

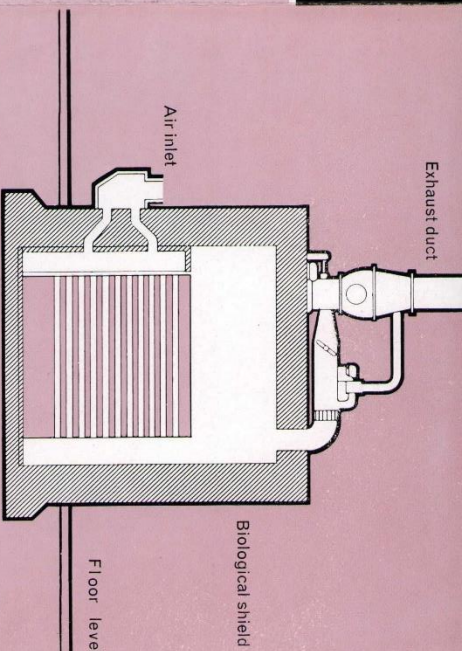
general data

Commissioned on the 15th August 1947 this was the first nuclear reactor to be built in Europe. Designed to operate at a maximum of 100KW, the reactor ran at 80 KW for 18 months for the purpose of producing radioactive isotopes until B.E.P.O. was commissioned.

The reactor then reverted to its planned use which was the nuclear testing of materials to be used in other reactors. Its present maximum operating power of 3 KW is intended to minimise the radioactivity of samples tested.

The reactor comprises a cube of graphite of side 21 feet. This cube is built up from blocks having v-grooves machined into them. When the blocks are assembled the grooves form channels through the cube and allow the passage of cooling air. 682 of these channels are loaded with natural uranium fuel. The graphite moderator and reflector is housed within a 5 feet thick, barytes concrete shield. Within four hours of shut down it is quite safe to remove the access manhole covers and enter the shield for routine maintenance.

During 1960 a complete fuel replacement and re-instrumentation was carried out. The reactor is now operating for 150-160 hrs/week and is used for measuring the neutron absorption cross-section of:—Graphite, Aluminium, Magnox, Zirconium and other materials, and for the calibration of foils and counters in a standard neutron flux.



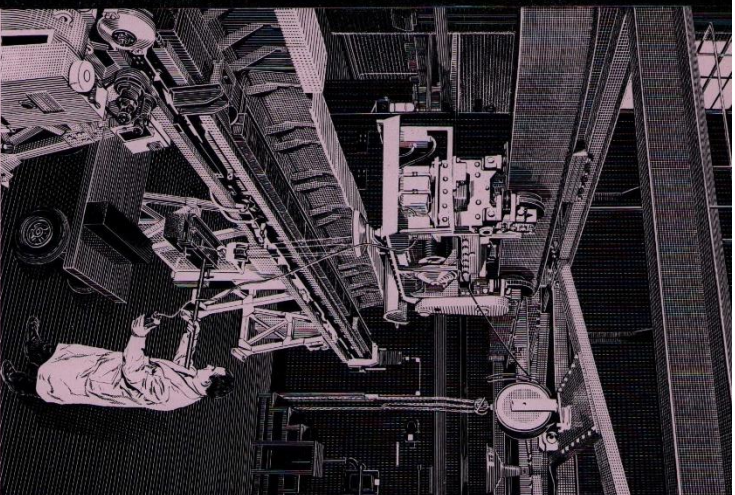
Air circulation diagram

Data

Moderator	Graphite
Fuel elements	Natural Uranium
Fuel element canning material	Aluminium
Fuel temperature	Atmospheric $\pm 3^{\circ}\text{C}$
Fuel lifetime	Indefinite
Power level	3 KW
Neutron flux	$10^9 \text{ n/cm}^2/\text{sec}$
Lattice pitch	7.25"
Coolant	Air
Biological shield	Barytes concrete
Utilisation	Physics measurements and calibrations, low flux irradiations

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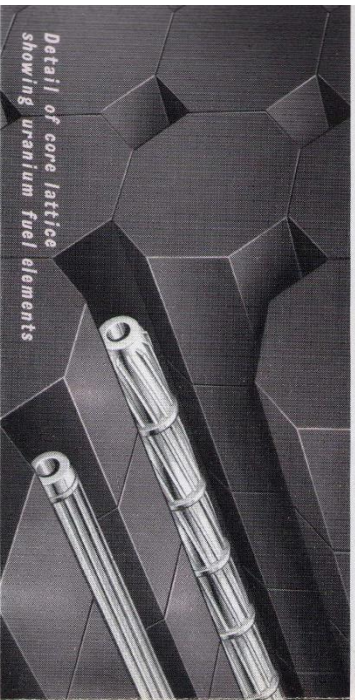
G I E E P

