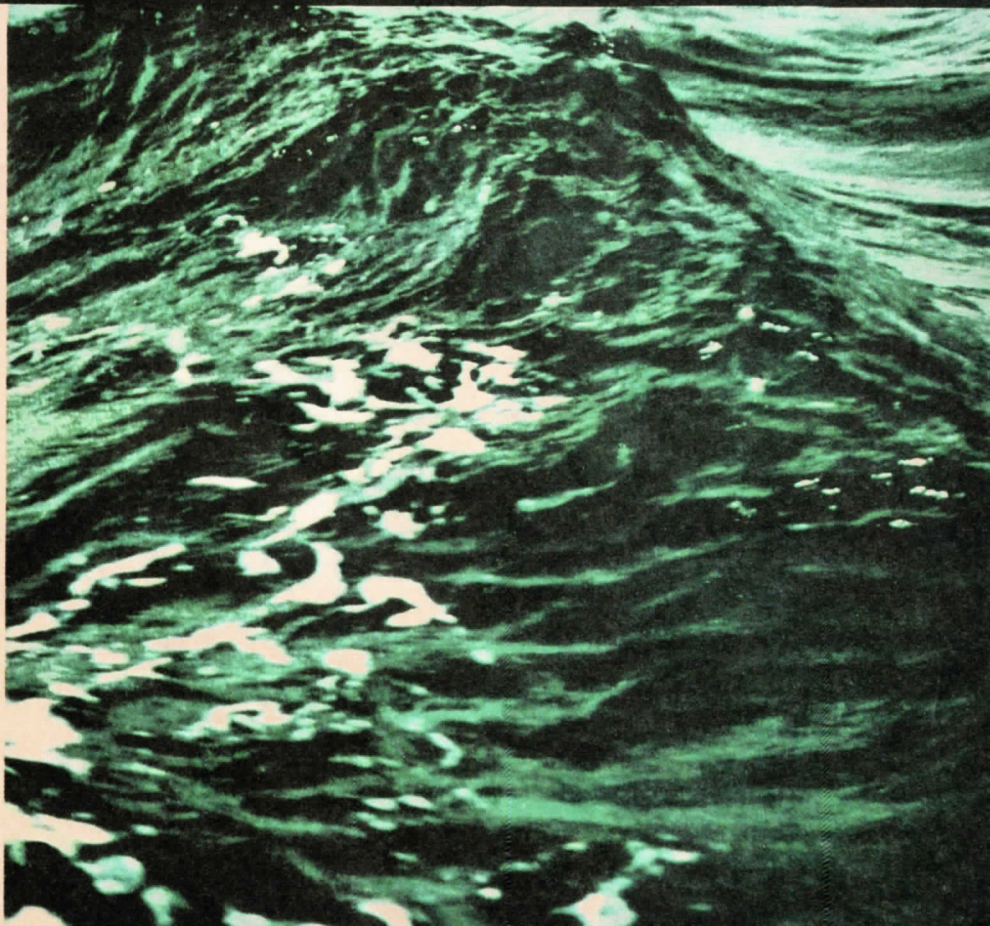
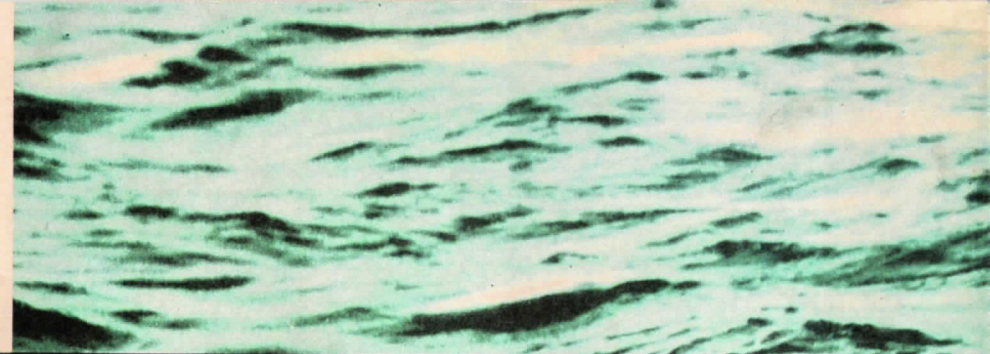


