COMPUTER ENGINEERING DIVISION

JUNE 1981 EDITOR: R. Arvikar

The past several decades have seen a phenomenal growth in the computer industry. While mechanical engineers, more than any other professional group, have been actively involved with the application of computer technology to mechanical engineering for sometime, by all projections their utilization of this technology is bound to expand and proliferate in the future. The ASME has therefore, initiated a new division—the Computer Engineering Division to reflect the growing interest and involvement of the society members in this field and to signal the dominance of computer technology in the MECHANICAL ENGINEERING profession (see MECHANICAL ENGINEERING, Vol. 102, No. 3, March, 1980).

In the future, mechanical engineers will undoubtedly have a variety of electronic aids at their disposal which will free them from routine work, and give them time to perform more creative tasks. What we see now is only the beginning, and no one can foresee exactly where it will lead mankind. Alvin Toffler, in his book, **Future Shock**, made the following prediction:

"Machines will increasingly perform the routine tasks; men the intellectual and creative tasks. Machines and men both, instead of being concentrated in gigantic factories and factory cities, will be scattered across the globe, linked together by amazingly sensitive, near-instantaneous communications. Human work will move out of the factory and mass office into the community and home."

"Machines will be synchronized, as some already are, to the billionth of a second; men will be desynchronized. .."

This is a special era for mechanical engineers who must create new products and redesign existing machines to make them more economical and energy-efficient. This includes consumer products that make home life more convenient and safe, and industrial machinery that increases productivity, conserves natural resources, lightens labor's burdens, and improves the work environment.

Some of the objectives of the new Computer Engineering Division are:

- Foreseeing, identifying, and simulating computer technology applications in mechanical engineering
- Communicating to the ASME membership at large-industrial and academic - the recent developments in computing systems, techniques, and applications
- Providing the necessary vehicles for the exchange of ideas and experiences in the computer field
- Defining needs relating to computer technology
- Developing mechanisms for interaction with the computer industry - including panels, special publications, workshops, short courses, telecommunications, poster presentations, displays
- Informing the membership of new developments in software verification standards, etc.
- Insuring an effective exchange and cooperation on computer technology between ASME's technical divisions.

The division already has technical activities and Committees established in several areas. An organization flowchart showing the various Technical Committees and the officebearers are presented in this Newsletter. Unquestionably, while the areas represented by the Technical Committees indicate the wide-ranging and diverse nature of the computer technology as currently being adopted by engineers in their tasks, the list is by no means complete. Members desirous of serving on the Technical Committees or of forming a relevant Committee of their own are urged to contact either the division Chairman, or the individual Committee chairmen whose names and addresses have been included in this Newsletter. As any practitioner of the state of the art technology must have realized, Computer Engineering is destined to have a dominant influence on our professional lives, and the only way to keep pace with this rapidly growing technology is to be actively associated with the organization which will be addressing all the important and relevant issues in this field. If you are an ASME member, and are interested in the activities of the division, we urge you to serve on the Technical Committee or Committees that most appeal to your professional interest. A coupon is provided in this Newsletter to facilitate your expression of interest in the new division.

CHAIRMAN'S MESSAGE/REPORT

The thirty-first technical division of ASME was initiated on the occasion of its centennial as the dawn of an era that is certain to be dominated by computer technology. All projections indicate that mechanical engineers, more than any other professional group, will be more involved in the utilization of this technology.

The primary goal of the division is to identify the computer engineering needs of the ASME membership and to initiate appropriate means of communicating to them new developments in this dynamic, diverse, and rapidly expanding field. Effective interaction with the computer industry and computer professional organizations in the United States and abroad is a major concern of the division.

