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NI/63/Second Meeting

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GOVERNING BOARD

Minutes of the meeting held at the Rutherford Laboratory

on 15th July, 1963

Present: Lord Bridges (Chairman)
Dr. J. B. Adams
Professor F. W. R. Brambell
Sir John Cockcroft
Professor P. I. Dee
Sir Alan Hitchman
Sir Harrie Massey
Sir Harry Melville
Professor C. F. Powell
Professor A. W. Merrison
Dr. T. G. Pickavance
Dr. J. A. V. Willis (Secretary)

Apologies for absence were received from Sir Robert Aitken, Professor Cassels, Professor Flowers, Sir William Hodge, Sir Keith Murray, Sir William Penney and Sir John Wolfenden.

1. MINUTES OF THE LAST MEETING

The Board approved the minutes of the meeting on 28th March, 1963.

2. MATTERS ARISING FROM THE MINUTES

Minute 5 (Measures for the encouragement of high energy physics in this country). The Chairman said that suggestions which he had made at the time of the last meeting were being developed.

Minute 10 (Time of meetings in London). The Chairman said that 2.30 p.m. appeared to be the time most convenient to Members generally for future meetings in London.

3. COMMITTEES

3.1 The Board took note of the minutes of the Personnel Committee meeting on 28th March, the General Purposes Committee meeting on 13th May and the Atlas Computer Committee meeting on 29th May.

3.2 Research Reactor Committee

(a) Sir John Cockcroft said that at the Research Reactor Committee on 27th June the financing of experiments proposed by Dr. Cochran, which were referred to in minute 3(b) of the last Board meeting, had been satisfactorily arranged. The A.E.A. had agreed to provide the capital equipment. In a further case the A.E.A. would finance experiments by Professor Bacon for the time being. The general question was still under discussion with the A.E.A.

(b) Sir John Cockcroft said that the Research Reactor Committee had appointed a small panel to prepare the scientific case for a high flux

beam reactor, which was at present being proposed as a European project. The Office of the Minister for Science had referred the proposal to the D.S.I.R. Sir Harry Melville said that neither the A.E.A. nor the D.S.I.R. nor the Institute seemed to have money for this project within its budget. Additional money would be needed if we took part in it. In a general discussion it was stated that the Government seemed to be disinclined to make a bid to have this reactor in the U.K. Several members spoke in favour of making such a bid, but only if it would not weaken the case for siting the suggested 300 GeV accelerator in the U.K. The Chairman said that in any further action the next step lay with the D.S.I.R., and Sir Harry Melville might care to take note of the views which had been expressed.

4. PROGRESS AT THE RUTHERFORD LABORATORY

(a) The Chairman said that it was planned to have Nimrod formally opened by the Minister for Science in April, 1964.

(b) Dr. Pickavance presented his progress report which is summarised in paper NI/63/7. In reply to a question about the effect of lending the National hydrogen bubble chamber to C.E.R.N., he said that since this loan had been first arranged, the delays to the programmes at the Rutherford Laboratory and C.E.R.N. and to the bubble chamber had been roughly the same. The bubble chamber would be able to start work sooner at C.E.R.N. than it could have done at the Rutherford Laboratory, and could be back at the same stage of the work with Nimrod as had been planned. In the mean time the Desy 80 cm chamber would be most useful. We had offered to use it on a basis of full collaboration with the Germans.

5. RUTHERFORD LABORATORY BUDGET 1963/64 AND FUTURE N.I.R.N.S. EXPENDITURE

5.1 Dr. Pickavance reported on the financial situation, brief details of which are given in paper NI/63/13. The financial review after the first three months of the year indicated a prospective over-expenditure of more than £1 million in 1963/64. This was not, of course, due to extravagant expenditure, but resulted from a failure to adjust ourselves sufficiently quickly from working as fast as possible against a time scale on a major capital project, to working-to-rule to match an inadequate budget. July was at once the first time in the year when a good forecast of out-turn could be made, and the last moment for taking action to make a big reduction in the whole year's expenditure. Very severe financial difficulties would continue in future years, owing to the present Treasury policy of limitation to 2% expansion per year, and this year's difficulties could not be solved merely by deferring expenditure. The measures which he had taken, as described in the paper, virtually stopped all new expenditure on research and development which would therefore come to a halt if no additional money were obtained. The only work which was being allowed to continue as planned was the completion of Nimrod.

5.2 Dr. Pickavance said that a more detailed analysis which had been made since paper NI/63/13 was written, indicated that the savings resulting from the emergency measures would be about £570,000. The additional money over the approved estimated total, needed in 1963/64 to continue work at a reduced rate with the most important items was £600,000. (The amount which would have been spent on these items at the full planned rate was rather more than £900,000). He asked the Board to agree to seek a supplementary vote of £600,000 so as to be able to continue work on a reasonable though still restricted basis for the rest of the year.

5.3 The Chairman said that a difficult situation had arisen, but he thought that Dr. Pickavance had acted both vigorously and rightly. One cause of the trouble was that hitherto the Institute had been largely concerned with one major capital project, and had been unable to spend at the rate estimated. The delayed expenditure came at a time when recurrent expenditure had reached a high level.

