NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GOVERNING BOARD

Minutes of the meeting held at 2 Carlton Gardens, London, S.W.1., on 8th February, 1965, 11 a.m.

Present:

Lord Bridges - Chairman
Dr. J. B. Adams
Sir Robert Aitken
Sir John Cockcroft
Sir Alan Hitchman
Sir Harrie Massey
Sir Harry Melville
Professor C. F. Powell
Dr. F. A. Vick
Professor D. H. Wilkinson
Sir John Wolfenden
Dr. E. M. Wright
Mr. A. E. Drake
Dr. A. C. W. V. Clarke
Professor A. W. Merrison
Dr. T. G. Pickavance
Dr. J. A. V. Willis - Secretary

Apologies for absence were received from Professor Brambell, Professor Dee, Professor Flowers and Sir William Hodge.

The Chairman expressed the Board's congratulations to Dr. Pickavance on the CBE conferred upon him in the New Year Honours. He also congratulated Sir Harrie Massey on his appointment to the chairmanship of the Council for Scientific Policy and Dr. Adams and Professor Flowers on their appointments to membership of the Council. He also congratulated Sir Harry Melville on his appointment to the chairmanship of the Science Research Council and Professor Powell on his appointment to membership of the Council. The Chairman introduced Dr. Clarke who was attending for the first time since his appointment on 1st November, 1964, to take charge of the Institute's central administration and finance; his work had already proved to be of outstanding value. He said also that, on this occasion, he had specially invited Mr. Drake to come and take part in the meeting.

1. Minutes of the last meeting

The following amendments were made to the minutes of the meeting held on 22nd September, 1964. With these amendments the minutes were approved.

Minute 3 (b) line 3, for "with the figures" read "of the figures".

Minute 6.3, line 4, for "university's" read "universities'".

2. The Executive Committee

The Chairman said that the setting up of the Executive Committee at the last meeting had proved to be a very necessary reform. Meetings had been held monthly at the two laboratories in turn. Four all day meetings had taken place so far, and time had been found for full and detailed discussion of the many matters which required attention, with the two laboratories in the state of development which they had now reached. It would have been impractical for the Board themselves to deal with matters in such detail. Nevertheless, he felt that he owed an apology to some members for not keeping the Board fully informed of the Committee's work. If the arrangement had been going to continue for a long time, some method would have been needed for circulating an account of the main activities of the Committee.

In the present circumstances he felt that the Board would wish to concentrate on the most important matters only.

3. The future organisation (paper NI/65/1)

3.1 The Chairman said that, as from the end of March, the Institute would hand over their responsibilities to the Science Research Council. In some respects it had been possible to arrange for the proposed organisation to be improved. The original suggestion of the Trend Committee had been that nuclear physics should be lumped in with the rest of physics and mathematics in one division of the SRC. The Institute had made representations on this point and it was now planned that nuclear physics would be a separate division. This was satisfactory, but in other respects the prospect was less satisfactory, and he had it in mind that he might raise some of the more important issues in a speech in the House of Lords.

3.2 The Chairman said that his greatest concern was the extent to which the nuclear physics board would enjoy the same degree of administrative freedom as the Institute now enjoyed. An annual financial battle was, of course, inevitable, but he thought that once the money had been voted those responsible for controlling the nuclear physics programme should be allowed to spend it with the minimum of interference. Under the present arrangements there were satisfactorily short lines of communication. Mr. Drake, the Finance Officer of the AEA, took part in the meetings of the Executive Committee (and formerly the General Purposes Committee) with the result that financial approval was much simplified. Under the new arrangement the nuclear physics board might have to refer on certain matters to the SRC who, in turn, would have to refer to the Department of Education and Science and they in turn would have to refer to the Treasury. The crux of the question whether this system could be made as straightforward as the present one lay in the degree of financial authority which the Treasury would allow to the SRC. If this level were adequately high it would be possible to arrange for those responsible for running the laboratories to do their business efficiently.

3.3 The Chairman said that in administrative matters as in finance it was essential that the delegated authority in the future should be no less than in the past. The Institute had set up laboratories of a new kind closely associated with the universities which they served and should not be treated in the way in which many Government research laboratories were at present treated.

3.4 At the Chairman's request all the members present gave their views on matters of general importance to the future of the work for which they had hitherto been responsible and there was general agreement on the following matters:-

(a) Delegated authority

It was essential that those responsible for the work of the NIRNS laboratories in future should have no less authority than the Institute had enjoyed in the past. The Directors of the laboratories must be able to go to a committee having the power to approve their requirements up to a substantial level. Under the present arrangements, through Sir Alan Hitchman's membership of the Institute, and Mr. Drake's membership of the Executive Committee, capital projects up to the AEA's delegated authority of £100,000 could in effect be authoritatively handled without outside reference. In personnel matters, the Institute had authority to appoint such staff and pay such salaries as they wished. In practice, they consulted the AEA and kept closely in line with the AEA. In future the SRC would, of course, be similarly referred to but there it should stop.

