Report on Visit of R. A. Scantlebury to the 1967 A.C.M. Symposium U.S.A.

This Symposium, on Operating System Principles, was organized by the Association for Computing Machinery and as held from the 1st to the 4th October, in Gatlinburg, Tennessee.

The purpose of my visit was to present the paper from NPL and to establish contact with American workers in the same field.

The business of the symposium was divided into six sessions, being entitled:

i) Virtual Memory

ii) Memory Management

iii) Extended Core Memory Systems

iv) Philosophies of Process Control

v) System Theory and Design

vi) Computer Networks and Communications

The standard of the proceedings was high, there being only some 150 delegates, all of whom seemed deeply interested in the subject matter. The scale of the systems considered range from the very complicated multics systems of M.I.T. to the simpler but very elegant T.H.E. multiprograming system described by Dijkstra. There was much discussion on the relative merits of ‘virtual memory’ employing ‘paging’ and ‘segmenting’ schemes versus systems employing techniques such as ‘extended core memory’. The final session in which the N.P.L. paper appeared was somewhat specialized, involving as it did, aspects of long distance communications.

There were three papers in this session, the first being on the proposed A.R.P.A. computer network. The second paper by Professor Dennis of M.I.T. pointed out the differences between a computer grid for distributed computing power, as described in the first paper, and the potentially much more useful idea of a general purpose data communications network. The conclusions arrived at in this second paper led nicely into the technical solutions proposed in the N.P.L. paper which followed. The N.P.L. paper was well received by the session commentators and the discussion revealed that in the civil field at least, not much work on advanced schemes

like those proposed in the last two papers was being undertaken. The A.R.P.A. network is being implemented using existing telegraphic techniques simply because the type of network we describe does not exist. It would appear then that the ideas in the N.P.L. paper at the moment are more advanced than any proposed in the U.S.A.

Useful contacts though have been made in A.T. and T, Bell and M.I.T. through whom we ought to be able to keep ourselves informed of future developments in the U.S.A.

Of the 17 papers presented, two were from the U.K., the rest being of American origin and among the 150 delegates there were about 10 from U.K. and a further 5 or 6 from the rest of Europe.

Appended to this report is a list of the papers in each session together with the names of the chairman and the commentators. One copy of the preprints will be lodged with Automics Library. Further copies will be available from the Association of Computing Machinery, New York.

Approved for Director, National Physical Laboratory, by Mr. D.W. Davies, Superintendent, Autonomics Division.

R. Scantlebury