# HMS DREADNOUGHT



TRAFALGAR DAY 1960



Today—Trafalgar Day 1960—at the Barrow Shipyard of  
Vickers-Armstrongs (Shipbuilders) Ltd—Ship Number 1062 is  
named *Dreadnought* by Her Majesty the Queen and the first  
nuclear-powered submarine for the Royal Navy is launched.  
The 'keel'—a prefabricated circular section of plating—  
was laid by HRH The Duke of Edinburgh on 12th June 1959.

# The new phase begins

*HMS Dreadnought* is the beginning of a new phase in the long and proud history of the Royal Navy. She is powered by a pressurised water reactor which will enable her to remain submerged at high speed for very long periods, limited in practice only by the endurance of her crew. This represents a tremendous advance in the capabilities of submarines.

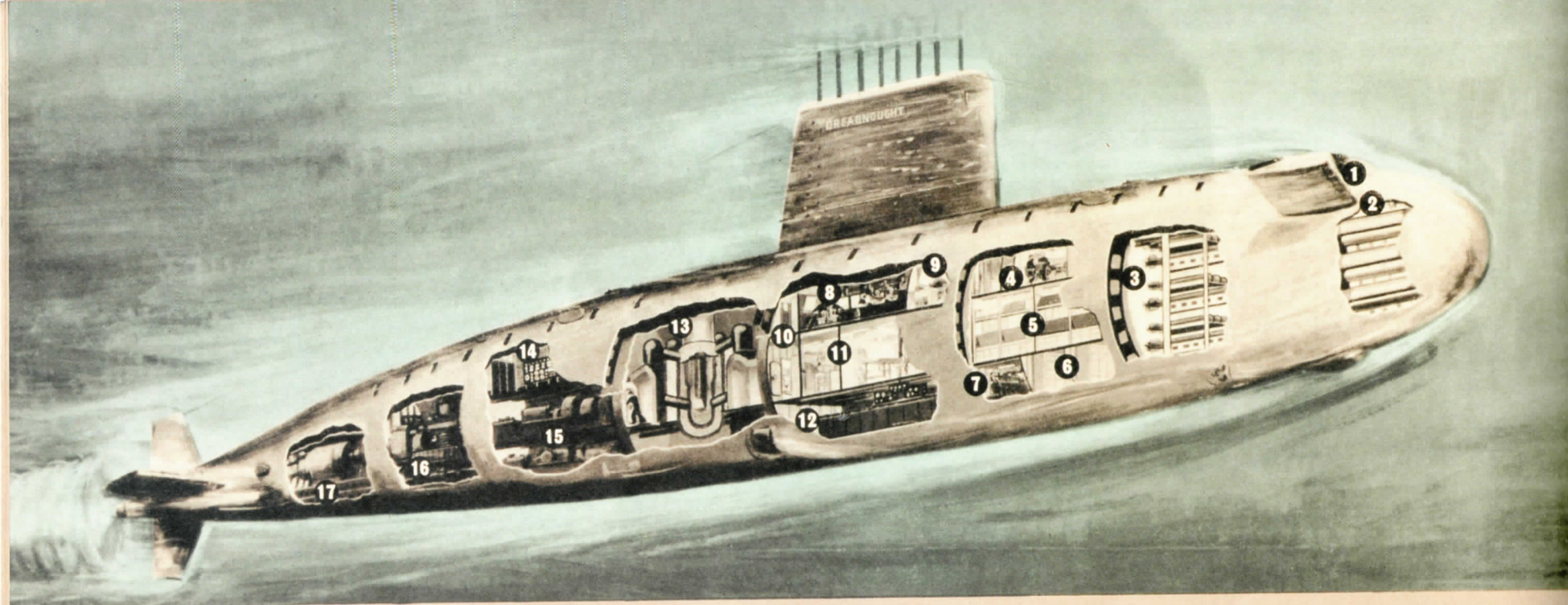
The conventional submarine is powered by diesel engines and by batteries. The diesels, which require a very large amount of oxygen for their operation, are used on the surface or when 'snorting' near the surface, and draw their air in from the atmosphere through the snort mast. When completely submerged, the diesels cannot be run because the supply of oxygen within the submarine is quite inadequate and the batteries are used to provide power. The submerged speed and radius of action of the boat are therefore limited by the capacity of the batteries. The operational capabilities of the conventional submarine are thus restricted; it is really a 'submersible' rather than a true submarine, because it proceeds mainly on or near the surface, using the diesels, submerging fully on battery power when it is operationally necessary.