It appeared that there was considerable doubt whether the SRC would be given delegated financial authority up to as high a figure as £100,000 and adequate freedom over staff appointments. The Board considered it most important that the SRC should be given these powers.

(b) The nature of the NIRNS laboratories

The Board most strongly emphasised the importance of the nature of the Rutherford and Daresbury laboratories not as self-sufficient organisations to which university scientists went to use the facilities provided, but as organisations extensively inter-penetrated by the university departments. It was regarded as essential that the university scientists should take part in the management of the work at all levels. The concept of an official organisation aided at suitable points by advisory university committees was totally inadequate. University people must take part in executive management as they now did in the Institute.

This point was considered to be the more important because of the growing need for the co-operative use of large facilities in fields other than nuclear physics and the need for the Institute's pioneering development to be applied elsewhere. (One example within the SRC was mentioned, namely the Royal Observatory at Hurstmonceaux in which university co-operation, particularly from the University of Sussex, was obviously desirable).

(c) Conditions of employment of staff

Recruitment of future staff, particularly to the Rutherford laboratory, under conditions different from those of the AEA, was expected to present serious difficulties and it was regretted that a Treasury desire for uniformity of conditions under the SRC seemed likely to have this result. The broad requirement was that it should be possible to recruit and retain suitable staff for the laboratories and that interchange with universities, the AEA and industry, should be facilitated as far as possible. One important aspect of the need for interchange with universities was that it should remain possible to recruit nuclear physicists to the Rutherford and Daresbury laboratories on fixed-term appointment with superannuation under FSSU. Proposals for detailed changes in the terms of these appoints were in preparation but the fundamental requirement was unchanged.

(d) Basis of policy

It was essential that the provision of central laboratories should be considered and decided by a body broadly representative of university interests and that the proper balance should be struck between central and local facilities. Another danger to be guarded against was the result of rapid building up of central facilities whereby the laboratories tended to acquire a staff with an abnormal age distribution.

(e) Contacts with the AEA

The very extensive services provided by the AEA had been of inestimable value and it must remain possible to make use of these wherever appropriate.

(f) Transition arrangements

It was agreed that the committee structure set up by the Institute ought to continue for an interim period of several months while the SRC's structure was being set up. This would include the arrangements for dealing with the Atlas Computer Laboratory and for the NIRNS' support of university use of reactors; but the future of these activities would need further consideration.

4. Financial matters (paper NI/65/2)

Dr. Clarke brought up-to-date the statement in paper NI/65/2 concerning the grant for 1965/6. News had now been received that the grant was £10.35M,

i.e. £0.25M less than the reduced amount asked for. After making a reduction of £32,000 in the provision for the Atlas Laboratory and reducing the provision for the nuclear structure laboratory to a token sum, this left £9.45M for the Rutherford and Daresbury laboratories, i.e. about £0.2M less than the reduced amount which had been requested.

5. Delegation of Financial Powers to the Executive Committee

The Board took note of paper NI/65/3, and confirmed that the financial powers of the General Purposes Committee were transferred to the Executive Committee with effect from 22nd September, 1964.

6. Progress at the Rutherford Laboratory

6.1 Dr. Pickavance said that the performance of Nimrod was very satisfactory and was being steadily improved. The circulating beam current available was now 1.2×10^{12} protons per pulse and he thought that it would be possible gradually to improve this further to 3×10^{12} which he thought was about the limit with the present design. Nimrod had taken its place as one of the four major accelerators of the world and high energy physics experiments were now being carried out with great efficiency and success. At present eight teams were working with counter techniques and two more would join shortly. They were drawn from ten different university departments, the AERE and the Rutherford Laboratory itself. Six experiments had been finished during the past year and several others were taking data; the expectation was that about eight to ten experiments would be completed per year. The total number of high energy physicists engaged in the experiments was at present 140; all came from the universities with the exception of twenty employed by the Institute and seven from the AERE. Forty-three of the university physicists were research students. Dr. Pickavance thought that the total number of high energy physicists working with Nimrod would rise to 200 during 1965 as the bubble chamber programme got into full swing. Already the French bubble chamber from Saclay was producing pictures for measurement, at the moment using a π meson beam. The very elaborate high-quality beam of separated K-mesons, which had been set up for this bubble chamber, was now ready to be used in the next group of experiments with this bubble chamber. Dr. Pickavance gave an example of a particularly timely and valuable experiment just carried out to study the rare decay of K_2^0 into two π-mesons. This experiment gave critical information on a point of great theoretical importance which was also being studied by experiments at Brookhaven and CERN. The Rutherford Laboratory had succeeded in getting valuable results particularly quickly.

