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S of S says YES to SNS

"I am very glad to announce today that the Government have decided to approve the construction of the SNS. This must be one of the largest projects to be undertaken in the country for a long time and it promises to take the UK to the forefront of research involving the use of neutrons. I am sure you will agree with me that this is good news for the Rutherford Laboratory, for the Science Research Council and for British Science."

The announcement came at the end of the speech delivered, on behalf of the Rt Hon Shirley Williams, Secretary of State for Education and Science, by Mr W O Ulrich, Deputy Secretary responsible for Science at the DES at the Laser Inauguration lunch on Monday, 20 June 1977.

The following press notice has been released.

Government approval has just been given for the construction of a new facility to provide intense neutron beams at the Science Research Council's Rutherford Laboratory. It is planned to serve the needs of University scientists studying the liquid and solid states, including applications in physics, chemistry, biology and materials science. The facility will make use of existing buildings and plant which will be released when the 7 GeV proton accelerator, Nimrod, is closed down in 1978.

The new neutron source is based upon a high repetition rate (50 cycles per second), high intensity (2.5×10^{13} protons per pulse) proton synchrotron of 800 MeV energy. The proton beam is incident upon a heavy target to yield intense bursts of neutrons which are slowed to thermal energies by an assembly of reflectors and moderating material. Beams of neutrons emerge through collimating tubes in the thick shielding material surrounding the target assembly. First experiments are planned to begin by the end of 1982.

Thermal neutron scattering is a technique used in an increasingly wide range of disciplines. Nuclear reactors have been the usual source of neutron beams, and for some years now UK scientists numbering approximately 300 have made use of facilities at AERE Harwell, and at Europe's highest flux research reactor at the French-German-UK Institut Laue-Langevin in Grenoble.

However, these installations are severely overloaded, and there is little possibility of significantly extending the capability of reactors to satisfy the demands of new experiments. But the pulsed nature of the new source will enable higher effective intensities to be realised, and in addition to relieving present demands it is certain to open up new areas of research altogether.

Already mentioned are topics as diverse as the magnetic behaviour of materials, the structure of molten metals, and the nature of biological materials under stress, as in muscle contraction.

Design work for the new facility is already in progress, and construction and installation will start following the closure of Nimrod. The estimated capital cost of the basic facility is about £8M spread over approximately five years. In addition, up to £3M will be spent on providing appropriate research equipment. These figures are to be compared with an estimated £30M if the facility were to be built on a new site.

The new Rutherford Laboratory project is at present the most advanced of its kind and is already attracting international interest.

A full report on the day's events will be given in the next full issue of the Bulletin.

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