#### **A true submarine**

In the nuclear-powered submarine the reactor does not require a supply of air and can operate as a self-contained unit for many months before refuelling is necessary. This completely changes the design concepts for the submarine. The nuclear machinery can develop high power with, for all practical purposes, unlimited endurance when submerged.

The nuclear submarine is thus the first true submarine and can operate fully submerged on patrol, only surfacing when necessary. Furthermore, 3

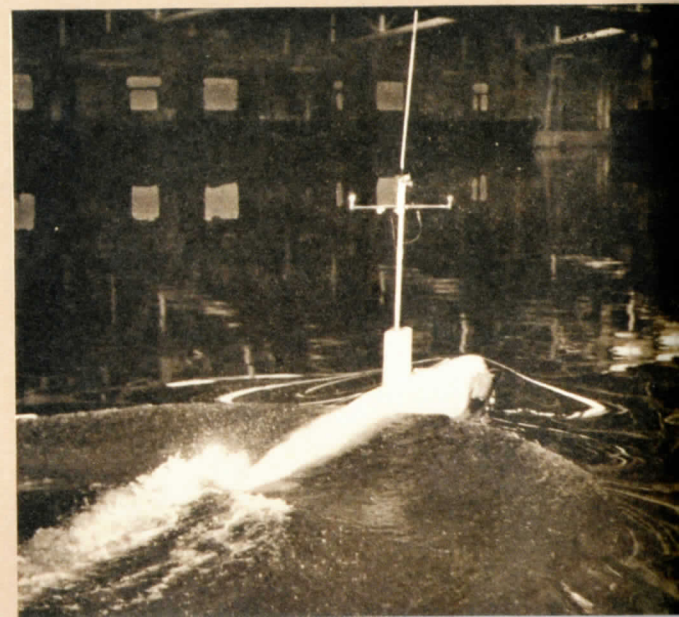


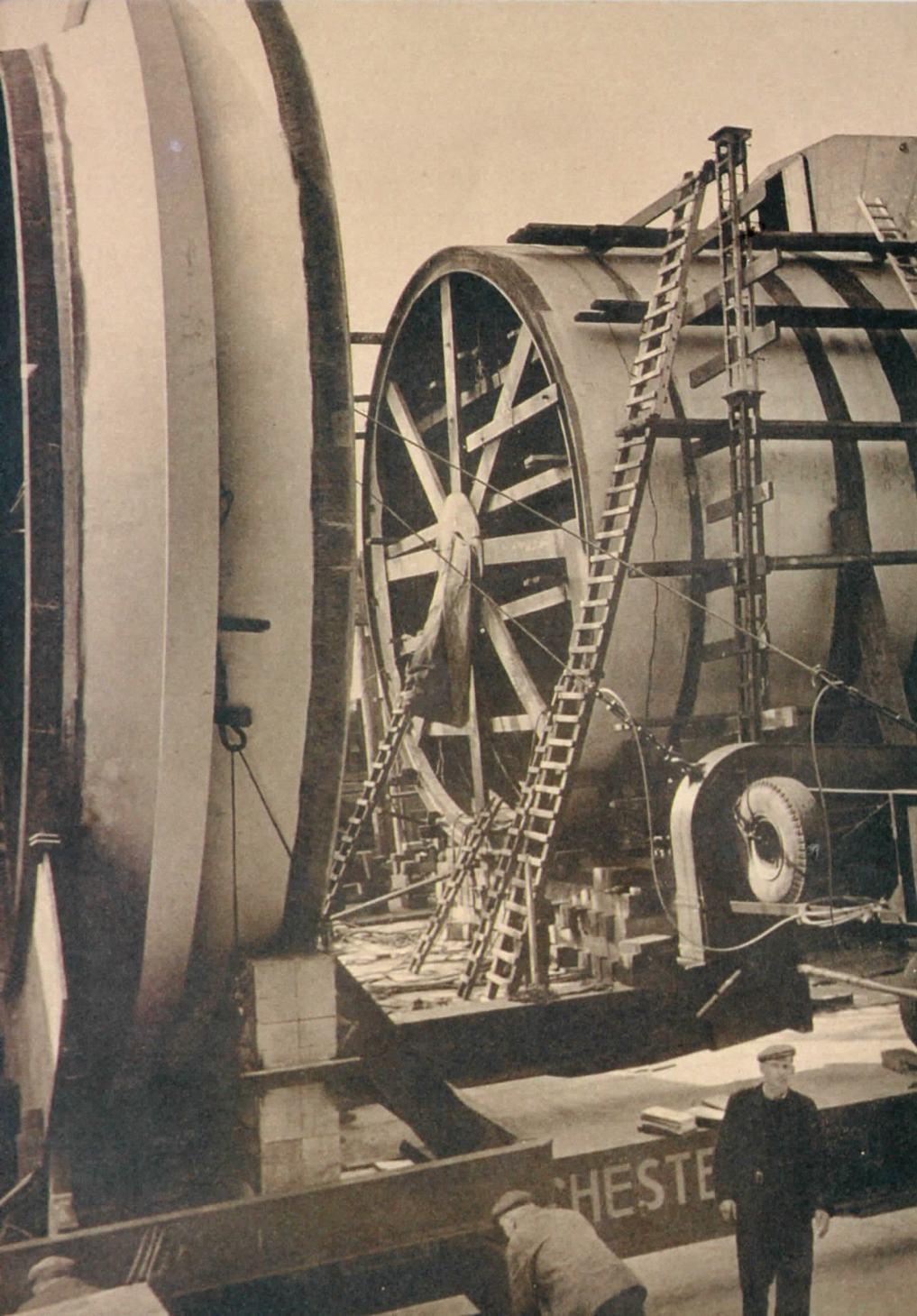


This Admiralty artist's impression of 'Dreadnought' shows the position of the main compartments

- |                           |                                  |
|---------------------------|----------------------------------|
| 1 Hydroplanes             | 10 Washplaces                    |
| 2 Torpedo tubes           | 11 Galley                        |
| 3 Torpedo compartment     | 12 Battery compartment           |
| 4 Officers' accommodation | 13 Reactor                       |
| 5 Crew accommodation      | 14 Machinery control compartment |
| 6 Stores compartments     | 15 Main machinery compartments   |
| 7 Pump compartment        | 16 Turbine gearing               |
| 8 Control compartment     | 17 Motor                         |
| 9 Captain's accommodation |                                  |

A scale model of  
HMS 'Dreadnought'  
undergoes tests  
at the Admiralty  
Experiment Works,  
Haslar