The need for coordinating computer related activities within ASME was identified approximately a decade ago during the "Goals" conference. A society-wide computer technology committee was formed under the chairmanship of Dr. Irwin Berman and attached to the Policy Board Communications. After a very successful Winter Annual Meeting Theme on Computers in 1976, it became a Standing Committee of the board and the chairmanship was passed on to the writer in 1977. The activities of the Committee continued to expand and to generate wide interest and support. With the encouragement of the Technical Coordinating Advisory Committee under the chairmanship of Dr. Fred Landis, the ASME Council voted it into full divisional status in 1979.

It was indeed a distinct honor to be called upon to organize the new division. This difficult and complex task was made easy by the enthusiastic response and the willing cooperation of all who were asked to help. I am particularly grateful to the members of the Advisory Committee and the chairmen of the different technical and standing committees. They moved directly into action with incredible speed to make our first conference a success in spite of their busy schedules and the trying circumstances. Although the division was less than one year old, we undertook a major task by organizing the Century II International Computer Technology Conference. With over 1,000 page two volume proceedings it was one of the largest of the twenty Emerging Technology Conferences.

In this era of information explosion, our main concern is how to best satisfy the computer needs of our membership, particularly those of the practicing engineer. To this end we are planning to incorporate computer exhibits with all the future International Conferences which will be held annually starting in 1982. Another exciting undertaking which is cur-

rently in the planning stage is a new hybrid journal which emphasizes effective and rapid communication of timely information and up-to-date hardware and software developments to the engineer in the work place.

Computers are the tools of the future, and we look to the future with great anticipation. The goal of our new division is to serve all divisions. In order to succeed in attaining this goal, we need your interest, your input, your cooperation, and your guidance. Whenever you can, please give us a helping hand.

Ali Seireg

DR. A. SEIREG
Chairman (1980-1981)

Professor A. Seireg has been an active member of ASME for the more than twenty years. He has served as Chairman for the Design Automation Committee, the first ASME International Conference on Design Automation, the Century II International Computer Technology Conference and is chairman of the United States Council of the International Federation of Theory of Machines and Mechanisms. Professor Seireg is also a member of the Research Committee on Lubrication and the Automation Research Council.

Professor Seireg has been distinguished with several awards including: The 1970 George Westinghouse Award of the American Society for Engineering Education, the 1973 Richards Memorial Award and the 1978 Machine Design Award of ASME, and the 1973 E.P. Cornell Award of the American Gear Manufacturing Association.

Professor Seireg received his PhD from the University of Wisconsin in 1954. He lectured at the Cairo University from 1954 to 1956 and joined Falk Corporation in 1956 serving as a research and advisory engineer. He became a Professor of Theoretical and Applied Mechanics at Marquette University from 1960 to 1965 and joined the University of Wisconsin, Madison as Professor of Mechanical Engineering in 1965. Professor Seireg has been associated as a consultant to the Falk Corporation and the Veterans Administration Research Center, and serves on the Advisory Committee of the Mechanical Engineering Division of the National Science Foundation.

INCOMING CHAIRMAN'S POLICY STATEMENT

I am pleased and honored to become the second chairman of our Computer Engineering Division. It will be a real challenge to follow in the footsteps of Ali Seireg who has done so much to organize this division. With Ali's leadership, we have made a great beginning, as detailed elsewhere in this newsletter.

As we look ahead, it is apparent that the Computer Engineering Division has the opportunity to make an enormous contribution to ASME as it and the world goes through the transition to the "post-industrial" society. This is not coincidental. The roots of CED go back to the actions of the Policy Board, Communications in organizing the Computer Technology Committee to look at the impact of the computer revolution on ASME. As a technical division, our main responsibility is to promote the interchange and dissemination of information on computer technology to the mechanical engineering community.

The traditional mechanism for information exchange and dissemination has been the technical conference and technical journal. CED activities in this vein have included the First International Computer Technology Conference held in San Francisco in August, 1980, as one of the Emerging Technology Conferences in celebration of our centennial. We plan to continue to hold conferences each year and solicit your participation in these activities.

