Dr Willis

NI/61/First Meeting

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GOVERNING BOARD

Minutes of the Meeting held at 5, Old Palace Yard, Westminster on Thursday the 9th March, 1961.

Present:- Lord Bridges (Chairman)
Sir Robert Aitken
Professor F. W. R. Brambell
Professor J. M. Cassels
Sir John Cockcroft
Professor P. I. Dee
Sir Alan Hitchman
Sir Harrie Massey
Professor R. E. Peierls
Sir William Penney
Sir John Wolfenden
Dr. T. G. Pickavance
Dr. J. A. V. Willis (Secretary)

Apologies for absence were received from Mr. Adams, Sir William Hodge, Sir Harry Melville, Sir Keith Murray and Professor Wilkinson.

1. Minutes of Previous meeting

The Board approved the minutes of their ordinary meeting on the 15th of November 1960, and of their special meeting on the 30th of January 1961.

2. University Reactors

The Secretary said that he understood from the D.S.I.R. that it was still not possible to send out the letters to Universities, a copy of the draft of which was circulated in paper 61/4. Treasury agreement was still awaited.

3. Atlas Computer

The Board noted from paper 61/5 that the Atlas Computer proposal was still under consideration by the Treasury. Sir Alan Hitchman said that he had written to the Financial Secretary to the Treasury pointing out the urgent need for a decision.

Sir Robert Aitken said that he had informed the Committee of Vice-Chancellors and Principals of the Board's attitude to the Atlas computer proposal, as expressed at the special meeting, and that there had been no adverse comments.

4. Progress at the Rutherford Laboratory Paper 61/6

Dr. Pickavance presented his report in written form in paper 61/6, adding a few points verbally. Birmingham University should have been included in the list in paragraph 1 as one of the most active users of the PLA. The vacuum test on the prototype outer vessel octant had revealed an area of porous material. Attemps were being made to find ways of rectifying such areas. In the test, the prototype

had been satisfactorily pumped down to a much lower pressure than was required in operation. This was a most welcome encouragement, as the vacuum vessel was still the most difficult component. In reply to the Chairman, Dr. Pickavance said that anxiety over the vacuum chamber related mainly to the time factor rather than to doubts of meeting the technical requirements.

With regard to the university agreements mentioned in para. 3 of the paper, Dr. Pickavance said that at the outset Universities preparing to work with Nimrod had tended to work on techniques and equipment of rather general scope with Institute support by E.M.R. agreements in several cases. With the first experiments two years ahead it was still too early to prepare for particular experiments, but some universities were beginning to concentrate their ideas so that experimental-type agreements became more appropriate and it was necessary for the D.S.I.R. to provide any support necessary for graduate research staff. Recent experience of one such case suggested that they could be readily dealt with.

5. The 4 GeV Electron Synchrotron proposal Paper 61/2

5.1 Sir John Cockcroft summarised the Physics Committee's report based on the work of a strong working party. He pointed out that of 1400 Physics research workers in the Universities at present, 400 are working in nuclear physics and cosmic rays. With the planned expansion of University work there was no doubt at all that there would be enough physicists to use the machine fully. The numbers in the case of Liverpool University were dealt with in the paper as one example.

As to costs, Sir John pointed out that the building estimate contained no contingency or provision for rising costs.

The Chairman asked for a discussion of the need for the proposed machine, and of its place in our programme. Every member present took part in the discussion, in which the following points were made:-

(a) It was asked whether this accelerator, with those already approved, would commit too high a proportion of physicists to high energy physics. In reply, it was stated by several members that taking into account the planned expansion of universities, and assuming the same ratio of staff to students, there would actually be a smaller proportion doing research in high energy physics than there is now. The 4 GeV machine would occupy about 50 research workers.

(b) High energy physics research is an outstanding training ground. In practice the vast majority of the men so trained go out into varied physics posts outside the high energy research field.

(c) A vital question was whether the machine would provide for an interesting range of experiments for 10 to 15 years. The Board were agreed that there was every prospect that it would, particularly in view of the fact that the accelerator provided only the basic requirement for experiments in the form of a stream of particles or quanta, and left a wide choice of types of experiments.

(d) It was a point of great practical importance that very strong groups of physicists in the Universities most concerned, were extremely keen to work on this particular machine.

(e) The cost estimate including contingencies should be looked at again before putting the proposal to the Minister for Science and the Treasury.

