Raymond V. B. Blackman
A.M.I.N.A., A.I.Mar.E.

The World's Warships

Macdonald : London

Published in 1955 by
Macdonald & Co (Publishers), Ltd.
16 Maddox Street, W.1
Made and Printed in Great Britain by
Purnell and Son, Ltd.
Paulton (Somerset) and London

INTRODUCTION

THIS little volume, it is hoped, will satisfy the keen interest of not only the enthusiastic amateur in warship lore, and the student of naval affairs, but also those with more than a nodding acquaintance of fleets in general and categories in particular, and it is felt that the book might fill the needs of those more closely connected with the sea affair who, though possessed of more critical or more technical knowledge, cannot for one reason or another delve into the much fuller and more expensive standard naval reference work, *Jane's Fighting Ships*.

This book does not pretend to constitute an exhaustive survey of every naval vessel in the world right down to small escort vessels, diminutive minesweepers, patrol boats, landing ships, auxiliaries, service craft and ancillary vessels—such a task would be beyond the compass of these pages with their full descriptive, statistical and tabulated treatment—but it does include all the modern and major warships extant of the principal maritime powers.

The arrangement of ships is not alphabetical by country, but categorical, in descending and logical order for easy reference and comparison—aircraft carriers, battleships, battle cruisers, command ships, cruisers, leaders, destroyers, frigates and destroyer escorts, and submarines.

All the aircraft carriers, battleships, battle cruisers, command ships and cruisers in the world are fully described with technical and building data, but old, small or obscure destroyers, frigates and submarines of lesser countries have been omitted, partly for reasons of space and partly because it was felt that readers would prefer a comprehensive summary of the qualities of modern fighting ships than a sketchy mention of all naval vessels, however unimportant or unseaworthy, of all countries.

Although battleships were employed in the late Korean war, and cruisers continue to exert their influence everywhere, as entities massive battle fleets with great cruiser squadrons scouting ahead and flanked by protective screens of destroyers circulating in their predetermined orbits or localised spheres of influence now belong to the past. In the modern fashion, allowing much more flexible

strategy and tactics, task forces are formed and sent out to operate in any part of the world. These task forces may consist of any strength and combination of the aircraft carriers, battleships, cruisers, destroyers, anti-submarine frigates, and submarines described in this book.

Two hundred years ago, during the Seven Years' War, the functions of the Fleet were threefold: to support or obstruct diplomatic effort; to protect or destroy commerce; to further or hinder military operations ashore. Explaining the 1955–56 Navy Estimates, the First Lord of the Admiralty stated that in a future war fought with the newest weapons of mass destruction the rôle for navies remains clear; their functions would be: to search out and destroy enemy ships wherever they are, and by all means within their power to prevent the enemy from using the seas for his own purposes; to protect the communications necessary to support our warlike operations and to safeguard the supply lines of the Allied countries; to provide direct air support for operations ashore and afloat in those areas where it cannot readily be given by shore-based aircraft. No one navy can undertake all these duties alone, but a closely knit naval alliance of Great Britain, Commonwealth, United States and N.A.T.O. Powers can achieve these objectives. In war two outstanding qualities of sea power are vividly evident, namely mobility and relative independence of land bases. In peace naval power plays a prominent part in supporting national policy overseas and in ensuring that world-wide trade continues unmolested. The latest inventions affect naval warfare by altering the character of forces needed, but do not diminish the need for navies. In emergency aircraft carriers and other warships can be brought to bear quickly and effectively in any part of the world.

I would like to express my warm appreciation of the very considerable assistance rendered by Mr. A. Hague, my enthusiastic and industrious colleague and associate, in the textual preparation and tabulation of the foreign sections of this work.

RAYMOND V. B. BLACKMAN.

Portsmouth, September 1955.

CONTENTS

AIRCRAFT CARRIERS

THE *Ark Royal*, designed as an oil tanker, but purchased while under construction in 1914 and converted into a seaplane carrier, was the forerunner. The germ of the modern fleet aircraft carrier was contained in the first vessel adapted for that purpose, the *Campania*, a Cunard liner displacing 20,570 tons with a speed of 22 knots in 1915–16. The aircraft carrier proper was actually in embryo before the First World War. The *Argus* was the first aircraft carrier ever designed, although she was not laid down as such. The design was originally prepared in 1912, but construction was not approved until 1916 when, to save time, the hull of the Italian liner *Conte Rosso*, begun in 1914, was acquired for conversion, and she was completed as an aircraft carrier in 1918. She was the first ship fitted with a flush, full-length flight deck, furnace smoke being expelled through large horizontal ducts opening out either side aft. She had a displacement of 14,000 tons, a capacity of 20 aircraft and a speed of 20 knots. The *Furious*, designed as a large light cruiser or battle cruiser displacing 19,100 tons to mount two 18-inch guns, was completed in 1917 with a flying-off deck forward. Later a flying-on deck was added abaft the funnel. Extensively reconstructed between the wars, a new hangar was built forward, a continuous flush flight deck provided, and mast and funnel removed, smoke being discharged from vents aft. In 1939 the (now usual) starboard island superstructure was added. Finally she displaced 22,450 tons with a complement of 33 aircraft and a speed of 31 knots. The *Eagle*, laid down in 1913 as the Chilean battleship *Almirante Cochrane*, was purchased on the stocks in 1917 for conversion into an aircraft carrier. First completed in 1920 with a single funnel and pole mast, she finally emerged from extensive reconstruction in 1924 with two funnels and two masts and a full-length flight deck. She was the first aircraft carrier to have the now familiar island on the starboard beam. She displaced 22,600 tons, carried 21 aircraft, and steamed at 24 knots. The first aircraft carrier specially designed and actually laid down as such was the *Hermes*, completed in 1924. With a displacement of 10,850 tons, a capacity of 15 aircraft and a speed of 25 knots, she represented an

attempt to produce a floating aerodrome of moderate size. The *Glorious* and *Courageous*, completed in 1917 as light battle cruisers of 18,600 tons displacement carrying four 15-inch guns, were converted into aircraft carriers during 1924–30. With a flight deck 480 feet long they had the now standard island to starboard, a greater capacity of 48 aircraft, a speed of 31 knots, and were well armed. Here at last were fast and capacious fleet aircraft carriers. They eventually displaced 22,500 tons, and succeeding aircraft carriers closely conformed to their characteristics. The famous *Ark Royal*, completed in 1938, incorporated in her design all the improvements suggested by experience with her predecessors. She was the first large and fast fleet aircraft carrier laid down as such, and she constituted such an advance on any previous aircraft carrier that she was the prototype of our existing aircraft carriers. She had a displacement of 22,000 tons, a capacity of 60 aircraft and a speed of 31 knots. Details of succeeding aircraft carriers are given in the following pages, but it is interesting to note that the saga which started with the *Ark Royal* of 1914 has culminated with the *Ark Royal* which emerged from her builders' yard in 1955. Great Britain has 17 aircraft carriers, while the United States has 103.

