



Submarine Propulsion in the Royal Navy

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Abstract

The paper outlines the history of submarine propulsion from the early days, through the hydrogen peroxide plants on *Explorer* and *Excalibur* to the setting up of the nuclear submarine programme. The building of the submarine prototype at Dounreay, the purchase of the *Dreadnought* plant from the US and the design and construction of the *Valiant* class submarines formed the base for developments in the 1960s leading to the highly successful *Resolution* and *Swiftsure* class submarines. Lessons learned from the design, building and operation of nuclear submarine propulsion plants are discussed and the future requirements for unproved operational characteristics and for higher nuclear safety standards are examined against the constraints of keeping unit costs under control. The success of the nuclear submarine programme is shown by the position today where the Royal Navy has sixteen nuclear submarines in service, a new submarine class under construction and work on the next generation of nuclear propulsion plants well advanced.

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