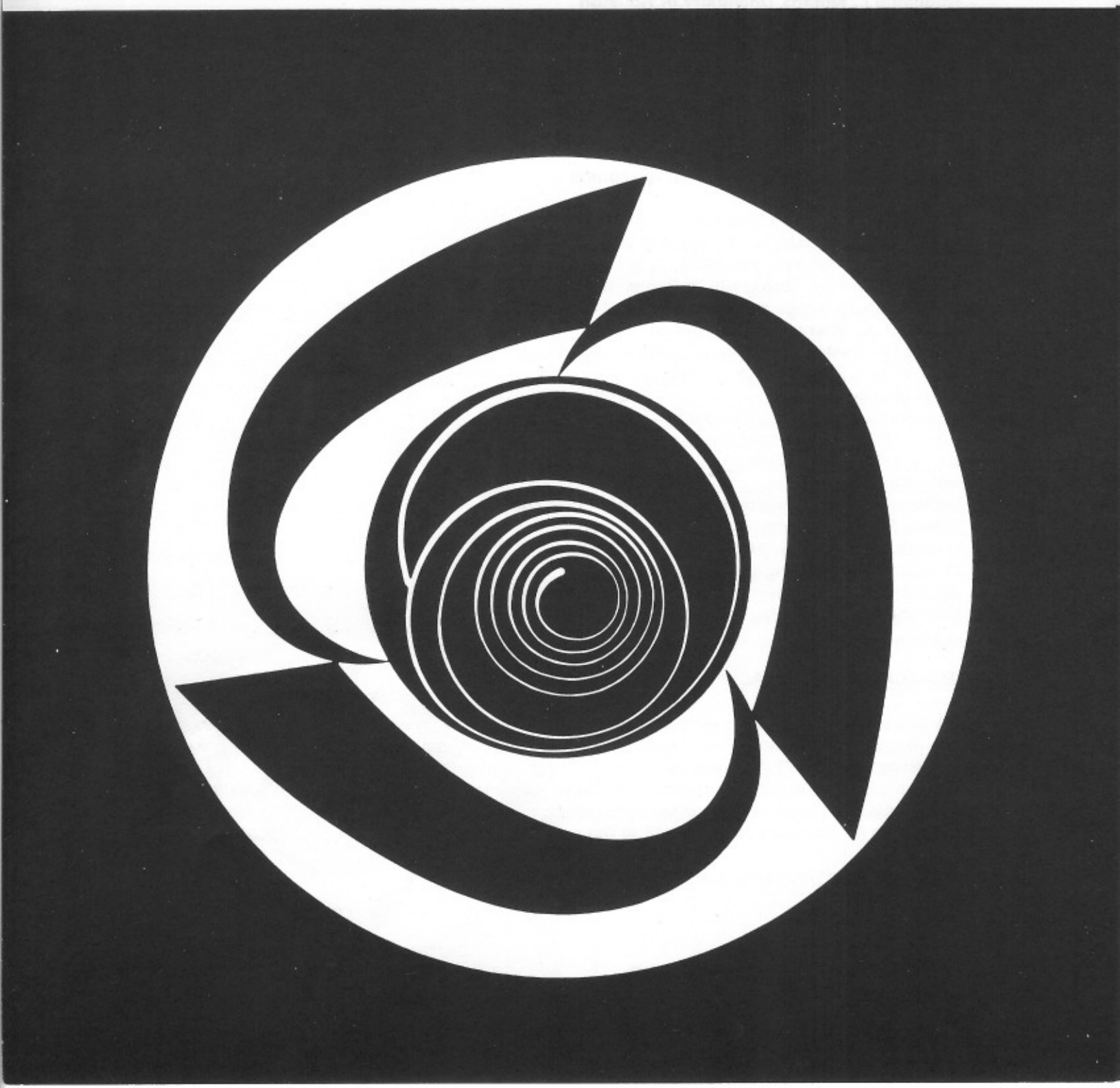
CACHE NEWS

News About Computers In Chemical Engineering Education

No.7

October, 1977



PURPOSE OF CACHE

CACHE is a non-profit organization whose purpose is to promote cooperation among universities, industry and government in the development and distribution of computer related and/or technology based educational aids for the chemical engineering profession.

MEMBERS OF CACHE

COMMUNICATION WITH CACHE

CACHE actively solicits the participation by interested individuals in the work of on-going projects. Anyone who wishes to learn more about current CACHE activities may contact any member or write to CACHE, Room 66-405, 77 Massachusetts Avenue, Cambridge, Massachusetts 02139.