ARK ROYAL (ex-Irresistible) **EAGLE (ex-Audacious)**

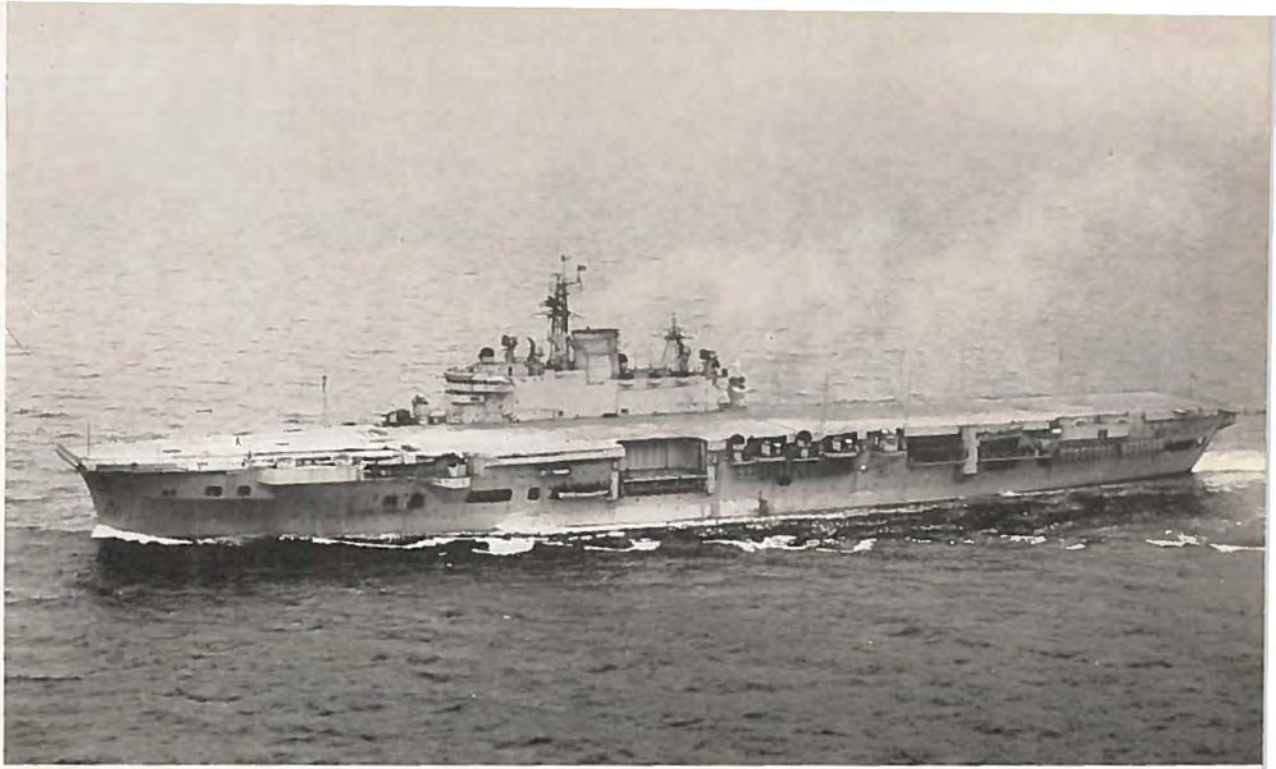
Largest aircraft carriers ever built for the Royal Navy, these two ships are the survivors of a class of four of which the *Africa* and *Eagle* were cancelled. Although commenced as sister ships in 1942 and 1943, the widely differing dates of completion have made many divergences in their design. As completed *Ark Royal* will be the first vessel to have a deck-edge lift on the American pattern, the first steam catapaults built in as opposed to fitted later, and an interim angled deck. She is distinguishable from the *Eagle* by her lattice mast, though as the current trend is for all carriers to be so fitted this may not be so for long, and the side lift must remain the major recognition feature. Both are to be distinguished from their predecessors by the large island and funnel, square stern, and the peculiar "lid" to the funnel. Identification letters painted on flight deck and aircraft are *Ark Royal* O, *Eagle* J.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
36,800 tons	46,000 tons	808¼ feet o.a. 803¾ feet (*Eagle*)	112¾ feet	36 feet

Main armament	*Anti-aircraft armament*	*Aircraft*	*Armour*
16–4·5 inch	40 to 58–40 mm.	80 to 110	Flight deck and side

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	152,000	8 Admiralty	31·5 knots	1,425 (ship, peace) to 2,750 (plus air squadron, war)

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Ark Royal	3 May 1943	3 May 1950	25 Feb. 1955	Cammell Laird	Builders
Eagle	24 Oct. 1942	19 Mar. 1946	1 Oct. 1951	Harland & Wolff	Builders



ARK ROYAL

ALBION **BULWARK** **CENTAUR** **HERMES (ex-Elephant)**

These vessels are the logical development of the original Light Fleet Carrier design, being designed for a speed capable of allowing them to operate with a modern task force. An increase of 34,000 S.H.P. has given them the necessary few knots increase in speed, a striking example of the task facing the modern naval constructor. These ships with two hydraulic catapults were the first to be fitted with the new angled deck, fitted in *Centaur* since her completion. *Hermes*, still building, is likely to be so different from her sisters as to be a new type entirely and she is not likely to be ready for service for a year or two yet. Of typical Light Fleet Carrier hull form they are to be identified from other ships by their square stern and lattice mast. The four additional ships of this class were cancelled at the end of 1945. Identification letters are Z B C respectively.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
22,000 tons	27,000 tons	737 feet	90 feet	26 feet

Main armament	*Aircraft*	*Armour*
26–40 mm.	45	Flight deck

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	76,000	4 Admiralty	28 knots	1,400

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Albion	23 Mar. 1944	6 May 1947	26 May 1954	Swan Hunter	Wallsend Slipway
Bulwark	10 May 1945	22 June 1948	4 Nov. 1954	Harland & Wolff	Builders
Centaur	30 May 1944	22 April 1947	1 Sept. 1954	Harland & Wolff	Builders
Hermes	21 June 1944	16 Feb. 1953		Vickers-Armstrongs, Barrow	Builders

