Mr. Snowden.

NI/V/60 First Meeting

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

VISITING COMMITTEE

Minutes of the meeting held on Friday, 11th November 1960, at the Rutherford High Energy Laboratory.

Present:
Professor Sir Harrie Massey (Chairman)
Professor C. C. Butler
Professor W. E. Burcham
Professor J. M. Cassels
Professor P. I. Dee
Professor O. R. Frisch
Dr. W. Galbraith
Professor P. B. Moon
Mr. L. B. Mullett
Professor R. E. Peierls
Dr. T. G. Pickavance
Mr. M. Snowden
Mr. W. Walkinshaw
Professor D. H. Wilkinson
Dr. G. H. Stafford, Dr. J. A. V. Willis } Joint Secretaries

1. Minutes of the last meeting.

The minutes of the meeting on 11th December, 1959 were confirmed.

2. Report on the PLA.

2.1 Dr. Stafford reported that he expected to have the P.L.A. operating at full energy on a 24-hour basis during the first half of 1961. At present he had too few reliable power triodes for regular full power operation and too few operators and servicing personnel for 24-hour operation. The polarised proton ion source was to be installed during the newt few weeks.

2.2 The first fix months running was analysed in paper NI/V/60/4. Dr. Stafford said that the teams now using the P.L.A., as listed in the paper, fully used the machine time at present available, and would fully use the time when the machine went on to 24-hour operation. However, there were already three further strong claims for experiments:-

(a) Dr. Shaw of the Clarendon for bubble-chamber work on (p, d) reactions.

(b) Dr. Ashmore of Queen Mary College for two students to work on the P.L.A. from next year.

(c) Dr. Jaffe of Manchester, to construct a large analysing magnet, which would be used in experiments on the P.L.A. in two years time.

Dr. Stafford asked for guidance on the principles to be used in selecting experiments, now that it was becoming necessary for the first time to consider refusing good experiments.

2.3 After discussion, the Committee:-
on the general question,

(a) considered that the present users of the P.L.A. would continue to use it fully after the commissioning of Nimrod;

(b) recommended that the number of experiments should be limited to something like the present number, since they believed that otherwise the output of good work would fall;

(c) recommended that a communication should be sent to university departments informing them that the P.L.A. was now about booked up, though not closing the door to exceptional new claims;

(d) decided to meet again in six months time to take up again the question of the method of selecting experiments.

on the three present claims,

(e) recommended that Dr. Shaw's experiment be accepted, to run parasitically with one of the present Oxford University experiments;

(f) recommended that Dr. Ashmore's students should be accommodated, but should be asked to join with one of the existing teams;

(g) recognised that Dr. Jaffe's claim dated back for about two years and was a strong one scientifically. On balance, they recommended that the design of the magnet should proceed and accepted the implication that experimental time on the P.L.A. would be required in two years time. Dr. Pickavance said that this would be reported to the Chairman as eventually the G.P.C. will be asked to give the necessary financial approval for the magnet - a sum of approximately £40,000.

2.4 Other points made in the discussion were:-

(a) The selection of experiments should not be decided by rigid rules.

(b) Further claims were certainly to be expected.

(c) One principle now adopted by Dr. Stafford, -the allocation of blocks of time to the major users with a large measure of freedom in using it had a great deal to recommend it, but might not be applicable to all users.

(d) Another valuable feature of the present system was the arrangement of seminars in which each user in turn explained his work and justified it in discussions with other users.

(e) New-comers should wherever possible be brought into collaboration with existing groups.

(f) Collaboration might not always be on the basis of techniques. An alternative would be collaboration on the basis of the type of information sought.

(g) Early planning was essential to avoid wasted work on experiments which would not get machine time. This applied with special force to the work of Ph.D. students whose available time was often limited to three years.

(h) It might help to have only two occasions per year when new experiments would be considered for inclusion.

(i) The selection of experiments was a matter for very detailed study by the present and prospective users, not for the visiting committee as such.

(j) Of the present experiments only one small one - by the Exeter group - could be well done elsewhere (at Birmingham).

3. Report on Nimrod

3.1 Machine

Dr. Pickavance gave details of the progress of construction, and said that the target date for completion had had to be put on to September 1962. If the date of early 1963 for operation with some well-engineered beams was to be met, there would only be three months for commissioning. He could not guarantee that this was sufficient.