The *CACHE News* is published one or two times a year to report news of CACHE activities and other noteworthy developments of interest to chemical engineering educators. Persons who wish to be placed on the mailing list should notify CACHE at the address listed above.

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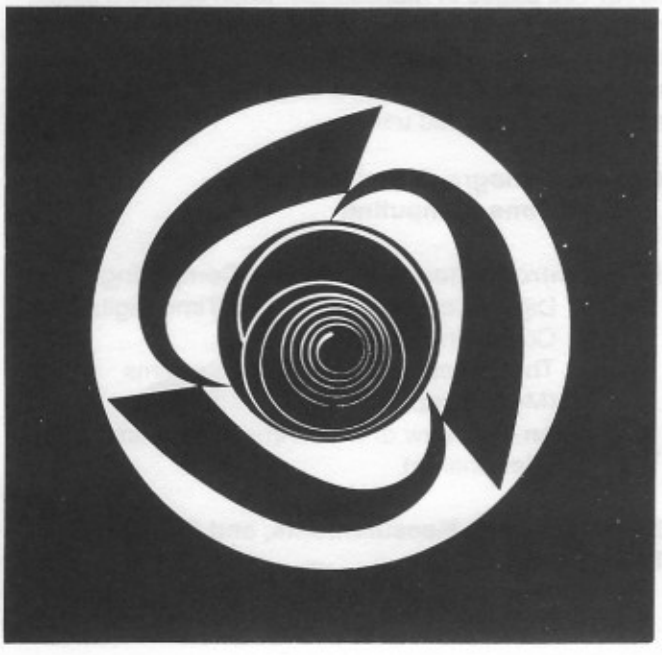

NEW OFFICERS FOR CACHE

At the CACHE Semiannual Meeting held August 5-7 just following the ASEE Summer School in Snowmass, Colorado, Duncan Mellichamp (University of California, Santa Barbara) was elected President. CACHE's new Vice President is David Himmelblau of the University of Texas, Austin. Rodolphe Motard of the University of Houston was re-elected Secretary. The organization's office in Cambridge will continue to be directed by CACHE's Executive Officer and Treasurer Lawrence Evans of MIT.

The officers wish to encourage communications from the entire chemical engineering community concerning any aspect of CACHE's activities, particularly its present and prospective task force initiatives.

ELECTION OF INDUSTRIAL MEMBERS TO THE BOARD OF TRUSTEES

At the recent meeting in Snowmass, Colorado, three representatives from industry were elected to serve with the Board. Mr. Theodore L. Leininger of DuPont (Wilmington), Dr. Edward M. Rosen of Monsanto (St. Louis), and Dr. Louis J. Tichacek of Shell Oil (Houston) were chosen from among a number of candidates who have demonstrated continuing interest in chemical engineering education and in CACHE's programs.

This was an important step for CACHE whose members feel a need to continue to develop closer ties between the academic and industrial communities. At the same time CACHE has undertaken a number of projects which are potentially of considerable interest to industry. Foremost among these are the CHEMI project to prepare several hundred teaching (learning) modules covering the major areas of the chemical engineering curriculum, and the cooperative project with Monsanto to make their FLOWTRAN package available to chemical engineering departments for more effective teaching of plant design.

Since its start, CACHE has had industrial representatives on the task forces and involved in numerous important initiatives. The addition of non-academic members to the Board of Trustees draws attention to the importance of industry contributions to the continuing development of professionally-oriented engineering education.

NEW APPOINTMENT TO CACHE'S ADVISORY COMMITTEE

Professor William Corcoran of CalTech recently was elected to the CACHE Advisory Committee. Professor Corcoran, Vice President of Institute Relations at CalTech and Vice President of AIChE,

has worked with CACHE in several capacities in the past. His selection as Advisory Committee member reflects CACHE's interests in strengthening relations within the academic community, in broadening its contacts with industry, and in coordinating its development programs with the AIChE. In view of CACHE's present emphasis in these three areas, Professor Corcoran's election to the committee seems particularly appropriate and the Trustees look forward to having his advice and counsel.

ANNOUNCEMENT OF CACHE REPRESENTATIVES' MEETING IN NEW YORK CITY

In conjunction with the November Annual Meeting of the AIChE in New York City, CACHE plans to meet with all chemical engineering department representatives. The organization's present program will be described and plans for new initiatives will be discussed. Announcement of particulars will be sent directly to department representatives.

