Dr. J. A. V. Willis

NI/62/First Meeting

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GOVERNING BOARD

Minutes of the meeting held at 5, Old Palace Yard, Westminster, on 9th March, 1962.

Present: Lord Bridges (Chairman)
Dr. J. B. Adams
Professor F. W. R. Brambell
Professor J. M. Cassels
Sir John Cockcroft
Professor B. H. Flowers
Sir Alan Hitchman
Sir Harry Melville
Sir Keith Murray
Professor D. H. Wilkinson
Sir John Wolfenden
Dr. T. G. Pickavance
Dr. J. A. V. Willis (Secretary)

Apologies for absence were received from Sir Robert Aitken, Professor Dee, Sir William Hodge, Sir Harrie Massey and Sir William Penney.

1. MEMBERSHIP

The Chairman welcomed Professor Flowers, who had been appointed a member of the Institute from 15th February, 1962 in succession to Professor Peierls, whose term of membership had come to an end.

He also congratulated Dr. Adams who had been appointed C.M.G. in the New Year's Honours List.

The Chairman said that he had asked Professor Cassels to take Professor Peierls' place on the General Purposes Committee, and that Professor Cassels had accepted. The General Purposes Committee would thus comprise, besides himself, Sir Robert Aitken, Professor Cassels, Mr. Drake, Dr. Vick and Professor Wilkinson.

On transferring to the General Purposes Committee, Professor Cassels would leave the Personnel Committee, which would then comprise besides the Chairman, Mr. Lindsell, Sir Harrie Massey, Dr. Vick and Sir John Wolfenden. The Chairman suggested that the question of a possible additional member should be left open for the moment, as he wished to consider the future business of the Personnel Committee.

The Board agreed to these proposals.

2. MINUTES OF THE LAST MEETING

The Board approved the minutes of the meeting on 6th December, 1961.

3. COMMITTEE MINUTES

Personnel Committee. No matters were raised concerning the minutes of the meeting on 6th December, 1961, but the Chairman reported briefly to the Board on the discussion on Rutherford Laboratory complement at the meeting which had just been held (9th March, 1962), at which an increased complement of 880 plus 50 for replacement of contract labour had been approved. In a brief discussion, it was agreed that the long-term aim to try to keep the complement within the limit of 950 (plus 72 for replacement of contract labour) was the Board's policy, not

one imposed from outside. The figure had, however, been given to the Minister for Science and the Treasury.

General Purposes Committee. No points were raised.

4. PROGRESS WITH THE ATLAS COMPUTER

In Sir William Penney's absence, Dr. Pickavance reported briefly on the Atlas Computer Committee meeting. He said that by careful review the estimated cost of the buildings had been reduced from £310,000 to £278,000, but this was still very large compared with the original estimate of £150,000 which was based on incomplete information. The Atlas Computer Committee had considered very carefully whether a substantial sum could be saved from the plant. They found that the only reasonable large saving would be to reduce the core store substantially below 48,000 words. They were sure that this would spoil the computer for the very large calculations for which it was particularly intended. Accordingly the additional funds for the building could not be found from the plant, and a request for additional funds had been made. The usual enquiries by the A.E.A. Finance Branch were at present in progress.

Dr. Pickavance drew attention to minute 6, in which it was reported that a hitch had occurred in the plans for universities to use some time on A.E.A. computers until the Atlas was available. The Authority found it necessary to recover the bare cost of any time so provided, and it had been proposed that the Institute should pay this charge, and should deal with the applications from universities, and allot time without charge to universities, just as they would do for their Atlas later on. The Minister for Science's office had questioned this proposal, and the matter was still under discussion.

In discussion it was pointed out that the objection rested largely on the fact that the university use would be mainly in subjects other than nuclear science, but this point had already been accepted in the N.I.R.N.S. Atlas project. Further, some vital nuclear physics projects, e.g. the development of bubble chamber work could not succeed without access to these powerful computers.

5. PROGRESS WITH THE ELECTRON LABORATORY

The Chairman said that he had received three days ago a powerful letter signed by Professors Gunn, Flowers, Paul, Cassels and Merrison. He proposed to write to the Minister for Science, but had waited for discussion at the Governing Board first.

The Chairman reported that the Treasury had written to the Minister for Science's Office on 14th December, 1961 stating that they were prepared to approve the Electron Laboratory scheme in principle. However the Minister's Office had made it clear that the question of siting was still reserved, as was reported at the last meeting. Action was therefore blocked until this reservation on siting had been resolved. In the meantime the Minister had set up a working party under Sir John Cockcroft's Chairmanship to examine total Government expenditure on all votes on nuclear physics. Sir John Cockcroft said that this expenditure was at present estimated to rise by 5% per year over the next few years. The working party had been asked to say what would have to be cut out if the expenditure had to be held dead level after taking into account the increasing expenditure in respect of C.E.R.N. The answer was clearly that the Electron Laboratory would have to be cut out, and also some of the larger university projects ~~suggested~~ SUGGESTED by the D.S.I.R. The Board considered that this would be a totally unacceptable situation.

