BRITISH COMPUTER SOCIETY

WORKSHOP SERIES
Editor: P. Hammersley

BCS '81

Information Technology for the Eighties

Edited by R.D. PARSLOW

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BCS '81

INFORMATION TECHNOLOGY FOR THE EIGHTIES

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This reprint is being produced at such very short notice that there has been no opportunity for edition of the submitted preprints offered in the original edition. I must therefore apologise for the absence of full papers from several contributors and suggest that further information may be obtainable direct from the authors.

R.D. Parslow – 2 November 1983

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BCS'81

INFORMATION TECHNOLOGY FOR THE EIGHTIES

THE BRITISH COMPUTER SOCIETY WORKSHOP SERIES

Editor: P. Hammersley

The BCS Workshop Series, of which the Proceedings of the Aberdeen Data Base Conference is the first member, aims to report developments of an advanced technical standard undertaken by members of The British Computer Society through the Society's study groups and conference organization. The Series should be compulsive reading for all whose work or interest involves computing technology and for both undergraduate and postgraduate students. Volumes in this Series will mirror the quality of papers published in the BCS's technical periodical The Computer Journal and range widely across topics in computer hardware, software, applications and management.

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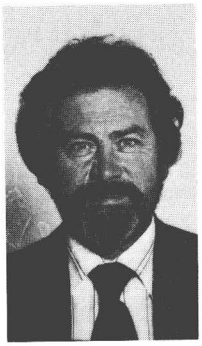
INTRODUCING BCS '81

Gerry Fisher



Bob Parslow

BCS '81 is the latest in the line of biennial British Computer Society Conferences, formerly called Datafairs, which was interrupted slightly by EuroIfip '79 when we were hosts for all the European Societies. The Committees have attempted to produce a worthy set of sessions and the full texts of these are reported in this volume.

It is our aim to demonstrate that the British Computer Society is concerned with more than pushing forward the frontiers of computer science. The Society also gives great priority to the practical uses and social implications of the technology and to the personal and work development of computer professionals. Through this Conference and its Proceedings we trust that managers, analysts, programmers, academics and users in application fields will increase their knowledge both generally and in their own special interest areas.

We should particularly like to thank the authors for their work and participation, and also the Programme Committee and the Session Chairmen for the effort they have contributed.

G.A. Fisher
Chairman, Organizing Committee

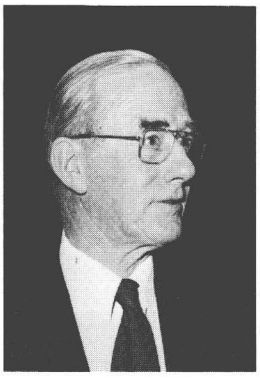
R.D. Parslow
Editor
Chairman, Programme Committee

John Anderson

Professor John Anderson studied medicine at the University of Durham, qualifying in 1950. He pursued his medical career in Newcastle and later in London, and held a Rockefeller Research Fellowship at Harvard University, USA. He became interested in medical computing in 1955 with the setting up of a computer laboratory using a Pegasus machine. Since then he has continued his interest in medical computing both in projects which are scientific and in relation to medical education and medical records at Kings College Hospital Medical School where he is Professor of Medicine. His contribution is entitled 'The Systematic Doctor'.

David Firnberg

David Firnberg is Managing Director of Urwick Nexos Limited, the information technology training and consultancy organisation, set up jointly by Urwick Orr and Partners, the management consultants and Nexos Office Systems, the NB backed office equipment specialists. Before joining Urwick Nexos in January 1980, David Firnberg was Director of the National Computing Centre for five years. He has become widely known as an author and broadcaster, and he also lectures extensively both nationally and internationally. He is a prominent figure on committees dealing with information technology standards and education, as well as many national and international bodies concerned with information technology policy. David Firnberg, who is a Fellow of the BCS and President of the Association of Project Managers, describes the progress towards 'The Electronic Office'.



Murray Laver

Murray Laver has been associated first with communications and then with computing throughout a career which started in 1935 and has included appointments as Head of the Computer Division of the Treasury (the precursor of the CTA), as Director of the Computer Division of the Ministry of Technology and as a member of the Post Office Board. In 1973 he retired to live in Sidmouth, but he remained a part-time member of the NRDC Board and a visiting Professor, Computer Laboratory, University of Newcastle upon Tyne. Well known as a prime-mover in the activities of BCS, Murray Laver gives one of his inimitable and far-reaching lectures, this one on the theme 'Politics and Policies for Computing and Communications'.

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Part 1
Languages and Environment

The STONEMAN Project and Support Systems for Ada: Summary

J. N. Buxton

University of Warwick, UK

The first phase of the Ada development for the DoD was the language design effort. This was initiated by a series of documents which set forth the requirements on the new language (IRONMAN, STEELMAN) and competitive designs were submitted. After evaluations, one was chosen and named "Ada".

The second and current phase of the effort is the provision of an integrated software environment for the production of high-quality and reliable software in Ada. Such an environment must offer support throughout the software life cycle from the requirements stage through to long-term maintenance and the necessary incremental growth and change which is undergone by long-lined software.

This phase has also been addressed by the production of a series of requirements documents culminating in the "STONEMAN". The "STONEMAN" lays down the general requirements for Ada Programming Support Environments - APSEs. The three principal features of an APSE are the database, the communication interface and the toolset. The database acts as the central repository for information associated with each project throughout the project life cycle. The interface includes the command language which presents an interface to the user as well as system interfaces to the database and toolset. The toolset contains an integrated set of tools to support program development, maintenance and configuration control.

A further goal of great importance is that of portability, both of user programs and of software tools within the APSE. The STONEMAN, therefore, also outlines an approach to portability by giving requirements for two lower levels within the APSE; the Kernel (KAPSE) and the minimal useful toolset (MAPSE).

The presentation will discuss the main features of APSEs as required by STONEMAN and will outline current developments.

An Interactive Raster Graphics Language

A. Schappo
(*Research Student*)
and
E. A. Edmonds
(*Reader in Computing*)

Leicester Polytechnic, UK

This paper describes an interactive graphics system and traces its development from a Vector based system to a Raster based system using a read/write bit map. By use of an extensible user interface command language and an extensible set of graphic primitives, higher level graphic commands can be built. To achieve this aim the user has the ability to define procedures which consist of calls to sets of these graphic primitives.

Furthermore, the read/write bit map enables the graphic primitives to effectively see the current state of the bit map. The consequence of this is that it becomes feasible for a user to define procedures which will handle shapes in a manner consistent with that users visual interpretation of those shapes.

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