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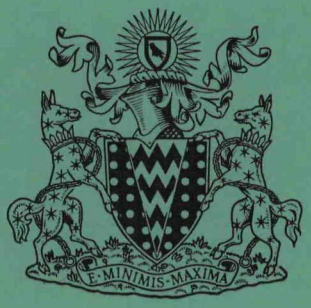

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RESEARCH GROUP

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REACTORS AT THE ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL

A List of Unclassified documents and published articles.

Compiled by

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REACTORS AT THE ATOMIC ENERGY RESEARCH ESTABLISHMENT, HARWELL

A LIST OF UNCLASSIFIED DOCUMENTS AND PUBLISHED ARTICLES

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U.K.A.E.A. Research Group,
Atomic Energy Research Establishment,
HARWELL.

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INTRODUCTION

This list of references was compiled by the Information sections at A.E.R.E., Harwell and A.E.E., Winfrith to answer the frequent request for "unclassified references to such and such a reactor at Harwell".

The list is divided into sections under the headings:

1. General information on Harwell reactors.
2. Bepo.
3. Dido.
4. Dimple.
5. Gleep.
6. Hazel.
7. Lido.
8. Neptune.
9. Pluto.
10. Zephyr.
11. Zetr 1.
12. Zetr II.
13. Zeus.

Each section is subdivided into (a) Books and Journal artioles arranged in alphabetical order by first authors.
(b) Report and patent literature when included.
An author index begins on page 32.
The main characteristics of the Harwell reactors are summarised in Table I on pages 30 and 31.

The International Atomic Energy have published a Directory of Nuclear Reactors of which volume 2 and volume 3, entitled Research, Test and Experimental Reactors, give detailed data on BEPO, DIDO, DIMPLE, HAZEL, LIDO, PLUTO, ZEPHYR, ZETR, and ZEUS.

Unclassified reports, including those for sale, are sent to the following depository libraries in the United Kingdom, from which they may be borrowed, or photocopies obtained at the usual charges:

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By K. C. Hines and J. Egerton.

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TABLE I

MAIN CHARACTERISTICS OF THE HARWELL REACTORS

Name	Date of Startup	Peak Neutron Flux	Maximum Heat Output	Moderator	Coolant	Fuel	Purpose
1. BEPO	1948	2×10^{12} thermal n/cm^2 sec.	6 MW	Graphite	Air	Natural uranium	Isotope production and general radiation source.
2. DIDO	1956	2.2×10^{14}	12.5 MW	Heavy water	Heavy water	Uranium 235	Nuclear reactor material studies, isotope production, neutron physics, radiation chemistry.
3. DIMPLE	1954	About 10^8	100 watts	Heavy water	None	Varies	Thermal reactor and pile oscillator studies.
4. GLEEP	1947	3×10^{10}	100 kW	Graphite	Air	Natural uranium metal and oxide	Routine graphite and uranium quality testing; research with oscillator; biological irradiations.
5. HAZEL	1958	About 10^6	Less than one watt	Heavy water	None	Uranyl fluoride (U 235)	To obtain basic nuclear information on heavy water moderated, homogeneous systems.
6. LIDO	1956	10^{12}	100 kW	Light water	Light water	Uranium 235	Thermal reactor studies including shielding.
7. NEPTUNE	1957	About 10^8	Less than 100 watts	Light water	None	Enriched uranium	Studies by an Admiralty team at Harwell, in association with Authority staff, on water-moderated core designs.
8. NERO	1957	About 10^8	Less than 100 watts	Graphite	None	Enriched uranium	Investigations for advanced graphite moderated reactors.
9. PLUTO	1957	1.4×10^{14}	10 MW	Heavy water	Heavy water	Uranium 235	Nuclear reactor material studies, isotope production, neutron physics, radiation chemistry.

Name	Date of Startup	Peak Neutron Flux	Maximum Heat Output	Moderator	Coolant	Fuel	Purpose
10. ZEPHYR	1954	8×10^{8} (fast)	A few watts	None	None	Plutonium	Fast reactor studies.
11. ZETR	1955	4×10^{5}	Negligible	Heavy or light water	None	Uranium 233, 235 or plutonium	To study physics of homogeneous aqueous systems.
12. ZEUS	1955	5×10^{9} (fast)	100 watts	None	None	Uranium 235	To study a particular core design for Dounreay fast reactor.

AUTHOR INDEX