ALBION

IMPLACABLE **INDEFATIGABLE**

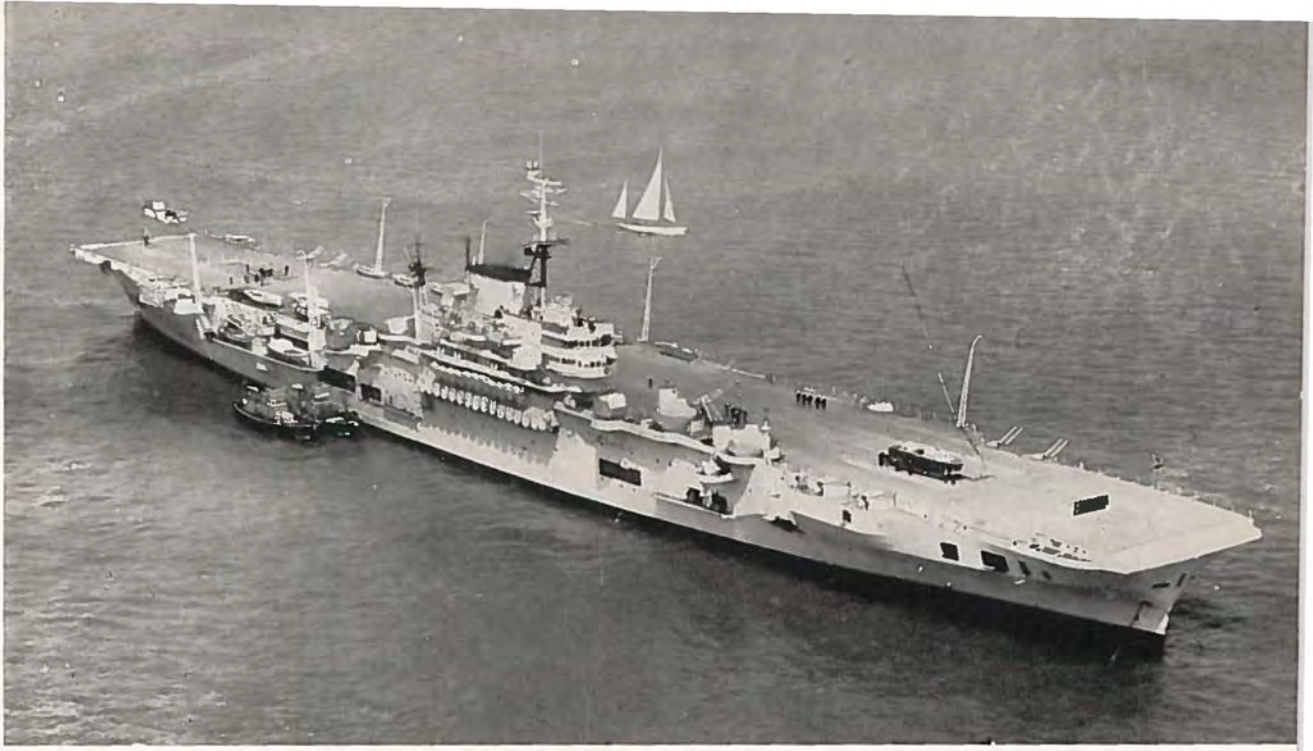
Last pair of a series of six ordered before 1939, of which the previous (1938) *Ark Royal* was the prototype. Heavier in appearance than their predecessors, they have two hangars, the lower one two-thirds the size of the upper. The after lift serves both hangars, there being no forward lift for the lower hangar. This arrangement enables maintenance and repairs to be carried out without interfering with the operational aircraft required for use. At present both are in reserve following service in the Training Squadron, their crews being required to man the new ships of the "Centaur" class. Note that the aircraft complement shown is invariably exceeded in war by the use of the flight deck to park aircraft. Identification letters C and B respectively.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
26,000 tons	32,850 tons	766¼ feet	95¾ feet	30 feet

Main armament	*Anti-aircraft armament*	*Aircraft*	*Armour*	*Complement*
16 4·5 inch	12–40 mm., 9 20 mm., 52–2 pdr.	72	3 inch deck 4½ inch side	1,785 peace 2,200 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	148,000	8 Admiralty	32·5 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Implacable	21 Feb. 1939	10 Dec. 1942	28 Aug. 1944	Fairfield	Builders
Indefatigable	3 Nov. 1939	8 Dec. 1942	3 May 1944	John Brown & Co.	Builders



IMPLACABLE

INDOMITABLE **ILLUSTRIOUS** **VICTORIOUS**

The original ships of the series of six ordered pre-war, the fourth vessel, *Formidable*, having been scrapped. *Victorious* is undergoing rebuilding at Portsmouth and when completed will be much longer and heavier and entirely different from her sisters. *Indomitable*, externally similar to the others and of the same dimensions, is the connecting link with the later two ships, having two hangars, the after lift serving both. *Illustrious* was until recently the longest-serving carrier in the Royal Navy, and nearly the oldest operational warship. Badly damaged in the Mediterranean, she was refitted and rebuilt in America in 1941. Sister ship *Formidable* was broken up in 1953 after lying in reserve since 1945 following severe damage which strained her hull caused by Japanese suicide aircraft in 1945. Identification letters on flight deck and aircraft: *Indomitable* A; *Illustrious* Y; *Victorious* P (ex-G).

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
25,500 tons 23,500 tons (*Indomitable*)	31,790 tons 29,730 tons (*Indomitable*)	753 feet 754 feet (*I.*)	95 feet 95¾ feet (*I.*)	29 feet 29½ feet (*I.*)
Main armament	*Anti-aircraft armament*	*Aircraft*	*Armour*	*Complement*
16–4·5 inch	17–40 mm., 6–20 mm., 40–2 pdr. 24–40 mm., 40–2 pdr. (*Indomitable*)	54 65 (*In.*)	4½ inch side 3 inch deck	1,600
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	
Parsons geared turbines	110,000	6 3 drum type	31 knots 30½ knots (*Indomitable*)	

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Indomitable	10 Nov. 1937	26 Mar. 1940	10 Oct. 1941	Vickers-Armstrongs, Barrow	Builders
Illustrious	27 April 1937	5 April 1939	21 May 1940	Vickers-Armstrongs, Barrow	Builders
Victorious	4 May 1937	14 Sept. 1939	15 May 1941	Vickers-Armstrongs, Tyne	Wallsend Slipway

