

10th March, 1964

NI/64/2.

NATIONAL INSTITUTE FOR RESEARCH IN NUCLEAR SCIENCE

GOVERNING BOARD

Progress at the Rutherford Laboratory

Note by T. G. Pickavance

1. Proton Linear Accelerator

The machine has been used in experiments for over 1,350 hours since the beginning of December 1963, with an average reliability of 88 per cent. Five experiments are in progress, including the last in the present series in the proton-proton polarization programme and our first "triple scattering" experiment on the proton-helium nucleus system.

The 1963 Progress Report has been published (NIRL/R/60) and records that during last year seven university physics departments were engaged in nine experiments on proton scattering, twelve on proton-induced nuclear reactions, and seven topics in theoretical physics associated with the experimental programme.

2. Nimrod

The rebuilt power transformer was installed last December, and the magnet power supply was soon operating at full power. There have been two minor failures of one of the alternators, but on each occasion Nimrod operation was quickly resumed at half power.

The beam intensity has been increased to  $2 \times 10^{11}$  protons per pulse for regular operation.

3. Nimrod apparatus

We are continuing our negotiations with the French bubble chamber group, and expect that the 80 cm. Saclay liquid hydrogen chamber will be brought to the Laboratory during the summer.

Experience with the British chamber at CERN has shown that more operating staff will be needed, and we have agreed to increase the strength of the team by twelve. They will have to be new recruits, and the Laboratory budget will have to provide the money.

4. High Energy Physics

Nimrod was first scheduled for high energy research at the beginning of February. In three weekends 124 operating hours were used by experimental teams, and the arrangements for beam and pulse sharing were successfully used for the first time. Four, and occasionally five, groups were able to operate simultaneously because they were all setting up their apparatus and did not need the full intensity.

Several more proposals for experiments have been received and will be considered at the next meeting of the Selection Panel which will be Professors Dalitz, Merrison, and Salam, Dr. Murphy and Dr. Stafford of the Rutherford Laboratory, and myself as Chairman.



5. Laboratory Organisation

At the end of last December, I carried through a major reorganisation of the Laboratory. The new organisation is designed along functional lines, to meet the needs of research at Nimrod, and is based on six Divisions:

Nimrod Division

Division Head: Dr. L. C. W. Hobbs

Operation, maintenance and development of Nimrod, its auxiliaries and beam lines, together with the engineering support of these activities and of the high energy physics programme.

High Energy Physics Division

Division Head: Dr. G. H. Stafford

The Laboratory research programme at Nimrod, and liaison with the university physicists using the machine.

Applied Physics Division

Division Head: Mr. W. W. Walkinshaw

Computing and data reduction, bubble chamber development and operation, the A.E.R.E. cyclotron project, high magnetic field studies.

P.L.A. Division

Division Head: post vacant

Operation, maintenance and development of the linear accelerator. The Laboratory nuclear research programme, and liaison with the university users.

Engineering Division

Division Head: Mr. P. Bowles, Chief Engineer.

Central engineering workshops and design office, Laboratory maintenance, buildings.

Administration Division

Division Head: Dr. J. M. Valentine

General administrative and personnel services, finance and accounts, scientific administration, stores, transport.

The electrostatic generator project for Oxford University, under Dr. W. D. Allen, is outside this divisional structure and is the personal responsibility of Mr. L. B. Mullett, the Assistant Director. The management committee of the Laboratory is now the Division Heads' Committee, with myself as Chairman, and with Mr. Mullett, the Division Heads, and Dr. Allen as members.