6.2 Dr. Pickavance said that progress at the laboratory in the next five to ten years would entirely depend upon adequate finance. The grant for 1965/6, just announced, was 5% less in real terms than that for 1964/5 and 20% less than that for 1963/4, although in this latter comparison it must be borne in mind that some of the final payments on the capital construction of Nimrod were included in the figures for 1963/4. The only way in which a reasonable high energy physics programme was being planned for 1965/6, on such a restricted budget, was by deferring vital capital expenditure on investment in new equipment. Since the supply of such equipment took about eighteen months at least, it was essential to reach a state where a satisfactory budget could be relied upon for some years ahead. As to the level of this budget he said that unless the basis rose by say 10% above the present artificially low level, the whole programme was in danger of collapse.

6.3 In conclusion Dr. Pickavance expressed his great appreciation of the understanding and support which he had received from the Board over the past seven years. He also acknowledged the great help which he had received from the Authority; he had always been given ready access to the most senior members of the Authority staff and was very conscious of the way in which the Institute had profited from their experience.

Lastly, as the original member of the Institute's staff, Dr. Pickavance expressed the gratitude of the staff to the Chairman. He said that it had been a rare privilege and experience to be associated with him and an inestimable benefit to the Institute to have his leadership.

7. Progress at the Daresbury Laboratory

7.1 Professor Merrison said that in terms of numbers the progress of the Daresbury Laboratory had been slow at first. His own appointment on the 1st October, 1962, had been the first and the build-up began slowly because at that time it was the difficult key professional posts that were being filled. Later, however, the build-up had been more rapid, and the number was now 160. The total number of professional staff required in the laboratory would, he thought, still be what he had estimated two or three years ago, but the number of ancillary staff required would be somewhat larger so that thetotal for the laboratory at present planned might rise to 350 as compared with the 250 originally stated.

7.2 Professor Merrison said that all the major contracts for Nina were now let except that for the vacuum chamber. One third of themagnet components had already been manufactured. The four-year programme set in 1962 was broadly being kept to and the target completion date was still 1st October, 1966. The greatest worry in the whole programme so far had been the difficulty of securing the site. But he was very pleased with the site, both technically with regard to the foundations for the synchrotron and as a good situation for the laboratory. He urged that any member of the Board who had not visited the laboratory should not regard the dissolution of the Institute as any bar to making a visit.

7.3 Professor Merrison said that his plans for developing the laboratory as a nuclear physics centre were now under way. By the end of 1965, about five active groups would be preparing for experiments. This was about half the number of groups which he ultimately expected.

7.4 Professor Merrison remarked that, whereas the Rutherford Laboratory had in large measure grown out of AEA experience, the Daresbury Laboratory had largely grown out of the universities. He found it interesting that the same principles and similar organisation were found equally appropriate to the two laboratories and he regarded this as strong evidence that the principles were very soundly based.

7.5 In conclusion Professor Merrison said that the wide delegation of authority that the General Purposes Committee had given to him and in particular to the Nina Project Committee under his chairmanship, with an AEA finance representative as a member, had proved of inestimable value in the work of building the laboratory and Nina. He felt sure that this was the way to achieve the most responsible and well-considered decisions. He regarded it as vitally important that in any matters beyond his own responsibility the Director should be able to go to a committee which could themselves consider his requests and have the power to give him the authority he needed.

7.6 Finally Professor Merrison expressed his own appreciation of the Board's support and in particular of the Chairman's help and inspiration.

8. Conclusion

8.1 Bringing to an end what he expected to be the Board's last meeting, the Chairman said that he wished to thank the members for their counsel and support and particularly the AEA members and many senior members of the AEA staff, including Mr. Drake, for the enormous help which they had given to the Institute. He thought that the relationship between the two bodies was a model of how well things could work when a good system was supported by the right people. Sir Alan Hitchman said that he hoped the relationship would not entirely end. Some of the AEA services to the Institute's laboratories would clearly be continued and he hoped that it would not be felt that others must be ended except where this was really desirable.

8.2 The Chairman then thanked the Directorsfor their outstanding services to the Institute. He reminded the Board, in particular, of the extremely difficult times that Dr. Pickavance had experienced; first when it appeared to many that the Nimrod vacuum chamber might never be manufactured satisfac-

torily,and later when tremendous financial difficulties had arisen. He had been supported at these times by Dr. Pickavance's outstanding confidence and ability to lead the way successfully through the difficulties. The Chairman also expressed the Board's thanks to the Secretary and to the staff of the Institute.

8.3 Sir John Cockcroft, speaking on behalf of the Board, expressed their appreciation and thanks for the wisdom and skill with which the Chairman had guided their work. Sir Harrie Massey and the Chairman in return expressed the Board's appreciation of the part played by Sir John himself in the formation of the Institute and of the support to universities which this represented, and for being always ready to take the lead in dealing with difficult problems of scientific policy.