Because of the speed with which the computer melieu is changing, we believe that a standard transaction journal may be too slow. Thus, we are considering the development of a hybrid journal that wil allow for the publication of timely news items and program abstracts as well as transaction papers of permanent interest. This effort is being spearheaded by Ali Seireg who would welcome your comments on this idea.

Under the leadership of the Policy Board, Communications, a study has just been completed on the feasibility of establishing an ASME central data base available to subscribers from interactive terminals. This data base might include "how to" articles as well as short design reports. If this activity is founded, the CED would have a significant role to play.

In the even more far out areas of the impact of the new revolution on information dissemination, we must look at the ways that we can use teleconferencing with and without desk top computers or word processors.

As mechanical engineers, we and our forebearers in ASME contributed enormously to the Industrial Revolution. As members of CED, we have the opportunity and awesome responsibility to help ASME cope with the new revolution. It is upon us. In this work, we need all the help and support you can give us. If you are interested in joining a specific Committee in CED, please write to the Committee chairman listed later in this newsletter. If you have comments on our activities, for or against, write me. If you have ideas for activities that CED is not addressing, write me. Above all, we hope that you will elect to participate in the work that must be done.

L. Eugene Hulbert

DR. L. EUGENE HULBERT
Chairman, 1981-1982

Dr. Hulbert has been an active member of ASME for more than 15 years. He has served as Chairman of the Design and Analysis Committee of the Pressure Vessel and Piping division, then as Program Chairman and as Chairman of the Executive Committee of the PVP Division. Along with Dr. Seireg, Dr. Hulbert was a charter member of the original ad HOC Computer Technology Committee, which grew into the Computer Engineering Division. Other ASME activities have included serving as United States Program Chairman of the Third International Pressure Vessel Technology Congress in Tokyo, Japan, 1978 and as conference chairman of the Joint Conference of th PVP, Materials, Nuclear and Solar Divisions in Denver, June, 1981.

Dr. Hulbert received a B.S. in Chemistry from Iowa State College in 1947, an M.S. in Mathematics from Case Institute of Technology in 1951, and the PhD in Engineering Mechanics from the Ohio State University in 1963. He has worked at the Columbus Laboratories of the Battelle Memorial Institute since 1953, conducting and directing research in application of computers to the analysis of problems in heat transfer, diffusion, terminal balistics and structural design. He is currently a Research Leader in the Transportation and Structures Department in Battelle.

ORGANIZATION STRUCTURE OF THE CED

The CED is comprised of an Advisory Committee, an Executive Committee, and twenty-four Technical Committees covering a wide spectrum of computer applications. Keeping in mind that these applications represent the "dynamic and evolving" nature of computer technology, additional Technical or Standing Committees may be formed to focus on specific applications or to deal with special tasks as the need arises. A schematic representation of the organizational structure of the 1980 CED is shown elsewhere in this letter. The incoming members of the 1981 CED Executive Committee are Drs. E. Elmaghraby and R. Raghavan. Dr. L.E. Hulbert will take over as the new chairman from his present position of Vice-Chairman. For members who are interested in the activities of the Committees and wish to serve on them, a list of Technical Committee chairmen and their addresses is furnished below:

Chairman	Committee	Address
J. Callahan	Computer Aided Design	Director CAD/CAM Services McDonnel Douglas Box 516 St. Louis, MO 63166
H. Akeel	Computers in Automative Industry	Manufacturing Research General Motors Corp. G.M. Technology Center Warren, Michigan 48090
V. Tipnis	Computer Aided Manufacturing	President, Manufacturing Engineering & Technology P.O. Box 42001 Cincinnati, OH 45242
T.E. Shoup	Computer in Education	Associate Dean Texas A&M University College Station, TX
G. Gupta	Computers in Energy Systems	Head, Systems Eng. Foster Wheeler Dev. Corp. 12 Peach Tree Hill Road Livingston, NJ 07039
D. Schuster	Computer Standards	Manager, Research Center Foxboro Company Foxboro, MA 02035
R. Paul	Computer Vision	School of Electronic Eng. Purdue University West Lafayette, IN 47907
J. Callahan	Data Base Management	Director, CAD/CAM McDonnell Douglas Company Box 516 St. Louis, MO 63166
D. Dietrich	Finite Element Techniques	Swanson Analysis P.O. Box 65 Houston, PA 15342
L.E. Hulbert	Interactive Graphics	Batelle Columbus 505 King Ave. Columbus, OH 43201
D.C. Anderson	Computer Network	School of Mechanical Eng. Purdue University West Lafayette, IN 47907
R. Raghavan	Computer Systems, Hardware & Software	Head, Computer Science Foster Wheeler Energy Corp. 12 Peach Tree Hill Road Livingston, NJ 07039
R.L. Belleville	Computers in the Workplace	Xerox Corporation Palo Alto Research Center 3333 Coyote Hill Road Palo Alto, CA 94304
A. Frank	Hybrid Computing	Electronic & Computer Eng. 909 ERB University of Wisconsin Madison, Wisconsin 53706
R.J. Hannemann	Electronic System Physical Design	Consulting Engineer Digital Equipment Corp. Maynard, MA 01754
R.W. Perry	Digital Systems Techniques for Performance Test Codes	Baltimore Gas & Elect. Co. Electric Production Dept. P.O. Box 1475 Baltimore, MD 21203
E. Elmaghraby	Management Information Systems	Director, Operation Research Program N.C. State University Raleigh, NC 27607
W. Dornfeld	Microprocessors	Noise & Vibrator Building G.M. Proving Grounds G.M. Corporation Milford, MI 48042
W. Livingston	Process Control	Ebasco Services 2 Rector Street New York, NY 10006
E. Heer	Robots & Manipulators	Jet Propulsion Labs. 4800 Oak Grove Drive Pasadena, CA 91103
W. Fagerstrom	Personnel Computing via Programmable Calculators	Senior Engineering E.I. DuPont 13 E. Louviers Building Newark, DE 19711
J. Matar	Statistical Modeling & Reliability Techniques	College of Engineering Margerette University 1515 W. Wisconsin Ave. Milwaukee, WI 53223
A. Thesen	Human-machine Interface	Industrial Engineering Dept. University of Wisconsin Madison, WI 53706

THE CED "COMPUTER JOURNAL"

During the first executive meeting of the CED (held on August 14, 1980 at the San Francisco Hilton, in conjunction with the Century II International Computer Technology Conference), the question of a divisional publication was discussed in considerable detail. It was unanimously agreed that in order for the division to properly serve its intended role, it is necessary for it to have a special journal compatible with its special needs and missions within the ASME. However, due to the rapidly changing nature of computer technology and the broad spectrum of the field, the primary emphasis of the Journal should be on computer related information of current interest to the mechanical engineer. It should be "user oriented" rather than "research oriented". Archival type publications could be included as a special section under Research Supplement. Thus, the Journal will place emphasis on computer news items and publications which should be brought to the attention of the mechanical engineer. A technical title for the Journal has been proposed as "Journal of Computer Engineering" and would be published on a quarterly basis initially and would be expanded later to a monthly basis.

The Journal will be edited by a Technical Editor, an Editorial Advisory Board comprised of the CED Advisory Committee with each Technical Committee chairman being an ex-officio associate editor. Several formats of the Journal will be drawn up and proposed to the Policy Board for approval in the coming months.

