

VI. INDICATIONS OF PROGRESS OF BRITISH ATOMIC ENERGY PROGRAMME.

A. British Summary of Progress Made.

1. The British Atomic Energy programme is the responsibility of the Minister of Supply, who was empowered by the Atomic Energy Act of 1946 to direct and control the use and development of atomic energy.
2. The Atomic Energy Act gave the Minister of Supply powers to control the mining of radioactive ores and their export, the building of atomic energy plants and the publication of technical information. The Act also enabled the Ministry to impose secrecy on atomic energy patent applications.
3. The first step in the programme was the setting up of a Research Establishment at Harwell, Berkshire, on the site of a former R.A.F. airfield. The Establishment, whose Director is Sir John Cockcroft, has made rapid progress in the three and a half years of its existence. The first British nuclear reactor (atomic pile) -- the G.L.E.E.P. (Graphite low energy experimental pile) -- was completed in August 1947, less than eighteen months after work began on the site; and a month later, in September 1947, the first British radioisotopes produced in G.L.E.E.P. were delivered to a British hospital. G.L.E.E.P. is a low-powered reactor; a much larger pile (though still on the research scale) -- the B.E.P.O. (British Experimental pile) -- was completed in July 1948. Radioisotopes sufficient to meet all British needs and to allow of increasing exports are now produced from B.E.P.O.; and both piles are in constant use for nuclear physics research. Early this year the first plutonium was extracted at Harwell -- a small amount, but sufficient for investigations of the chemical and engineering problems which are met in the large-scale handling of plutonium.

These investigations are being carried out in the "Hot" laboratory at Harwell, the first wing of which was completed in June of this year. In this building, where elaborate ventilation and remote-control apparatus, and numerous monitoring devices protect workers from radioactive and toxic hazards, chemical research in the handling of plutonium and fission products is being carried on.

Particle accelerators, such as the cyclotron, Van de Graaf machine and linear accelerator, are either completed or under construction at Harwell. There are Divisions concerned with metallurgy, and with chemical engineering; there is a branch of the Medical Research Council studying the medical and biological aspects of atomic energy; and in addition Harwell calls on the scientific resources of British industry by means of research contracts. Nearly 3000 people are now employed at Harwell, of whom about 600 are scientists.

4. Closely connected with the Research Establishment is the work of the Ministry's Radiochemical Centre at Amersham, where natural and artificial radioactive substances are handled. At Amersham laboratories have been built with the same elaborate facilities as in the Harwell "hot" laboratory; and in them radium and radon appliances are made for medical and industrial use, and radioisotopes from the Harwell pile are processed and distributed.