

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GOVERNING BOARD

Minutes of the Special Meeting held at Charles House,
Regent Street, London, on the 30th January, 1961

Present:-

Sir John Cockcroft (in the chair)
Sir Robert Aitken
Professor P.I. Dee
Sir Alan Hitchman
Sir Harrie Massey
Sir Harry Melville
Professor N. F. Mott
Professor R.E. Peierls
Sir William Penney
Professor D.H. Wilkinson
Dr. T. G. Pickavance
Dr. J. A. V. Willis (Secretary)

Apologies for absence were received from Professor Brambell, Sir William Hodge, Sir James Mountford and Sir Keith Murray, as well as from Lord Bridges, who was abroad, and had asked Sir John Cockcroft to take the chair for this special meeting.

Proposal to site an Atlas Computer at the Rutherford Laboratory

1. Sir John Cockcroft said that the meeting was called to discuss the proposal set out in papers NI/60/14 and NI/61/1. To add to the preliminary information, he read letters from members unable to be present, and also reported that a firm opinion had now been given on the legality of the proposed action.

(Secretary's Note. The opinion will be circulated as an addendum to NI/61/1)

2. In reply to questions, Sir William Penney outlined the background of the proposal. He said that the Authority had very large computing programmes on both military and civilian work. Besides Mercury, IBM 704, 709 and 7090 computers, they had contracted to hire three shift-years use of a Stretch, and had simultaneously been discussing the proposed "Atlas" with Ferranti's. Matters had been brought to a head by representations by the Chairman of Ferranti's to the A.E.A., the Minister for Science and others that the firm would be forced to abandon the development unless an order were soon obtained from a leading computer user such as the Authority. The Authority thought it most important that the Atlas should be developed but they had not at present a need for the full use of one. They believed that several universities would before long require Atlases for themselves, and they saw in the present proposal a way of keeping the development going, and at the same time giving the opportunity to university users to get experience with the Atlas and where appropriate to develop their own cases.

5. In a general discussion of the proposal, the following points were made in addition to the points in the papers:-

- 3.1 One of the usual main arguments against putting expensive facilities at a University, i.e. the need to be sure that future heads of the Department concerned are also interested in it, hardly applies to computers, because of their wide and rapidly-extending application.
- 3.2 The requirements for "Atlas" time from two universities quoted in NI/60/14 are substantially less than the requirements stated by these universities to the U.G.C. This is because the Working Party (of which the Chairman of the U.G.C. and a senior Treasury representative were members) expressly assumed that computers such as KDF9 would be available to the Universities. Therefore, while the Treasury would not of course ignore the availability of an Atlas in connection with proposals for university KDF9's it had been made quite clear to them that these would still be required. In this connection it should be emphasised that those using a distant Atlas would usually also need a powerful local computer.
- 3.3 The Working Party also expressly assumed that one or more universities might be able later on to make a case for an Atlas in the university, and recommended a further review towards the end of 1962 in order to see whether a case for the provision of more than one Atlas in 1964 then existed.
- 3.4 Although an ad hoc university users committee had on one occasion advised the U.G.C., no properly representative body of this kind at present existed. For this reason university requirements had probably been underestimated, and timely advice on siting had been lacking. The present urgency precluded a complete review to find the best possible solution.
- 3.5 An Atlas ought to be used on three shifts, and would require a very large programme of work.
- 3.6 It would also require a strong team of programme experts. (The technical servicing and maintenance could be done by the manufacturer under contract if desired). It would be unwise and untrue to say that this team could not be provided by a university. The amount of effort involved was not greater than in present university accelerator projects. Both Cambridge and London had, in fact, proposed that they should operate Atlases of their own. However, if the computer were at Harwell the A.E.A. computer teams could provide a satisfactory nucleus.
- 3.7 Experience at the London University computing centre and at CERN had shown that the "open shop" method of working, whereby users write their own programmes and put them on the machine, is not economical. The Atlas team would have to be capable of advising users on programmes economical in computer time, and of doing a lot of actual programming for users.
- 3.8 If the Institute refused to undertake ownership and management of the Atlas, the Authority would presumably reconsider their position, but it could not be expected that they would reverse their assessment that they had not a sufficient requirement for the whole time of an Atlas. Also, it was to be expected that they would charge the Universities for any use of their computers.

- 3.9 If the Institute were to propose to undertake the Atlas, but at a University centre (which would probably mean in London) the Authority would have a difficult problem to consider. They had agreed that their requirement would be satisfied by time on an Atlas at Harwell, not mainly because it would be near their users, but because it would be operated by an extension of their existing team. In their experience, such a team took years to develop. The combination of an existing computer team and the largest single block of work in the Research Group made Harwell the obvious site from their point of view.
- 3.10 It would not be satisfactory for the Institute to decide now to undertake the Atlas, but to leave the question of siting for later discussion, because the Treasury expected a definite proposition before they approved the scheme. They could not be expected to accept a scheme in which the siting and the source of the operating team were not decided.
- 3.11 Financing would be simplest and quickest through the Authority or the Institute. There had been some question on legal and financial grounds whether a free service could be given for non-nuclear university work on a computer financed in this way. The Board considered that a free service to Universities was essential.
- 3.12 The suggested arrangement need not necessarily be permanent. For example if circumstances were to change in a few years time so that universities had their own Atlas computers, and the Authority wanted to take over this one (perhaps moving it elsewhere), this would be possible.
- 3.13 The proposals in paragraph 6 of paper NI/61/1 were thought to be on the right lines, and it was suggested that a computer users committee should be formed to discuss how best the Atlas computer should be operated for the benefit of university and other users. It was thought that the Chairman of the proposed Computer Committee should be a member of the Board.

4. ACTION

- 4.1 The Board were by no means convinced that the proper place for a university computer was at a centre remote from a university but recognised that it was expedient to deal with the first Atlas in a way in which a decision could be reached quickly. Further, the provision of facilities on an Atlas through the Institute would allow universities to gain experience with it, and to develop their cases for similar computers of their own.
- 4.2 Accordingly, the Board agreed that they could accept the proposal that they should in collaboration with the Authority purchase and instal an Atlas computer to be operated for them (initially by the Authority on an agency basis) and that the Institute would make arrangements for university use and allocate the time, subject to an agreed minimum time for the Authority.
- 4.3 As to siting, having regard to the points stated in 4.1, the Board agreed that the computer should be sited in the National Institute site at Harwell in this instance.
- 4.4 The Board considered that they should not charge university users for the use of the computer, either for nuclear science or for any other use.
- 4.5 The Board invited Sir William Penney and Dr. Pickavance to consider how the computer should be operated, and to make recommendations.
- 4.6 Sir Alan Hitchman was invited to make recommendations about the financial aspect of the proposal.