THE 1981 CED TECHNICAL CONFERENCE

The 1981 CED Technical Conference will be held on September 27th through 30th at the Leamington Hotel, Minneapolis, Minnesota. A total of 18 sessions have been planned with CAD/CAM and Robotics being the central theme. Sessions will cover the wide spectrum of Computer Aided Design (from Historical Development to the State-of-the-Art) Computer Aided Manufacturing, Microprocessors, Computers in Education, Computers in Energy Systems, Management Information Systems, and several other relevant disciplines. Vists to the major computer-related industries, as well as, the teaching institutions locally are also planned. The registration fee will be $65.00 for ASME members. For further details, contact the organizing Chairman:

Dr. J.A. Callahan
Director, CAD/CAM
McDonnell Douglas Auto. Company
Box 516
St. Louis, MO 63166
Telephone: (314) 232-6595

CALL FOR PAPERS

2nd International Computer Engineering Conference & Show
The American Society of Mechanical Engineers
August 15-19, 1982
Sheraton Harbor Island Hotel
San Diego, California

The Computer Engineering Division of The American Society of Mechanical Engineers (ASME) announces the Second International Computer Engineering Conference and Show at the Sheraton Harbor Island Hotel, August 15-19, 1982. Sixty panel and paper sessions covering the full spectrum of computer topics of interest to engineers are planned along with telecommunication events, poster sessions, and student activities, etc. A Computer Show will be conducted in conjunction with this conference in the recently completed Exhibit Hall immediately adjacent to the conference area.

Technical sessions in the following areas are being developed:

- Computer aided design
- Finite element techniques
- Computer in automotive industry
- Interactive graphics
- Computer-aided manufacturing
- Computers in education
- Computers in energy systems
- Computer standards
- Computer vision
- Data base management
- Computer network
- Computer simulation
- Computer system-hardware/software
- Computers in work place
- Hybrid computing
- Electronic system physical design
- Digital system techniques for performance test codes
- Management information systems
- Miscroprocessors
- Process control
- Robots and Manipulators
- Personal computing
- Statistical modeling and reliability techniques
- Human machine interface

Contributions in the form of a full length paper or an extended abstract summarizing research findings, experiences, and problem areas by the participants are solicited. All accepted contributions will be published in a bound volume. Archival type papers will also be reviewed after presentation for possible publication in the appropriate ASME Transactions Journal.

All contributions should submit an ABSTRACT to the conference co-chairman by October 31, 1981. Three copies of the finished contributions (papers or extended abstracts) should be received no latter than January 15, 1982.

We are looking forward to the active support of all those interested in computer technology application within and outside ASME to make this Conference a very special event.

Please address your inquiries and mail your contributions to:

Dr. G.D. Gupta
Conference Co-Chairman
Foster Wheeler Development Corporation
12 Peach Tree Hill Road
Livingston, New Jersey 07039
(201) 533-2189

THE "RAMP" CONFERENCE ON MICROPROCESSOR

A RAMP Conference is a "technical knowledge transfer conference for intensified professional development in specifically defined and bounded topics" with the aim of "significantly improving an engineer's applicable knowledge of current state of the art topics in a short period of time". The RAMP conference on Microprocessors is being organized by CED and the ASME National Professional Development Committee - at Sheraton Sand Key Hotel, Clearwater, Florida during August 23rd through 28th, 1981.

Beginning at level zero, the course provides the information needed to appreciate and understand the basis of microprocessor design and applications. The course is intended to be a basic knowledge instructional seminar with some hands-on experience. No prior electrical or computer experience is necessary, however, a sophistication level of college algebra or elementary calculus will be expected. Enrollment is limited to 100 participants. For details contact:

Professor A.J. Kraus
University of Southern Florida
Department of Electronic Engineering
Tampa, Florida 33620
Telephone: (813) 974-2581

INTERNATIONAL COMPUTER CONFERENCE IN SAUDI ARABIA

The University of Petroleum & Minerals, Dhaharan, Saudi Arabia is organizing an international conference in 1982. Some sessions will deal with Computers in Energy Systems, and CED may participate to a limited extent in organizing.