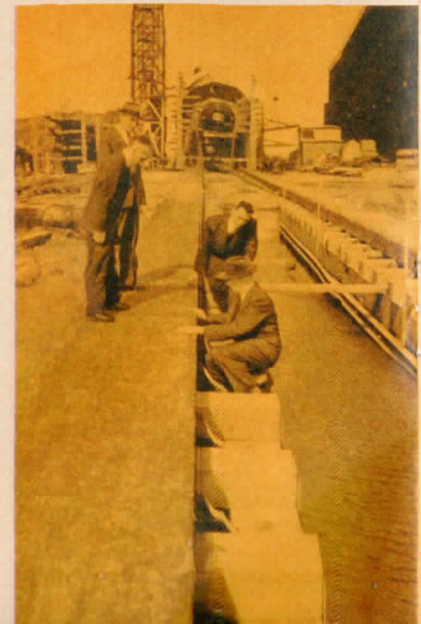


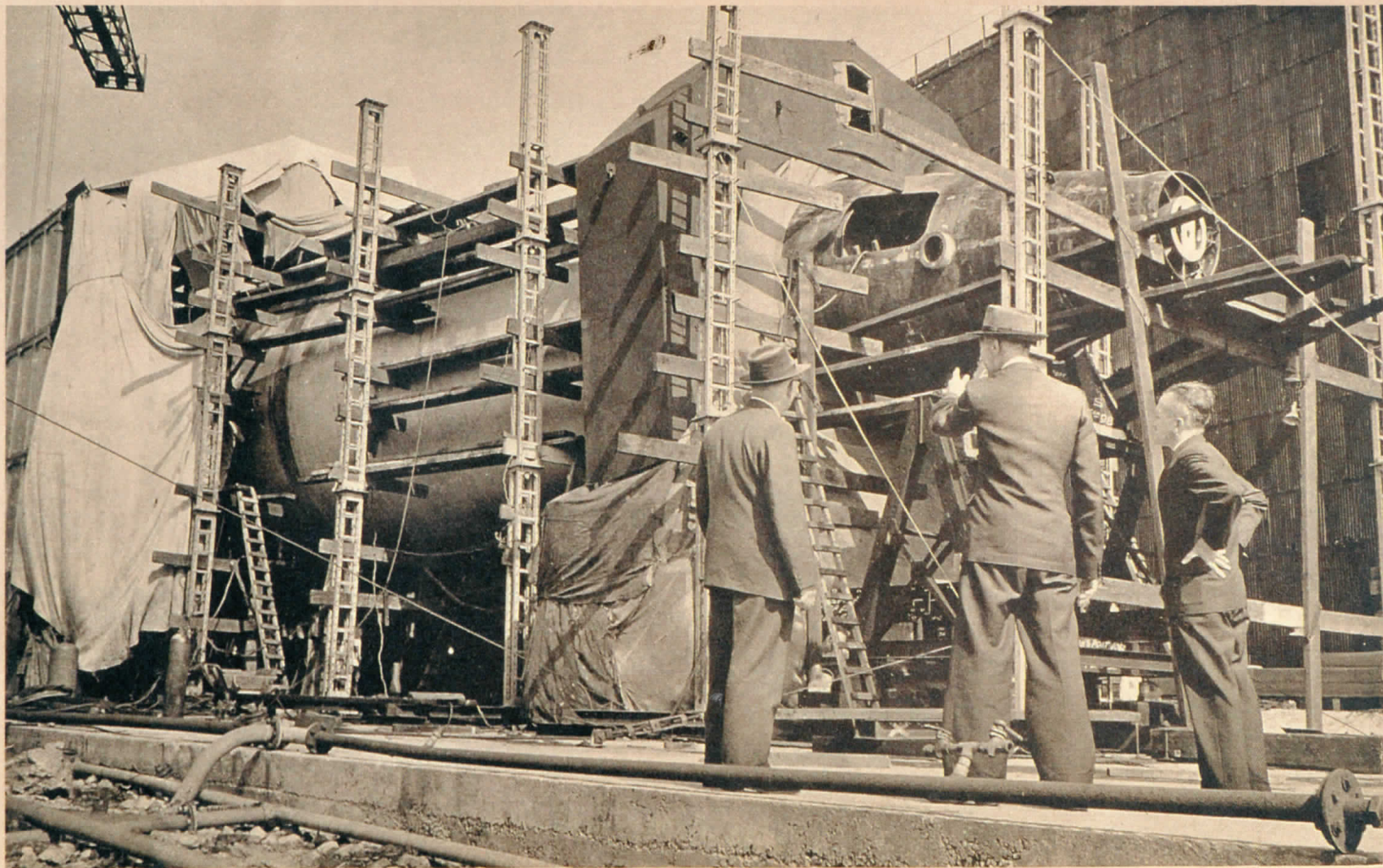


Corporation and by Electric Boat Division of General Dynamics Corporation, and the excellent co-operation and assistance which has been, and is being, given by our friends in America deserves the highest praise. Here at Barrow we are particularly glad of the opportunity to renew with Electric Boat an association which goes back to the very early days of submarines.

The United States Navy, as is well known, has pioneered nuclear ship propulsion, and the first nuclear vessel, USS *Nautilus*, went into service in 1955. By the end of this year the United States Navy will have commissioned some twenty or more nuclear submarines. In Britain the first development work on nuclear reactors was directed towards the power station application, in order to meet the long-term requirements for electrical power for industrial and domestic use, which are expected to exceed the power available from coal and oil fuels in the foreseeable future. The power station reactors are not suitable for submarine application and therefore, when it was subsequently decided to build a British nuclear submarine, considerable development work was necessary, culminating in

Section by prefabricated section  
'Dreadnought's' hull grows in size and (right) inspecting the groundways (before planing and greasing) over which 'Dreadnought' will slide into the Walney Channel





An after-end unit is fitted and 'Dreadnought' begins to take on her final sleek shape



# Barrow's 295th submarine

HMS *Dreadnought* is the 295th submarine to be launched at Barrow.