INDOMITABLE

GLORY **OCEAN** **THESEUS** **TRIUMPH** **VENGEANCE** **WARRIOR**

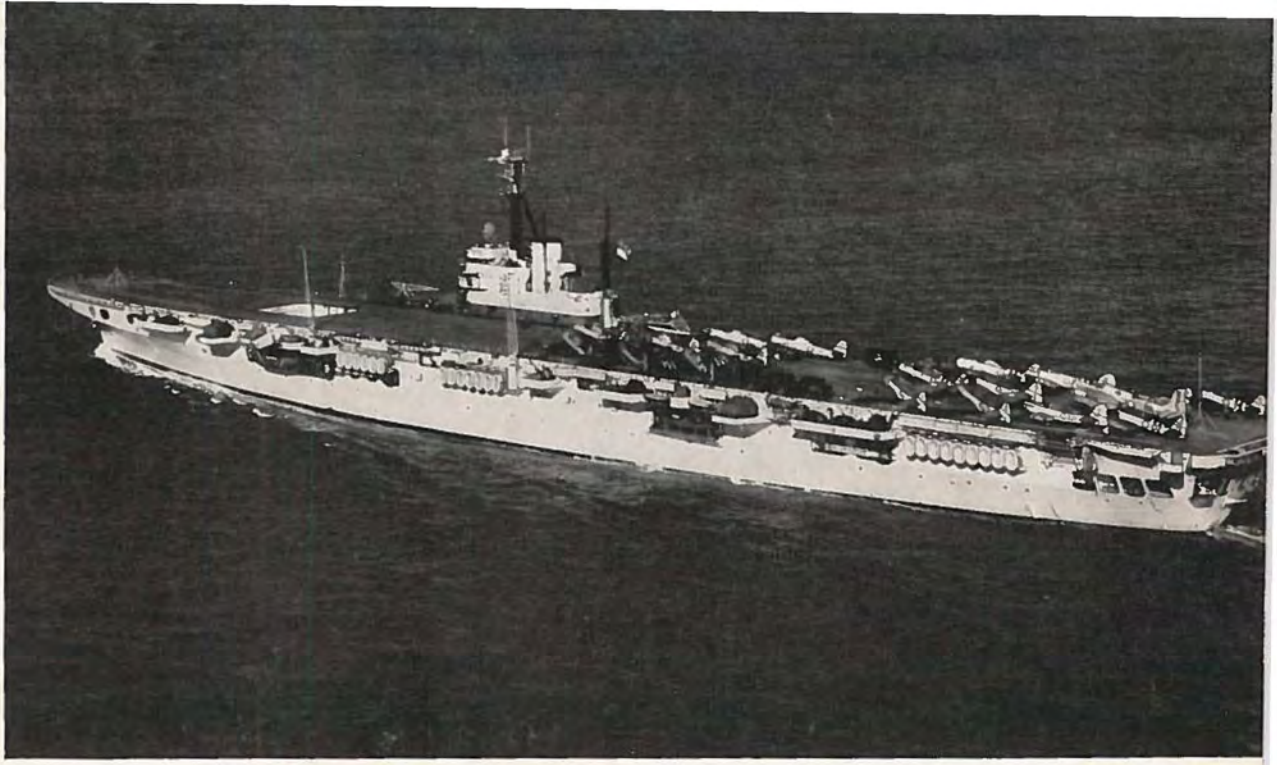
The original Light Fleet Carrier type, they were built under Lloyd's survey and mercantile practice as far as the main deck. *Venerable* and *Colossus* were sold outright to Holland and France as the *Karel Doorman* and *Arromanches*; *Vengeance* was on loan to the Royal Austrian Navy until August 1955; *Edgar* and *Mars*, were completed as maintenance ships *Perseus* and *Pioneer*. A succeeding class, consisting of six vessels, has had a chequered career, four having been disposed of and two, *Hercules* and *Leviathan*, laid up incomplete for the past nine years. Another vessel somewhat akin to the foregoing is the ferry carrier *Unicorn*, built as an aircraft maintenance ship. She is rather heavier looking, being a two-hangar vessel. Identification letters of *Glory* class are R O T P Q J (ex-W) respectively. Unicorn Y.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
13,910 to 13,350 tons	18,300 tons	695 feet	80 feet	23¾ feet

Main armament	*Aircraft*	*Armour*	*Complement*
Varies between 30 40 mm. and 12 40 mm., 24 2 pdr. or 32 20 mm.	35	None	1,000 peace 1,300 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	42,000	4 Admiralty	24 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Glory	27 Aug. 1942	27 Nov. 1943	22 April 1945	Harland & Wolff	Builders
Ocean	8 Nov. 1942	8 July 1944	30 June 1945	A. Stephens & Sons	Builders
Theseus	6 Jan. 1943	6 July 1944	9 Jan. 1946	Fairfield Shipbuilding Co.	Builders
Triumph	27 Jan. 1943	2 Oct. 1944	9 April 1946	Hawthorn Leslie	Builders
Vengeance	16 Nov. 1942	23 Feb. 1944	15 Jan. 1945	Swan, Hunter & W. R.	Builders
Warrior	12 Dec. 1942	20 May 1944	24 Jan. 1946	Harland & Wolff	Builders