The Arabian Journal of Science & Engineering is planning a special issue of Computers, Mini, and Micro and their applications in 1981/1982. For submitting articles to the Journal, as well as the international conference, contact:

Dr. Ahmad Farag
University of Petroleum & Minerals
Dhahran, Saudi Arabia

Dr. G. Gupta
Foster Wheeler Energy Corp.
12 Peach Tree Hill Road
Livingston, N.J. 07039

REPORTS FROM THE CED TECHNICAL COMMITTEES

As a fledgling organization, considerable progress has been made by several of the Technical Committee chairmen in establishing the Committee membership, drawing up charters, constitution and by-laws, and in proposing a set of functional goals for the Committees. This is where the input from the membership-at-large would be most valuable and appreciated by the Chairmen. As of date, the following Committees have been established their membership roster:

1. Management Information Systems
2. Robotics and Manipulators
3. Computer Education
4. Computer - Aided Manufacturing
5. Computer System - Hardware and Software
6. Microprocessors
7. Computers in Energy Systems

THE ELECTRONIC SYSTEM PHYSICAL DESIGN COMMITTEE REPORT

Computer technology has had a major impact on the Mechanical Engineering profession. The focus of this Technical Committee, is the impact on computer technology that Mechanical Engineering as a profession will make. The community to be served by the Electronic Systems Physical Design Committee is comprised of the large and growing population of M.E.'s involved in the design and manufacture of communications, computer and other electronic systems.

The technical disciplines of primary interest include: heat transfer, acoustic noise control, design-for-manufacture, human factors, reliability/maintainability/availability, product safety, robotics, and automation in electronics manufacture electronic system materials, display technology, and printing technology.

Technical activities to be undertaken by the Committee will include sponsorship and co-sponsorship of technical sessions at society conferences, recommendation of papers for the society conferences and for archival literature, interaction with other areas of the ASME and with other societies, and sponsorship of technical and short courses.

R. Hannemann

CED CENTENNIAL CERTIFICATE AWARDED

A CED Centennial Certificate was awarded to Dr. I Berman in recognition of his dedication to the missions of the CED. Dr. Berman is a member of the CED Advisory Committee, as well as the Chairman, Policy Board Communications.

The CED Newsletter is published annually prior to the Winter Annual Meeting. News items of interest may be submitted to R. Arvikar, Bell Laboratories (2A-11), 1660 Osgood Street, North Andover, MA 01845 (617 681-6188) for publication.

To Change Your Technical Division

Technical Division Interests: Please use the "Key Numbers" shown to the left of each Technical Division name and indicate your interests in the boxes below. Full Members and Executive Affiliates may register their interests in up to five. Associate Members and Affiliates may register in up to three. If you prefer to change your *current* choice of technical interests, follow instructions as outlined and mail this form to the address given below. (Your current membership card indicates *your* division interests at date of issuance.)

108	110	112	114	116	162
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Primary	2nd	3rd	4th	5th	T/C

Mail to: ASME, Data Processing Dept.
345 E. 47th St., New York, N.Y. 10017

Print Name

M *

Member Number

01 Aerospace	16 Petroleum
02 Applied Mechanics	17 Nuclear Engineering
03 Management	18 Rail Transportation
04 Materials Handling Engineering	19 Power
	20 Textile Industries
05 Diesel & Gas Engine Power	21 Plant Engineering & Maintenance
06 Fuels	
07 Safety	22 Gas Turbine
08 Fluids Engineering	23 Air Pollution Control
09 Bioengineering	24 Technology & Society
10 Materials	25 Dynamic Systems & Control
11 Heat Transfer	26 Ocean Engineering
12 Process Industries	27 Energetics
13 Production Engineering	28 Pressure Vessels & Piping
14 Design Engineering	29 Solid Waste Processing
15 Lubrication	30 Solar Energy

NEW—31 Computer Engineering—NEW

JUNE 1981

COMPUTER ENGINEERING DIVISION

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
345 EAST 47TH STREET
NEW YORK, NEW YORK 10017

ASME COMPUTER ENGINEERING DIVISION
ORGANIZATION STRUCTURE