ANNOUNCEMENT OF FORTHCOMING ELECTION OF CACHE TRUSTEES

The election of new Trustees of the CACHE Corporation will be held during the annual meeting in November. Nominations should be presented to the Vice-President by November 1. A nominating letter and a brief accompanying biographical resume should be addressed to:

Professor David M. Himmelblau
Department of Chemical Engineering
University of Texas
Austin, Texas 78712

REAL-TIME COMPUTING: THE CACHE MONOGRAPH SERIES

A major project of the CACHE Real-Time Task Force began to move into the publication phase this past summer as the first volumes of eight introductory monographs dealing with real-time computing were completed. The monographs, edited by Duncan A. Mellichamp (University of California, Santa Barbara), are intended to provide broad coverage of all major areas of real-time computer fundamentals, process interfacing, and system applications programming. Twelve contributing authors, all with broad experience in the engineering application of digital computing and in the field of computer science, have worked on the project:

Thomas F. Edgar
Department of Chemical Engineering
University of Texas, Austin

George P. Engelberg
Domtar, Ltd.
Montreal, Quebec

D. Grant Fisher
Department of Chemical Engineering
University of Alberta

James A. Howard
Department of Electrical Engineering and Computer Science
University of California, Santa Barbara

William R. Hughes
Department of Electrical Engineering and Computer Science
University of California, Santa Barbara

Dan W. McCarthy
Department of Chemical Engineering
Tulane University

Walter G. Rudd
Computer Science Department
Louisiana State University

Dale E. Seborg
Department of Chemical Engineering
University of Alberta

Cecil L. Smith
Department of Chemical Engineering
Louisiana State University

Robert E. C. Weaver
Department of Chemical Engineering
Tulane University

James W. White
Department of Chemical Engineering
University of Arizona

Joseph D. Wright
Department of Chemical Engineering
McMaster University

The monograph format was chosen to provide full flexibility in usage. Each of the eight volumes is approximately 64 pages in length (photo-reduced from about 100 pages of manuscript). Each covers a single major area and is self-contained; hence the monographs can be used selectively in undergraduate and graduate courses in real-time computing or by applications-oriented users:

CACHE Monograph Series in Real-Time Computing

I - "An Introduction to Real-Time Computing"

0. Digital Computing and Real-Time Digital Computing (Mellichamp)
1. The Structure of Real-Time Systems (Mellichamp)
2. An Overview of Real-Time Programming (Mellichamp)

II - "Processes, Measurements, and Signal Processing"

3. Processes and Representative Applications (Edgar)

4. Measurements, Transmission, and Signal Processing (Wright)

III - "Introduction to Digital Arithmetic and Hardware"

5. Representation of Information in a Digital Computer (Fisher and Seborg)

6a. Digital (Binary) Logic and Hardware (Engelberg and Howard)

IV - "Real-Time Digital Systems Architecture"

6b. Digital Computer Architecture (Engelberg and Howard)

7. Peripheral Devices and Data Communications (Rudd)
8. Digital Computer/Process Interfacing (Hughes)

V - "Real-Time Systems Software"

9. Assembly Language Programming (Fisher)
10. Utility or Systems Software (White)
11. Multitask Programming and Real-Time Operating Systems (Wright)

VI - "Real-Time Applications Software"

12. Real-Time BASIC (Mellichamp)
13. Real-Time FORTRAN (White)
14. Control-Oriented Languages (Smith)

VII - "Management of Real-Time Computing Facilities"

15. System Justification, Selection, and Installation (Smith)
16. System Operations Management and Program Documentation (McCarthy and Weaver)

VIII - "Process Analysis, Data Acquisition, and Control Algorithms"

A. Process Analysis and Description (Edgar)
B. Digital Computer Control and Signal Processing Algorithms (Edgar and Wright)

Through grants from the Exxon Research and Engineering Company and the Shell foundation, CACHE will be able to distribute a full set to each supporting institution. Additional monographs can be ordered at a cost designed to cover development and publication costs. A brochure describing the series has been printed and will be distributed shortly. Expected completion date for the entire series is early 1978.

DISTRIBUTION OF LARGE PROGRAMS

The Large Scale Systems Task Force has recently contacted the authors of twelve programs to determine their available for use by chemical engineering students. Most of the programs are sufficiently large to suggest installation on a computer network, alongside Monsanto's FLOWTRAN program. Persons who would like the task force to consider a particular program should contact Prof. Arthur W. Westerberg, Carnegie-Mellon University.

It has been three years since FLOWTRAN was installed on United Computing Systems for use by students throughout the United States and in parts of Canada. In the interest of reducing costs, the Program Distribution Task Force is beginning to reevaluate those networks considered seriously in 1974 and others that have shown promise recently (e.g., General Electric and EDUNET). We hope to select a network that reduces costs for 10-30 cps communications with typewriter terminals, and provides, or will provide in the near future, low cost communication with major cities in Europe and the Far East.