THESEUS

CORAL SEA **FRANKLIN D. ROOSEVELT** **MIDWAY**

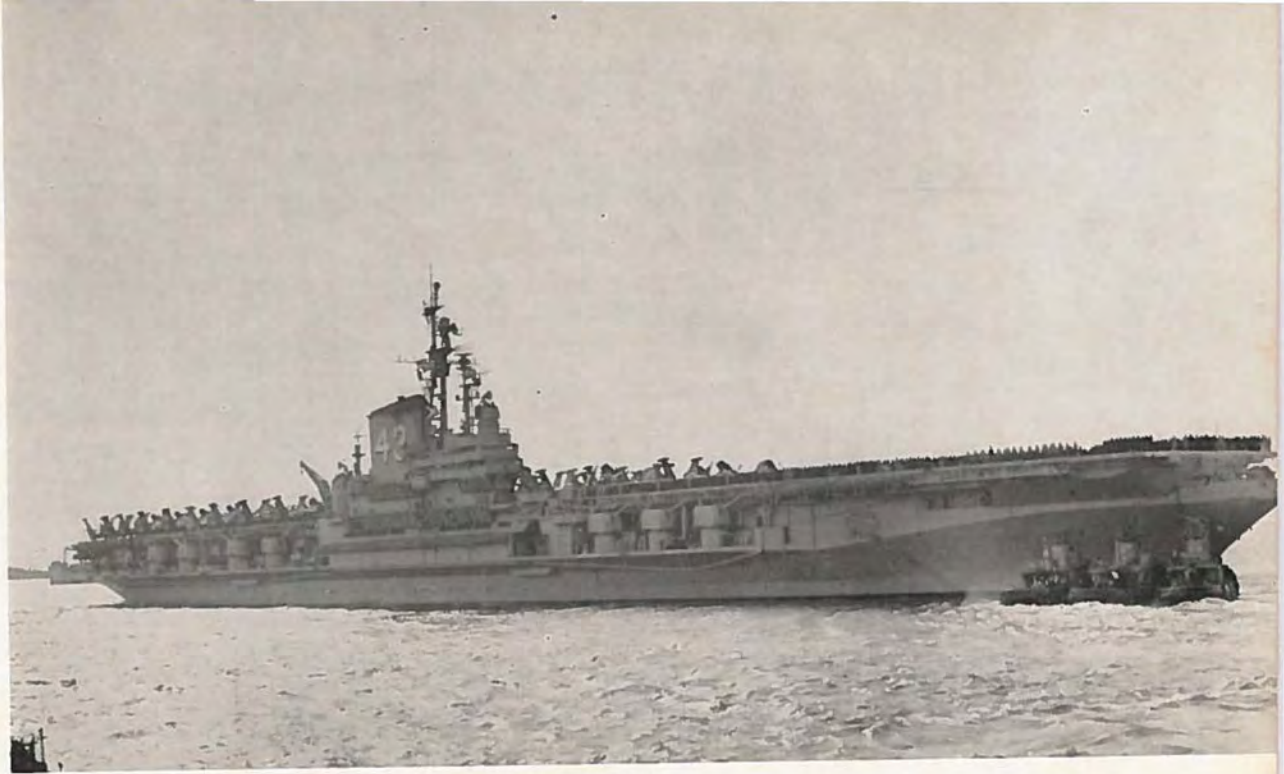
Until recently the largest carriers ever built, these ships are still only surpassed by the five new vessels of the "Forrestal" class, which are under construction or projected. The vessels of the "Midway" class are unmistakable for any other ship, their enormous hull, island and funnel being their recognition mark. At present they are being reconstructed to handle larger and more modern aircraft. As completed they will be fitted with the British angled deck (known to the Americans as the "canted deck") and the British steam catapult. Even before the conversion they had handled 37-ton bombers. They are the first American vessels to be designed as a class with an armoured flight deck, common in British ships since early days. Three sisters ship cancelled. Identification numerals on funnels and flight deck: 43, 42, 41 respectively.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
51,000 tons	62,000 tons (62,674 as converted)	968 feet 974 feet (converted)	113 feet (hull) 136 feet (width) 209 feet (converted)	32½ feet

Main armament	*Secondary armament*	*Aircraft*	*Armour*	*Complement*
14–5 inch	40 3 inch (twin)	137	3 to 4 inch	2,510 peace 3,300 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Geared turbines	212,000	12 Babcock & Wilcox	33 knots

Name	*Begun*	*Launched*	*Completed*	*Builder*	*Engineers*
Coral Sea	10 July 1944	2 April 1946	1 Oct. 1947	Newport News	Westinghouse
Franklin D. Roosevelt	1 Dec. 1943	29 April 1945	27 Oct. 1945	New York Navy Yard	General Electric
Midway	27 Oct. 1943	20 Mar. 1945	11 Sept. 1945	Newport News	Westinghouse



CORAL SEA

*ANTIETAM	ESSEX	KEARSAGE	*PHILIPPINE SEA	TICONDEROGA
BENNINGTON	*FRANKLIN	*LEYTE	*PRINCETON	*VALLEY FORGE
BON HOMME RICHARD	HANCOCK	LAKE CHAMPLAIN	RANDOLPH	WASP
*BOXER	HORNET	LEXINGTON	SHANGRI-LA	YORKTOWN
*BUNKER HILL	INTREPID	ORISKANY	*TARAWA	

Ordered in 1940 these vessels were among the first of America's great rearmament programme. Originally of uniform design there are at present a number of variants. Nine ships* have been adapted internally for A/S warfare, and this has had the effect of reducing the aircraft complement to 50, and the crew to 1,300; a great saving in personnel. Numerous ships of this class will be equipped with the angled deck and steam catapults; the *Hancock* has had her deck-edge lift shifted to the starboard side to clear the landing-on area.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
33,100 tons	40,800 to 42,600 tons	888 feet	93 feet (hull) 129 feet (sponsons) 152 feet (extreme)	37 feet
Main armament	*Anti-aircraft armament*	*Aircraft*	*Armour*	*Complement*
8–5 inch	28–3 inch (twin mounts)	100	3 inch side and deck	2,100 peace
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	
Geared turbines	150,000	8 Babcock & Wilcox	33 knots	

Essex, Yorktown, Intrepid, Hornet, Franklin, Ticonderoga, Randolph, Boxer and *Leyte* built by Newport News Shipbuilding Co.; *Lexington, Bunker Hill, Wasp, Hancock* and *Philippine Sea* by Bethlehem Steel Co.; *Bennington, B. H. Richard* and *Kearsage* by New York Navy Yard; *Antietam, Princeton* and *Valley Forge* by Philadelphia Navy Yard; and *Shangri-La, Lake Champlain* and *Tarawa* by Norfolk Navy Yard. Names in order of construction. *Oriskany* by New York Navy Yard, ordered August 1942,' laid down May 1944, launched 13 October 1945, and finally completed September 1950.

ANTIETAM

SAIPAN **BATAAN** **COWPENS** **SAN JACINTO**
WRIGHT **CABOT** **MONTEREY**

These seven vessels, although externally similar, are of two types. The first two ships are conversions of "Baltimore" class cruiser hulls, the latter five of "Cleveland" class cruiser hulls. There are minor recognition differences between all vessels, such as the number of funnels which may vary between four and two, but the basic silhouette is identical. A sister of the later ships, the *Independence*, was expended at the Bikini atom trials in 1946. Another vessel which would be employed on similar service to these ships, i.e. A/S warfare, is the *Enterprise*, 19,800 tons, the oldest surviving aircraft carrier in existence. The sixth to be built for the U.S.N., she survived a strenuous war career and was to have been passed on to the State of New York as a war relic, but has now been retained in reserve for future service in event of war.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
14,500 tons (*Saipan* & *Wright*)	18,760 tons (*S.* & *W.*)	683 feet (*S.* & *W.*)	76¾ feet (*S.* & *W.*)	25 feet (*S.* & *W.*)
11,000 tons	15,800 tons	623 feet	71½ feet	26 feet

Main armament	*Secondary armament*	*Aircraft*	*Armour*	*Complement*
40–40 mm. (*S.* & *W.*)	32–20 mm. (*S.* & *W.*)	over 50 (*S.* & *W.*)	2 inch belt (*S.* & *W.*)	1,763 war(*S.* & *W.*)
16–40 mm.	40–20 mm.	40	2 inch belt	1,400 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Geared turbines (*S.* & *W.*)	120,000 (*S.* & *W.*)	4 Babcock & Wilcox (*S.* & *W.*)	33 knots (*S.* & *W.*)
Geared turbines	100,000	4 Babcock & Wilcox	32 knots

Saipan and *Wright* by New York Shipbuilding Corporation, completed 1945 and 1947. Other ships completed 1943, also by New York Shipbuilding Corporation.