In discussion of this point, it was stated that the increase of 5% per annum on nuclear physics in the U.K. compares with 20% in the U.S.A., 15% in Italy and 10% in France, and that this figure is low almost entirely because of the rather level forecast expenditure of the Institute, which is a large part of the whole. The expenditure on C.E.R.N. increases at 10% per annum, and owing to the international control of C.E.R.N. we must either pay this increase or withdraw from C.E.R.N. There was no doubt that physicists in this country wanted to stay in C.E.R.N. The situation therefore was extremely dangerous. In the first

place, if expenditure had to be held level and we stayed in C.E.R.N. the increased cost of C.E.R.N. could only be met by killing off one domestic nuclear physics centre after another. Secondly, if a rate of increased expenditure, such as 5% per annum were fixed, any failure to hold the N.I.R.N.S. expenditure to the forecast would have a devastating effect on the total.

The Chairman read out the letter from Professors Gunn, Flowers, Paul, Cassels and Merrison. The following points were made in discussion of it:-

(a) The long delay during which we had been under instruction to do nothing on siting had damaged the previously excellent relations with the Cheshire County Council.

(b) It was impossible to name an exact date by which the 4 GeV machine would be too late to be justified. It would be justified now, and probably not justified if delayed for a year.

(c) A much higher energy machine - 12 GeV - would certainly be preferable now, but was quite out of the question on the grounds of cost which might be £12 million to £20 million.

(d) The next five years were critical to Universities because of the planned large increase in student numbers. The increase could not take place without teachers, who would not be found in the case of high energy physics, if there were not adequate machines to do good research on.

(e) The Chairman said that he thought the letter powerful and objectively stated, and he would like to enclose it with his letter to Lord Hailsham. Professor Cassels, on behalf of the other authors, said that they would welcome this. He mentioned that the only reason why Professor Dee was not one of the authors was that he was out of the Country at the time.

The Chairman thanked the Board for these comments, and said that he would write to the Minister pressing for a speedy decision.

6. PROGRESS AT THE RUTHERFORD LABORATORY (Paper NI/62/1)

In addition to the points reported in paper NI/62/1 Dr. Pickavance reported that the Nimrod injector was now operating reliably with a moderate beam current, and development was proceeding satisfactorily. The main Nimrod vacuum vessels were now coming along well in production. The finish was now excellent. Also the contract difficulties were now virtually resolved.

There was some discussion arising from the last paragraph of the paper concerning the training potentiality of the Laboratory. Dr. Pickavance explained that the reference was to postgraduate training of engineers and physicists by attaching them to physics groups in the Rutherford Laboratory, where a wealth of Ph.D.-type problems was available. Rutherford Laboratory staff might act as supervisors in some cases, depending on the regulations of the university concerned.

Some members went on to suggest that the Institute might help in sending university physicists to work on foreign accelerators in circumstances which would encourage them to return. This was being successfully done on a small scale with the Institute's own fixed term staff.

Restaurant. The Chairman said that the estimated cost of the Rutherford Laboratory Restaurant had increased from £85,500 to £125,000. The G.P.C. had stopped the work pending an enquiry, which had just been concluded. As a result, economies had been recommended which were estimated to bring the price down to £109,000. He still thought this rather high, but was prepared to authorise a request for the additional funds so that the work could be re-started. This was approved.

FIVE-YEAR FINANCIAL FORECAST (Paper NI/62/2)

7.1 The Secretary said that the main point of novelty in the forecasts in paper NI/61/22 apart from the inclusions of a further year, was the bringing forward to 1964/5 and subsequent years of substantial forecast expenditure on a high-flux reactor, plans for which had developed rather rapidly in A.E.R.E. Sir John Cockcroft said that the Research Reactor Committee had not yet considered the case for Institute participation in this reactor, and he thought its inclusion in the forecast at this stage was premature. The Board agreed with this view, and decided that the provision should be reduced to what it had been in the previous forecast.

7.2 The Board considered that the forecast for 1967/8 (i.e. the ensuing year after the last year for which a forecast had previously been prepared) should be substantially raised, because of almost inevitable new developments by that time.

7.3 The Secretary was asked to draft a covering note to accompany the forecast, and to send it to Members for comment. The following points should be made in it:-

(a) That as before we should be free to make a case to the Treasury for additions in the case of any unforeseen development.

(b) That inflation is not allowed for.

(c) That up to 1966/7 the total figures are figures which were virtually imposed on us by the Minister for Science.

It was also noted that if expenditure on nuclear physics was held down, in the arbitrary way suggested by the questions put by the Minister to Sir John Cockcroft's working party, then this would be a second arbitrary cut on top of the cut which we imposed on ourselves last Autumn in response to the Treasury's request.

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

9th March, 1962.