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Science Research Council

THE WORK OF THE  
RUTHERFORD LABORATORY IN 1970

Edited by

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Rutherford High Energy Laboratory  
Chilton Didcot Berkshire  
May 1971

Hobbs the Printers Ltd  
Second Avenue, Millbrook, Southampton

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Director's Foreword

The year under review has been a successful one for the Laboratory scientifically. Our high energy physics research programme has continued at a level similar to that achieved in 1969. Ways are still being found of increasing the intensity of the circulating proton beam in Nimrod; an intensity of over  $3 \times 10^{12}$  protons per pulse, accelerated to full energy, has been achieved. The total number of protons accelerated during the year also showed an improvement as did the overall operational efficiency.

The trend towards increased use of the CERN accelerators has also continued. Two counter experiments were completed there during 1970; a new one was started, several are being designed and plans are well advanced for making use of two major new devices about to come into operation there, namely the Intersecting Storage Rings and the Omega spectrometer.

Experiments continue to demand increased computing power, but as plans to replace our IBM 360/75 central computer with the larger IBM 360/195 have now been approved we shall be able to cope with the anticipated growth in computing for a number of years.

Towards the end of 1970 we were all greatly heartened by the Government's decision to support the 300 GeV project at CERN. British participation will mean economies in the Rutherford Laboratory, but the future viability of high energy physics in Europe is now assured and it is to be expected that our programme will become even more closely linked with that of CERN. A particular example of this is the work being done in the Laboratory on Superconducting Synchrotron magnets in conjunction with laboratories in Germany and France. A potential application of this work is the up-grading of the energy of this new CERN accelerator. The prospects are promising.

G. H. Stafford

# Rutherford Laboratory

## Internal Organisation

### HIGH ENERGY PHYSICS DIVISION

Experiments in fundamental particle physics using electronic and visual (bubble chamber and spark chamber) techniques, in collaboration with University groups, at Nimrod and CERN. Nuclear Electronics. Photographic Services.

DIVISION HEAD & DEPUTY DIRECTOR: G. MANNING

DEPUTY DIVISION HEAD: J. J. THRESHER

### NIMROD DIVISION

Operation and development of Nimrod. Experimental area management. Design and installation of beam-lines. Superconducting beam-line elements. Liquid hydrogen targets. Bubble chamber operations and development.

DIVISION HEAD: D. A. GRAY

DEPUTY DIVISION HEAD: G. N. VENN

### APPLIED PHYSICS DIVISION

Superconducting magnet studies. High Field Bubble Chamber project. Polarized targets. Radio-biological studies and radiation protection. High Flux Beam Reactor design study.

DIVISION HEAD: L. C. W. HOBBS

ACTING DIVISION HEAD: D. B. THOMAS

### COMPUTING & AUTOMATION DIVISION

Operation and development of the Central Computer System. On-line applications including hardware and software for bubble and spark chamber film analysis. Theoretical High Energy Physics.

DIVISION HEAD: W. WALKINSHAW

### ENGINEERING DIVISION

Design and manufacture of nuclear physics apparatus and applied research equipment. Engineering Science. Mechanical, Electrical and Building services. Chemical Technology. Safety services.

DIVISION HEAD & CHIEF ENGINEER: P. BOWLES

### ADMINISTRATION DIVISION

Personnel, Finance and Accounts, Stores, Library, Transport, General and Specialised Administrative Support.

DIVISION HEAD & LABORATORY SECRETARY: J. M. VALENTINE