SAIPAN

CABOT

BADOENG STRAIT	**COMMENCEMENT BAY**	**PALAU**	**RENDOVA**	**SICILY**
BAIROKO	**GILBERT ISLANDS**	**POINT CRUZ**	**SAIDOR**	**TINIAN**
BLOCK ISLAND	**KULA GULF**	**PUGET SOUND**	**SALERNO BAY**	**VELLA GULF**
CAPE GLOUCESTER	**MINDORO**	**RABAUL**	**SIBONEY**	

The final development of the Escort Carrier type of the last war, these ships are not conversions, but were designed as carriers. Unlike their British counterparts, these vessels are used by the United States as a support for invasion forces rather than as anti-submarine ships, being regarded as expendable in the confused fighting following a landing. In this capacity several of their predecessors were lost in the Pacific, some to the Japanese battleship Yamato; the world's largest warship until the advent of the "Forrestal" class aircraft carriers.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
11,373 tons	24,275 tons	557 feet	75 feet	31 feet
Main armament	*Anti-aircraft armament*	*Aircraft*	*Armour*	*Complement*
1–5 inch	24–40 mm., 24–20 mm.	34	Nil	924
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Geared turbines	16,000	2		19 knots

All these vessels were built by Todd Pacific Shipyards and completed between Novemver 1944 and October 1946.

PALAU

ANZIO	**HOLLANDIA**	**MARCUS ISLAND**	**RUDYERD BAY**	**STEAMER BAY**
BOUGAINVILLE	**KADASHAN BAY**	**MATANIKAU**	**SAGINAW BAY**	**TAKANIS BAY**
CAPE ESPERANCE	**KASAAN BAY**	**MISSION BAY**	**SARGENT BAY**	**THETIS BAY**
CORREGIDOR	**KWAJALEIN**	**MUNDA**	**SAVO ISLAND**	**TRIPOLI**
FANSHAW BAY	**LUNGA POINT**	**NATOMA BAY**	**SHAMROCK BAY**	**WHITE PLAINS**
GUADACANAL	**MAKASSAR STRAIT**	**NEHENTA BAY**	**SHIPLEY BAY**	**WINDHAM BAY**
HOGGATT BAY	**MANILA BAY**	**PETROF BAY**	**SITKOH BAY**	

The first Escort Carriers designed and built as such as opposed to converted mercantile hulls, these ships were the famed "jeep carriers" of the Pacific invasions. Their aircraft, manned by crews hastily trained for ground-support work only, were the sole aircraft available to support the land troops for some time until shore air-strips could be built.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
7,800 tons	10,400 tons	512 feet	65 feet	20 feet
Main armament	*Anti-aircraft armament*	*Aircraft*		*Complement*
1-5 inch or 8-40 mm.	24-20 mm.	30		643 peace
Propelling machinery	*Indicated horse power*	*Boilers*		*Speed*
Reciprocating engines	11,200	2		19·5 knots

All vessels completed between August 1943 and July 1944 by H. J. Kaiser, Vancouver and Oregon Shipbuilding Corporation, Portland.

SITKOH BAY

ALTAMAHA	**BRETON**	**CORE**	**PRINCE WILLIAM**	**CHENANGO**
BARNES	**CARD**	**CROATAN**		**SANTEE**
BOGUE	**COPAHEE**	**NASSAU**		**SUWANEE**

The original American Escort Carriers converted from merchant hulls. Many sister vessels served in the Royal Navy under Lease Lend and were returned and scrapped after the end of the war. Some of these vessels served in the North Atlantic as A/S hunters and *Card* held a particularly high reputation. Understood not to be entirely satisfactory in service and were replaced by the specially designed ships of the "Anzio" and "Commencement Bay" classes. Now all laid up and are unlikely to be recommissioned except in an emergency. Similar ships are the three ex-tankers of the "Suwanee" class, *Chenango*, *Santee*, *Suwanee*, converted into aircraft carriers with two lifts and a catapult, propelling machinery being aft.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
9,800 tons	15,700 tons	496 feet	70 feet	26 feet
11,400 tons (last three)	24,275 tons	553 feet	75 feet	30½ feet

Main armament	*Anti-aircraft armament*	*Aircraft*	*Complement*
1 or 2–5 inch	16–40 mm., 20–20 mm.	30	800 war
1 or 2–5 inch	8–40 mm., 15–20 mm.	34	1,000 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Westinghouse turbines	8,500	2 Foster-Wheeler type	18 knots
Geared turbines	13,500	2	18 knots

Ten of "Bogue" class all converted by the Seattle-Tacoma Shipbuilding Corporation and completed in 1942 and 1943. *Suwanee* and *Chenango* built by Federal Shipbuilding Corporation, Kearny, and *Santee* by Sun Corporation, Chester, in 1942.

CHENANGO

BOGUE

BOIS BELLEAU **LA FAYETTE**

These two ships are sisters of the American "Bataan" class and are conversions of light cruiser hulls. *Bois Belleau* (ex-*Belleau Wood*) was transferred 5 September 1953 and her sister on 6 June 1951. *Belleau Wood*, which is due for return to the United States in 1958, will presumably be replaced by the new carrier now authorised to be built, the *Clemenceau*, 22,000 tons. When completed this ship will be the first carrier built in France as such, and only the second vessel of the type designed by the French, all previous ships having been of foreign origin.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
11,000 tons	15,800 tons	623 feet	72 feet	26 feet
Main and anti-aircraft armament		*Aircraft*	*Armour*	*Complement*
26–40 mm., 10–20 mm.		26	2 inch belt	1,183 peace
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Geared turbines	100,000	8 Babcock & Wilcox		32 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Bois Belleau	11 Aug. 1941	6 Dec. 1942	31 Mar. 1943	New York Shipbuilding Corp.	Builders
La Fayette	11 April 1942	22 May 1943	31 Aug. 1943	New York Shipbuilding Corp.	Builders

