of social problems.
Ralph I. Cole	American University	Technology Forecasting & Assessment
Joel S. Engel	Bell Telephone Labs.	A high-capacity mobile tele-communications system
Arthur Goldsmith	Department of Transportation	Telecommunication aspects of transportation - air, sea and land applications.
Mark Grove	Walter Reed Hospital	Biological effects of microwave radiation.
William H. Higinbotham	Brookhaven National Lab.	Arms control Non-nuclear-proliferation treaty Nuclear material diversion safeguards.
John M. Kinn	IEEE (staff)	Employment issues for Electrical Engineers
Bernard H. Manheimer	Department of Housing & Urban Development	Technology and governance: in general and environmental aspects

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F. H. Reder

U.S. Army Electronics Command

Interpretation of VLF  
Phase and Amplitude Data and  
their applications.

John A. Robinson

Syracuse University

Artificial intelligence, the  
problem of making computers  
prove theorems.

Chen-To Tai

University of Michigan

Presentation of Maxwell's  
equations.  
Diffraction; radiation in moving  
media.

Murray Turoff

Office of Emergency  
Preparedness and Newark  
College of Engineering

1. Technology, Forecasting &  
Assessment
2. Delphi methods
3. Computerized Conferencing  
Systems
4. Management Information Systems.

Andries van Dam  
(1 day trips only)

Brown University

Computer graphics and  
microprogramming.

Raymond M. Wilmotte

Consultant

Risk management;  
Technology Forecasting &  
Assessment

D. Weiner

Syracuse University

Mathematical modelling of non-  
linear systems.

The following speakers have been listed during 1973. This version supersedes  
 prev. us announcements. They continue to be available in 1973-74.

<u>SPEAKER</u>	<u>INSTITUTION</u>	<u>TOPIC</u>
Prof. Norman Abramson	University of Hawaii	The ALOHA System - another alternative for computer communications.
Dr. John J. Allan	University of Texas	Digital computer control of machines. Interactive graphics for design and/or control of physical devices. Use of computers in undergraduate education.
Dr. Michael Athans	Massachusetts Institute of Technology	Optimal Control Theory and Applications. Non-linear filtering and Stochastic Control. Large scale systems
Dr. Joseph M. Biedenhach	Hershey Medical Center	Continuing Education for Engineers, utilizing multimedia presentations.
Prof. Robert R. Beerstyn	Polytechnic Institute of Brooklyn	Finite Memory Communications.
Dr. Russell Carpenter	N.E. Radiological Health Lab. USPHS	Biological effects of electromagnetic radiation.
Dr. Liborio Castrita	PRD Electronics Incorporated	Networks - current theory
Dr. Kan Chen	University of Michigan	Systems Sciences, applied to environmental and social systems
Dr. Lewis Claibourne	Texas Instruments	Applications of surface wave acoustic wave devices to communications equipment (radar, VHF, UHF, bandpass filters). Systems applications.
Mr. Warren F. Clement	Systems Technology Inc.	Theory of Manual Vehicular Control. Measuring and Control System Requirements for low visibility landing. Theory for Displays in Manual Control.
Dr. L. Stephen Coles	Stanford Research Institute	Speech Understanding Systems
Dr. Nabil Farhat	University of Pennsylvania	Microwave Holography
Dr. Curt F. Fey	Xerox Corporation	National Goals, Priorities & Technology. Decision Analysis for Societal Problems.
Mr. Harold S. Field	Omni Tech Corp	Oil-well instrumentation. Instrumentation for petroleum production.
Dr. Michael Flynn	Johns Hopkins University	Micro-programming.