Of the total to date, 263 have been launched for the Royal Navy and four for the Royal Australian Navy; twelve boats of the T and U classes were transferred to the navies of our European allies during the last war, and four boats of Vickers design were also completed during the last war for the Turkish Navy. The remaining eleven boats were built for foreign governments prior to 1938. Another fifty-nine submarines have been built by companies in the Vickers Group on the Tyne and in Canada.

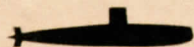
The choice of Trafalgar Day for the launch of *Dreadnought* provides a particularly appropriate link with the past, but it is to the future that we must now turn, and it is perhaps fitting to close with a quotation from the paper written by Sir Alfred J. Sims KCB OBERCNC, Director General,

Ships, to mark the centenary this year of the Royal Institution of Naval Architects:

'The most remarkable post-war development—indeed the most outstanding advance in the history of design and construction of this type of vessel—is the nuclear-propelled submarine. The performance of the United States Navy in this field has been spectacular. The advent of this type of vessel has produced the long hoped for true submarine and has heralded a new era in submarine tactics and capabilities. The period under review closes with the Royal Navy—in close co-operation with the United States Navy—building the new nuclear-propelled submarine *Dreadnought*, which will surely have as great an impact on naval thought as the *Dreadnought* of 1905.'

## VICKERS SUBMARINES FOR THE ROYAL NAVIES

Of 510 submarines to enter the Royal Navies, 326 have been Vickers-built. The contribution from each of the Yards is:  
279 BARROW; 19 ELSWICK; 16 NAVAL YARD; 2 PALMERS HEBBURN; 10 CANADIAN VICKERS.  
There have, of course, also been submarines built for allied navies at all these Yards except Palmers Hebburn.



Written by G. A. Smith BSc AMRINA

Designed and produced for Vickers-Armstrongs (Shipbuilders) Ltd by Holden's Press Bureau, London. Printed by Fosh & Cross Ltd, London