LA FAYETTE

ARROMANCHES

A vessel of the ubiquitous Light Fleet Carrier type of the Royal Navy, this ship was lent to the French Navy in August 1946 for 5 years, being purchased outright in 1951. Her former name was H.M.S. *Colossus*, and she saw service in the Far East prior to her transfer. Has recently been employed off the Indo-China coast. Another French aircraft vessel is the 8,200-ton, 16½-knot *Dixmude* (ex-British *Biter*, ex-merchant ship *Rio Parana*); she is a Sun S.B. & D.D. Co. conversion which was lent to the Royal Navy in 1942 and re-transferred in 1945. She is used as an aircraft transport and ferry carrier for Far East reinforcements and also for American aircraft given to France.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
13,190 tons	18,040 tons	695 feet	80 feet	23½ feet

Armament	*Aircraft*	*Complement*
24–2 pdr., 19–40 mm.	43 (26 carried)	1,620

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	42,000	4 3-drum type	25 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Arromanches	1 June 1942	30 Sept. 1943	16 Dec. 1944	Vickers-Armstrongs, Tyne	Builders

ARROMANCHES

MELBOURNE **SYDNEY**

The first carriers of the Australian Navy, these vessels are of the British "Hercules" class, being the ex-*Majestic* and *Terrible* respectively. *Melbourne*, which is still completing trials in Britain, differs considerably from her sister and is fitted with an angled deck and steam catapults. *Sydney* will be so fitted later. Until *Melbourne* was ready the Royal Navy lent the carrier *Vengeance*, of the "Glory" class, to the Australian Navy. She was returned to the Royal Navy in August 1955. Sisters to these two ships will be found in the Royal Canadian Navy. Flight deck recognition letter of *Sydney* is K.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
15,700 tons	19,550 tons 20,000 tons (*Melbourne*)	695 feet 702 feet (*Melbourne*)	80 feet	25 feet

Main armament	*Aircraft*	*Armour*	*Complement*
30–40 mm.	35	Nil	1,100 peace, 1,300 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	42,000	4 Admiralty	24½ knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Melbourne	15 April 1943	28 Feb. 1945	End 1955	Vickers-Armstrongs, Barrow	Builders
Sydney	19 April 1943	30 Sept. 1944	5 Feb. 1949	Devonport Dockyard	Parsons

SYDNEY

BONAVENTURE **MAGNIFICENT**

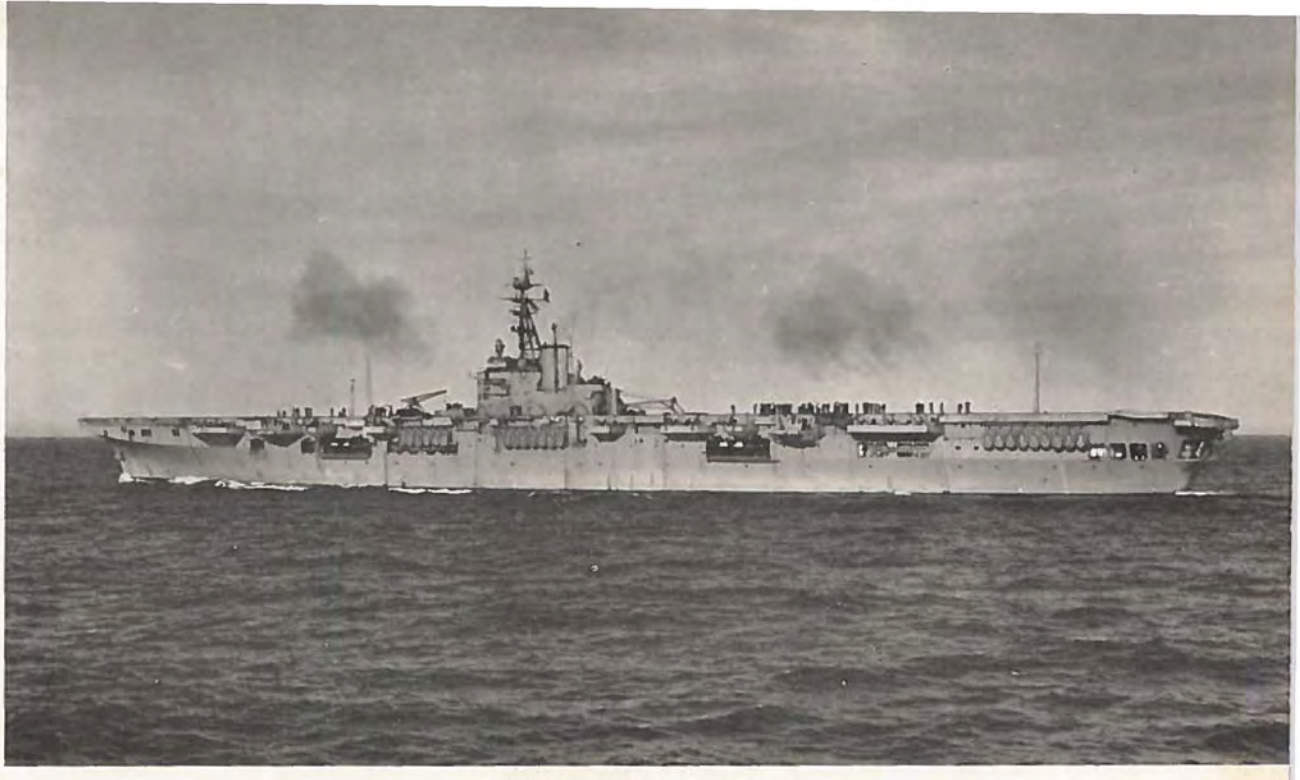
Two vessels of the "Hercules" class of Great Britain. *Magnificent* has been on loan from the Royal Navy since 1948 and is being retained by Canada pending the completion of *Bonaventure* (ex-*Powerful*), which was purchased in 1952. Originally *Warrior* was loaned and was replaced by *Magnificent* on her completion as she was of practically similar type. *Bonaventure* will have the angled deck and steam catapult when she is completed in 1956. Unlike all other vessels of this type in Commonwealth navies *Magnificent* does not carry an identification letter but a number on the American pattern, 21. This is painted on the flight deck. Distinguishable from vessels of the same type by her colouring, all Canadian ships having dark-grey hulls and light-grey superstructure, and also by the red maple leaf on the funnel.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
15,700 tons	19,550 tons 20,000 tons (*Bonaventure*)	695 feet 700 feet (*Bonaventure*)	80 feet	25 feet