5.4 The Chairman said that besides the need for more money in the present year, there was now no doubt that amounts substantially exceeding those of the 2% formula would be needed in future years, as he had made clear in this letter of 22nd May to the Minister for Science which had been reproduced in paper NI/63/10. The Minister's acknowledgement, also given in the paper, was not a satisfactory reply, but he took it to be a temporary reply only.

5.5 The following points were made in a general discussion:-

(a) In the discussion in the A.C.S.P., referred to in the Minister's letter, there had been general agreement that university needs for scientific research must take first place in the queue for extra money. The amount was however comparatively small. The priority which should be given to extra needs for technological development had been less clear.

(b) Any reduction of the Institute's funds below the amount really required would directly affect the physics programme. A marginal reduction in funds could have a disastrous effect.

(c) The 2% formula, although it had been accepted under duress by the Institute, must be challenged, and over the whole field to which it was applied. The Institute certainly would not want more at the expense of high energy and nuclear physics in the universities.

(d) The £600,000 shadow cut in the Institute's estimates for 1963/64 could now be seen to have been a serious mistake, and it was equal to the amount which it was suggested should be asked for as a supplementary vote.

(e) Over the past five years we had under-spent very much more than the shortage in the present year.

(f) The need for more money was a reflection of the vitality of the subject, and of the success of the Institute in the purpose for which it was set up.

(g) There would be no sense in taking part in a European high energy accelerator project while starving our own National laboratories.

(h) Comparison with other countries indicated that British expenditure on high energy physics research, as a percentage of the Gross National Product, was comparable with that of France and greater than that of Germany. In France, however, and in the U.S.A. it was increasing not at 2% p.a., but at more than 10% p.a. The budgets of the major high energy physics laboratories in the U.S.A. were increasing at about 20% p.a.

(i) A large machine such as Nimrod was likely to be most productive in its early years, and this would therefore be a particularly harmful time to stint it.

5.6 Professor Merrison said that not much expenditure had yet been committed at the Electron Laboratory but this situation would soon change. In particular the main civil contract should be placed in the very near future. Although this year, because of delays with the site, he had a large underspend, this would be very far from true next year. It was clear that economies on any reasonable scale at the Electron Laboratory would hardly affect the present financial situation and that there was no possibility of going ahead both with the Rutherford Laboratory on its present scale and the Electron Laboratory within the 2% pattern of expenditure.

5.7 The Chairman said that it was now obvious that the two Laboratories would require much more than the funds available under the 2% formula.

This must be made quite clear to the Minister, but he thought that the Institute could not do other than go ahead. The Board agreed, and also approved the proposal to seek a supplementary vote of £600,000 for 1963/64.

6. PROGRESS WITH THE ELECTRON LABORATORY

Professor Merrison's report is summarised in paper NI/63/8. After making his report, Professor Merrison said that the name "Electron Laboratory" seemed to him to be an unsatisfactory one. The Advisory Committee had considered the matter and on balance recommended the name "Daresbury Nuclear Physics Laboratory" which he submitted to the Board for consideration.

Some members were not quite sure about the inclusion of "Nuclear Physics", and the Chairman asked that all members should consider the proposal and to send any comments to Professor Merrison or to him. It was agreed that a final decision should be taken at the next Board meeting, if it had not been reached sooner.

7. EUROPEAN ACCELERATOR PROPOSAL

Dr. Adams said that the report circulated under reference NI/63/9 was based upon the detailed work of a C.E.R.N. working party who proposed a 300 GeV proton synchrotron, and also storage rings for the present C.E.R.N. proton synchrotron. The report also included figures for the cost of the U.K. programme for high energy physics research and for nuclear structure research. The total sums of money were therefore very large. In reply to the Chairman, Dr. Adams said that the next step in this matter would be for the D.S.I.R.'s C.E.R.N. Committee to prepare for further discussion in the C.E.R.N. Council at the end of 1963. The Board took note of the report.

8. PROPOSALS FOR NUCLEAR STRUCTURE RESEARCH

Sir Harrie Massey said that the report circulated under reference NI/63/11 had been prepared at the request of the D.S.I.R.'s Nuclear Physics Sub-Committee by a Working Party chaired by Dr. Adams. The report had not yet been considered by the D.S.I.R.'s Research Grants Committee.

Dr. Adams said that the report recommended a large nuclear structure machine in a National laboratory, and the provision of adequate "home" facilities for the main centres of university interest in nuclear structure research. It was thought that the Institute would be responsible for the National laboratory and that the D.S.I.R. would look after the provision of "home" facilities. In a brief general discussion it was made clear that some difficult questions were involved. The Board took note of the paper but deferred further discussion of it to a later date.

9. THE FINANCING OF UNIVERSITY EXPERIMENTAL WORK AT INSTITUTE LABORATORIES

The Chairman said that Sir Keith Murray, who was unfortunately not able to be present, had suggested that it would be better to wait until the Trend Committee had reported, before considering the recommendation made in paper NI/63/12. In the meantime, however, some difficult cases were arising, owing to the imminent beginning of experimental work with Nimrod. The Chairman suggested that the matter should be discussed further with Sir Keith Murray outside the meeting, and this was agreed.

10. MEETINGS AT THE RUTHERFORD LABORATORY

The Board confirmed their decision to meet at the Rutherford Laboratory in each year, but were concerned at the number of members who had been unable to attend on this occasion. It was decided that a date in May might be more convenient in future. Meetings at Daresbury should also be arranged in future years.

J. A. V. Willis
Secretary.