3.2 Beams

Mr. Mullett said that since the last meeting arrangements for providing beams and installing bubble chambers had got under way on a properly organised basis. The three sections of the Nuclear Equipment Project Committee, of which he was chairman, and the Electronics Technical Committee, of which Dr. Stafford was chairman, co-ordinated the work and provided for full co-operation by university users. Detailed plans and time-schedules had been established, and substantial though not yet adequate numbers of physicists and design engineers were working on the schemes. Orders for major plant would begin to go out for tender by the end of 1960, and installation of two beams was scheduled to start in the second half of 1962. In discussion, Mr. Mullett said that he would prepare a paper on the first proposed beams.

3.3 Bubble Chambers

The Chairman said that the heavy liquid chamber should be ready by October 1962.

Professor Butler said that the hydrogen chamber should be ready by the summer of 1961. The time justifying use at CERN first should therefore be available, but there was no approval yet for the cost of taking it there.

4. Formation of a study group to plan the first experiment on Nimrod

4.1 Dr. Pickavance referred to Dr. Stafford's paper NI/V/60/1 and said that he would like any study group of the kind suggested to be set up under the auspices of the Visiting Committee.

4.2 There was some discussion of the wording of the paper, particularly of paragraph 2, and it was agreed that such a group should act only in an advisory capacity.

4.3 There was considerable discussion of a suggestion that there should be three study groups dealing respectively with bubble chamber experiments, emulsion experiments and counter experiments. It was noted that groups dealing with the first two already exist, for considering experiments at C.E.R.N. and it was agreed that they should be encouraged to include consideration of experiments on Nimrod in their studies. It was doubted that the formation of a separate group to consider counter experiments was necessary.

4.4 On the whole, the Committee favoured a single group to consider the experimental programme for Nimrod. Two points thought to have weight in this connection were -

(a) The advantages of a review on the basis of the physical information sought rather than on the basis of the techniques to be used.

(b) The need for a strong representation of theorists, who could not reasonably be asked to attend three separate groups.

4.5 It was agreed that the terms of reference of the study group would be re-written in the light of the discussion. It was suggested that Dr. Matthews should be asked to be the chairman, and Dr. Stafford the Convenor, and that Dr. Castillejo and Professor Gunn should be added to the membership. In order to keep down the numbers, Professor Cassels suggested that Professor Merrison's name could be omitted.

4.6 The Committee asked that the new group should prepare a first report in time for their next meeting in six months.

5. Schedule of University Agreements

The Committee took note of the schedule of agreements contained in paper NI/V/60/5. The Secretary said that he proposed to send a copy to the D.S.I.R. as had been done with the previous list NI/V/59/3. The Committee endorsed this proposal.

The Committee emphasised the need to keep the agreements under review. and to give as close attention to closing agreements at the proper times as to starting new ones.

6. Administration Report

The Committee took note of paper NI/V/60/3, on which the following comments were made:-

(a) The proportion of university visitors wanting flats rather than houses may be higher than is allowed for.

(b) The draft revised notes for visitors were generally approved.

(c) The weekly Rutherford Laboratory Bulletin should be sent regularly to members of the Committee.

7. Proposed development of film analysis equipment at Imperial College

Dr. Pickavance said that although the work proposed in paper NI/V/60/5 would be on a modest scale at present, he had brought it to the attention of the Committee because there was a possible doubt whether the work ought to be sponsored by the D.S.I.R. rather than the Institute.

The Committee agreed that this was a superficial similarity to the work on the national programme for basic film measuring equipment, but that this development was concerned with a possible large-scale development which would certainly be an Institute project. They therefore considered that the Institute should sponsor it from the start.

Turning to the consideration of the proposal itself, the Committee considered that no commitment for large expenditure should be made at the present stage of bubble chamber work. With that proviso, however, they welcomed this feasibility study.

8. Next Meeting

It was agreed that the next meeting should be held in May 1961, a preliminary meeting of the Chairman, Dr. Pickavance and Dr. Stafford being arranged a few weeks beforehand.

J. A. V. Willis )
G. H. Stafford ) Secretaries

Rutherford High Energy Laboratory,
Harwell.
24th November, 1960.