ACTION 1 The Board endorsed the proposals of the Physics Committee in paper NI/61/2 and recommended them for action, subject to a further review of the estimated cost and amendment of the figures if necessary.

5.2 Effect on other design work by the Rutherford Laboratory team

Sir William Penney said that a cyclotron for radiochemical work was under consideration at Harwell. He asked whether the taking on of new work would prevent the Rutherford Laboratory staff from giving adequate effort to the project. The Chairman said that when the A.E.R.E. Accelerator Division staff were transferred to the Institute, the Institute had agreed to undertake accelerator design for the A.E.A. if the need arose. Dr. Pickavance confirmed that this would be done. He said that he had 14 physics staff and one engineer at present on the chemist's cyclotron and in addition a small number considering the conversion of the Harwell cyclotron, who could be transferred readily. He also had a commitment to Oxford University for their electrostatic generator, and he had a team working on that. Although all these people could be most usefully employed on Nimrod, he would not disown or neglect his responsibilities to the Harwell and Oxford projects.

5.3 Siting. Paper 61/2 Addendum

The Chairman said that the choice really appeared to lie between a site near Liverpool and Manchester and a site near Glasgow. He asked members to express their views.

(a) Professor Dee explained the position of the University of Glasgow -

(i) His department wished to be intimately concerned with the project, both in its development and in its use.

(ii) Their first concern was to have the new 100 MeV machine in their department for which they had applied to D.S.I.R., if this were assured, they would not press a Scottish site for the 4 GeV machine, though they would still aim to do 30 - 40% of their research on it.

(iii) At a meeting with the D.S.I.R. the previous day, it had seemed that their 100 MeV machine proposal might be subject to months of further delay and some remaining doubt. A number of conditions had been laid down, including a requirement to consult NIRNS on the plans. These conditions gave him no difficulty but suggested delay.

(b) Sir John Cockcroft said that the main doubt on the 100 MeV proposal seemed to him to be the date when it would be approved.

(c) Professor Cassels agreed wholeheartedly with Professor Dee that no university should take an unfair share of the accelerator. He also fully acknowledged the very great contribution from Glasgow to the project, and suggested that the thanks of the Board should be conveyed to Professor Gunn for the excellent report of the working party.

In a general discussion, the following additional points were made:-

(d) A site should be chosen with special regard to easy communication, and to the number of users nearby. In this connection there are very substantial numbers of users both at Liverpool-Manchester and at Glasgow.

(e) The Institute had good reason to be interested in Glasgow getting their 100 MeV machine, even though not concerned themselves with it, because without adequate facilities at the home base the future of this important school of nuclear research would be in jeopardy.

(f) The cost of travel was small compared with the other costs of working with big accelerators.

ACTION 2 The Board recommended the choice of a site near to Liverpool and Manchester, but only if the 100 MeV machine at Glasgow goes forward. They invited the Chairman to represent their concern on this point to the D.S.I.R.,

6. Committees

The Board approved the following changes in InstituteCommittees: (subject to acceptance by those concerned but not present).

| | Retiring Members | New Members |
|---|---|---|
| GENERAL PURPOSES COMMITTEE | Sir James Mountford | Sir Robert Aitken |
| PERSONNEL COMMITTEE | Sir James Mountford<br>Professor P.B. Moon<br>Sir Basil Schonland | Sir John Wolfenden<br>Professor Cassels<br>Dr. F. A. Vick |
| PHYSICS COMMITTEE (subject to discussion with the DSIR since it is a joint committee) | Professor Devons<br>Professor Blackett<br>Professor Mott | Mr. J. B. Adams<br>Professor A. Salam<br>Dr. E. B. Paul |
| RESEARCH REACTOR COMMITTEE | Professor Blackett<br>Professor Mott | Dr. S. C. Curran<br>Dr. V. S. Crocker<br>Dr. P.A.Egelstaff |
| VISITING COMMITTEE | Professor Devons | Professor A. Salam |

The Board also invited Sir William Penney to be Chairman of the Computer Committee. They did not consider the proposed membership of the committee however, because the Atlas computer proposal has not yet been approved by the Treasury, so that it is not yet certain that the Committee will be required.

7. Common Seal: The Board approved the design sketched in paper NI/61/7 for their common seal.

8. Next meeting

It was agreed that the next meeting on May 24th will be at the Rutherford Laboratory.

J. A. V. Willis,
Secretary. Rutherford High Energy Laboratory.