Graphite Low Energy Experimental Pile

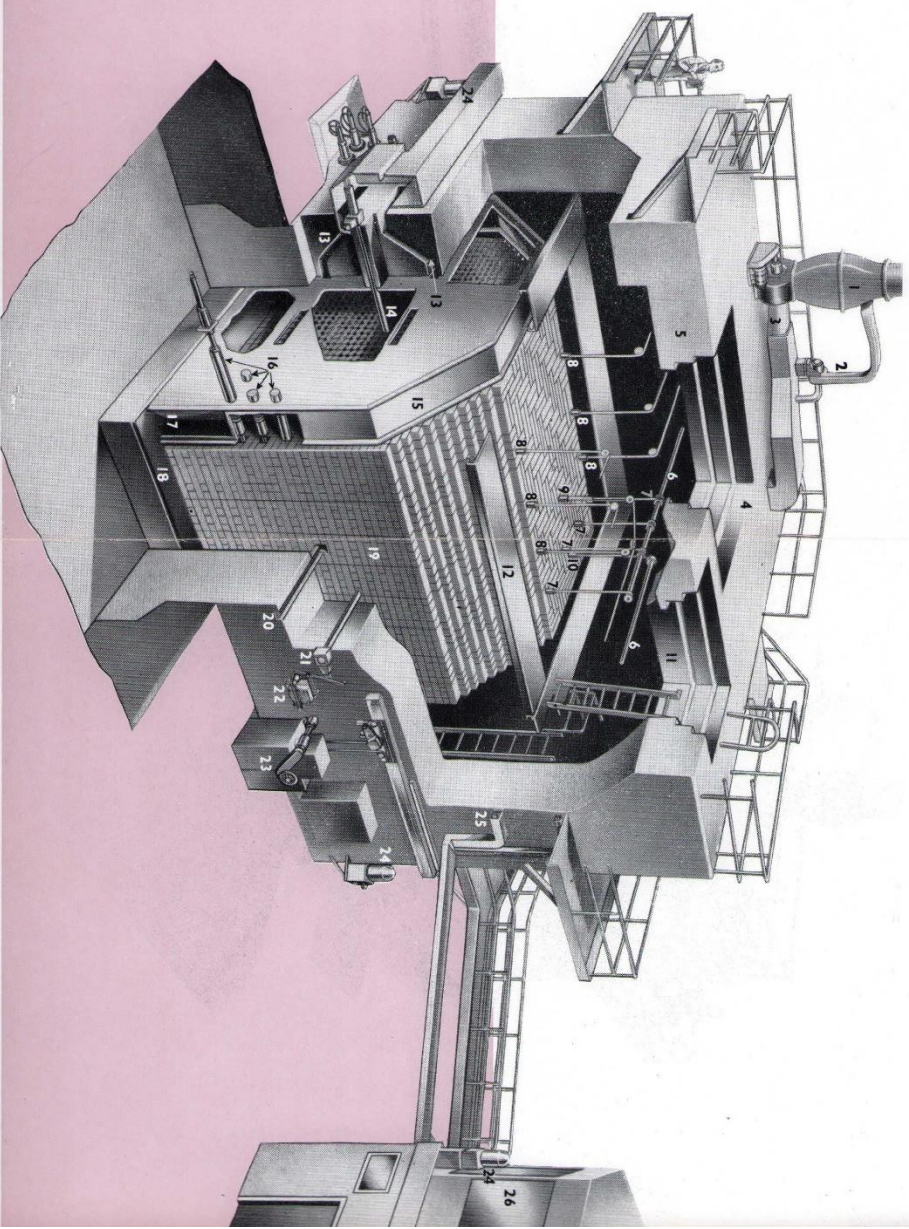
Commissioned on the 15th August, 1947, this was the first nuclear reactor to be built in Europe. The cover picture shows a graphite sample being loaded into position for a nuclear cross section measurement.

GLEEP

*Detail of core lattice
showing uranium fuel elements*



1. Exhaust duct
2. By-pass air extraction system
3. Main air extraction system
4. Stepped seatings for removable concrete blocks
5. Concrete biological shield
6. Winding shafts
7. Coarse control rods
8. Shut off rods
9. Safety rod
10. Fine control rod
11. Access manhole
12. Catwalks
13. Air inlets
14. Experimental hole I (Oscillator)
15. Air flow baffle
16. Control ionisation chambers
17. Access door in air baffle
18. Steel baseplate
19. Graphite uranium lattice
20. Experimental hole L (Danger coefficient train)
21. Experimental hole J
22. Experimental hole K
23. Oscillator operating—Pendulum—Egpt.
24. Ion chambers (Health monitors)
25. Service duct
26. Control room



graphite low energy experimental pile