Dr. John Freehafer	General Railway Signal Co.	Modern Trends in Mass Transit and Personal Rapid Transit.
Prof. Herbert Freenan	New York University	Computer graphics. Interactive computer graphics. Computer animation.
Dr. Gunter Geiss	Consultant	Theory optimization - Control Theory - Ecological Systems.
Dr. F. E. Glave	Bell Northern Research	Digital Microwave transmission systems.
Dr. Paul Green	IBM Research Laboratories	Data Communications and networks.
Mr. William E. Harjer Mr. William Moffett	Allis-Chalmers Company I-T-E Imperial Corporation	Compact, high-voltage electric power switching stations.
Dr. William P. Harris (psychologist)	MIT Lincoln Lab	Automated instruction systems
Dr. Albert S. Hoagland	IBM Corporation	Computers, Memory and Storage Peripheral Equipment and Magnetic Recording.
Mr. Ivar M. Holliday	Raytheon	General Writing Practices - Technical and Business Reports, Proposals and Brochures, Specifications and Standards, Oral Presentations.
Dr. Floyd B. Humphrey	CalTech	Flux Reversal in Magnetic Thin Films Education and Laboratory Practice - application to Solid State Labs.
Dr. Alan R. Kahn	Medtronic Inc.	Biomedical Instrumentation
Dr. Stephen J. Kahne	University of Minnesota	Trends in Automatic Control Education - Systems Engineering applied to Environmental Design.
Mr. James N. Kilpatrick	Westinghouse	General Writing and Editing Practices Oral Presentations.
Dr. Richard T. Lacos	Massachusetts Institute of Technology	Seismic Data Processing
Dr. Emmett Leith	University of Michigan	Holography
Dr. Benjamin J. Leon	Purdue University	Digital Filtering.
Dr. Samuel Levine	Consultant	CRT display systems for computers. On-line computing systems, for stock market applications.
Mr. Peter Lloyd	Bell Telephone Labs	Piezoelectric Devices: Monolithic crystal filters.

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Dr. Roy H. Nelson	University of Arizona	Solid State Electronics - Biomedical Instrumenting - Technical Education - Education Graduate courses
Dr. G. Lorimer Halsey	Sperry Rand Corp.	Investigation of application for nuclear instrumentation
Dr. Eugen Wittmann	IBM Corp.	Development of Practices in the field of Microelectronics
Dr. Hans Gestreicher	Wright Patterson AFSC	Transition from research to application.
Mr. James B. Owens	IBM International Corp.	Cybernetics, adaptive and learning systems.
Mr. John C. Redmond	General Dynamics	Development in high voltage compact electric power switching stations (not 1973)
Mr. Daniel N. Rosen	Consultant	Federal Air Pollution - Law and Effects on Electronics Industry
Dr. Joseph E. Rowe	University of Michigan	Patents and Licensing
Dr. Raphael J. Salamon	Rutgers University	Microwave solid-state devices - Computer Simulation of beam plasma systems, Microwav. Tubes.
Dr. Heinz N. Schlicke	Allen Bradley Company	Health Care Delivery.
Professor William P. Schneider	University of Houston	Filtering for Electromagnetic Compatibility-Mismatching - Realistic Filtering perform- ance for highly mismatched system - Power line trans- mission, D.C. to microwave.
Prof. Mischa Schwartz	Polytechnic Institute of Brooklyn	Deep Ocean Exploration (Glomar Challenger)
		Digital Data Network - Urban Systems Analysis - Adaptive techniques for Equalization.

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Dr. H. J. Shaw

Stanford University

Surface acoustic wave devices for communication and data processing

Dr. James Snodgrass

Scripps Institute for Oceanography

Oceanographic Instrumentation data gathering, satellite navigation frequency allocation for oceanography, engineering aspects biomedical instrumentation.

W. D. Spencer, M.D.

Texas Institute for Rehabilitation and Research

Information systems in hospitals - Technology and Health Services - Hardware and Software Electronic Applications for prosthetics.

Prof. George Szentirmai

Cornell University

Computer-aided Design of Circuits and Filters.

Prof. Gabor C. Temes

University of California

Computer-aided Synthesis of Filters - Recent results in Sensitivity analysis and Optimization of Circuits - New results in the Time-Domain Design of Circuits.

Mr. William von Alven

Consultant

General Systems Technology, General Applications.

Dr. C. G. Walter

Ohio State Research Foundation

New developments in antennas

Dr. John Zaborsky

Washington University

Control Systems - Controllability and Observability of Bilinear Systems - Inductive Approach to Estimation and Filtering-Singular Arcs in Discrete Systems.

#### TRANSNATIONAL ASPECTS

There is a continuing need for advance information on travel plans of potential speakers going to or coming from other countries, so that IEEE Sections can be notified in sufficient time to schedule a meeting compatible with the speaker's itinerary, announce it and assemble an audience. Information (even if tentative) should be sent to Peter Edmonds three months in advance of departure. A proven mechanism exists for arranging engagements in Europe. Interest in receiving speakers has been expressed by IEEE Sections in Hong Kong, India, New Zealand, Australia, Japan and South America.