Main armament	*Aircraft*	*Armour*	*Complement*
30–40 mm.	34	Nil	1,350 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	42,000	4 Admiralty	24½ knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Bonaventure	27 Nov. 1943	27 Feb. 1945	End 1956	Harland & Wolff	Builders
Magnificent	29 July 1943	16 Nov. 1944	7 April 1948	Harland & Wolff	Builders



MAGNIFICENT

KAREL DOORMAN

Another of the British Light Fleet Carriers sold abroad, this ship is the ex-*Venerable*, which was purchased on 1 April 1948, and recommissioned in May of that year. She is the second Netherlands carrier, and also bears the name of her predecessor, the ex-British *Nairana*, an escort carrier acquired in 1946, which served in the Royal Netherlands Navy until 1948. The *Karel Doorman* is at present undergoing refit and modernisation.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
13,190 tons	18,040 tons	695 feet	80 feet	23½ feet

Main and anti-aircraft armament	*Aircraft*	*Complement*
24–40 mm., 10–20 mm.	44 (19 carried)	1,300

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	42,000	4 3-drum type	25 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Karel Doorman	3 Dec. 1942	30 Dec. 1943	17 Jan. 1945	Cammell Laird & Co.	Builders

KAREL DOORMAN

BATTLESHIPS

THE prototype of the modern oil-fired battleship was the turbine propelled, all-big-gun *Dreadnought* of 1906, a powerful, well-protected, mobile gun platform of radically novel design, the wonder creation of her day which constituted a revolution in naval architecture and rendered obsolete all earlier battleships; her great advance in offensive power combined with her increased speed made the type so superior to all previous ships that with her a new era in battleship construction was opened. She had a displacement of 17,900 tons, a main armament of ten 12-inch guns and a speed of 21 knots. Basically, battleships have altered little since. From her time onwards until the First World War British battleships followed on progressively in a logical line of development without departing from the essential principles of the type (which was copied by all the major naval powers and came to be known all over the world as "dreadnoughts")—a long line of battleships with names epitomising Britain's naval might and supremacy of the time: *Bellerophon*, *Temeraire* and *Superb* of 18,600 tons; *Collingwood*, *St. Vincent* and *Vanguard*, 19,250 tons; *Neptune*, 19,900 tons; *Colossus* and *Hercules*, 20,000 tons; then the *Conqueror*, *Monarch*, *Orion* and *Thunderer* of 22,500 tons with ten 13·5-inch guns; followed by the *Ajax*, *Audacious*, *Centurion* and *King George V* of 23,000 tons with a speed over 21 knots. On the outbreak of the war in 1914 the latest dreadnought type was represented by the *Benbow*, *Emperor of India*, *Iron Duke* and *Marlborough* of 25,000 tons. The *Iron Duke* herself was Jellicoe's flagship at the Battle of Jutland and was still in service on the outbreak of the Second World War. The next class of battleships to be built, the *Barham*, *Malaya*, *Queen Elizabeth*, *Valiant* and *Warspite*, originally of 27,500 tons (much heavier later) with eight 15-inch guns and a speed of 25 knots (and burning oil fuel only), completed in 1915–16, linked us with modern times for two or three still formed part of our fleet in 1945–47. They were the finest group of fighting ships afloat and, the very embodiment of power and speed, constituted one of the best all-round designs produced for the next quarter of a century. The *Ramillies*, *Resolution*, *Revenge*, *Royal Oak* and *Royal Sovereign*, no less sturdy, were

a retrogression in that they were designed to burn coal and never had a speed much above 21 knots even when converted to oil fuel. No British battleships were laid down between 1914 and 1922 when the *Nelson* and *Rodney*, designed under the limitations of the Washington Treaty, were begun; completed in 1927, they displaced nearly 34,000 tons and carried nine 16-inch guns at a speed of 23 knots. All the surviving battleships of the "Queen Elizabeth", "R" and "Nelson" classes were scrapped about 1948. After the latter class the building of any more battleships was prohibited by the London Naval Treaty of 1930 until 1937, when the *Anson*, *Duke of York*, *Howe*, *King George V* and *Prince of Wales* were begun. These are described in the following pages with our last battleship, the *Vanguard*, and her foreign contemporaries. The term "battleship" meant the predominant warship, a vessel which could inflict the utmost destruction and withstand the maximum punishment, the most powerful fighting ship it was possible to construct, capable of destroying the largest ship of the enemy, a formidably armed, heavily armoured, highly mobile, floating fortress which could hit harder and better repulse all forms of attack than any other warship afloat. But a single battleship had no place in naval strategy. Her business was to fight in company with ships of her own category forming a battle fleet, the fulcrum upon which the whole of sea power rested, and which, if withdrawn, rendered negligible the value of a surface fleet in the face of an enemy possessing more powerful battleships. Battleships were the long-distance cover of all lesser ships, the instruments of Trafalgar-like decisions, the solid backbone of the Navy, the ultimate threat, the final arbiters of Sea Power. Battleships have been operated singly, both during the Second World War and in the latter part of the First, for escorting convoys, but that was not the proper use of such expensive vessels. In 1914 Britain had no fewer than 75 battleships and battle cruisers. By 1919 they were reduced to 43, and in 1922 we had 23. In 1939 we had 15. In 1955 we have only five battleships, all of which are in reserve. Foreign battleships have been correspondingly reduced, except those of the U.S.A. which still has 15, the same number she had in 1939, and Russia who still has three veterans.

VANGUARD

The latest, and some believe the last, British battleship, the only one recently in commission in the Royal Navy. The reversion to the 15-inch gun for her main armament is explained by the fact that she is armed with weapons drawn from the reserve maintained for ships of the "Queen Elizabeth" and "Royal Sovereign" types. They are in fact guns first mounted in the *Courageous* and *Glorious* in 1916. The *Vanguard* was built to a separate design following the discontinuance of the work on the ill-fated "Lion" class, which were cancelled due to their main armament of 16-inch guns being impossible to deliver on time. A most completely sub-divided ship with a very high degree of damage control, her construction incorporates many relatively unpierced bulkheads. Served as Royal Yacht during the South African Tour 1947, and was to have done so again had the late King been able to proceed there in 1952. Underwent a long refit at Devonport in 1954–55. Placed in reserve end of 1955.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
44,500 tons	51,420 tons	814½ feet	108½ feet	36 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
8 15 inch	16 5·25 inch	58–40 mm.	13–14 inch side	1,600 peace
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Parsons geared turbines	130,000	8 3-drum type		29·5 knots

Ordered	*Begun*	*Launched*	*Completed*	*Builders and Engineers*
14 Mar. 1941	2 Oct. 1941	30 Nov. 1944	25 April 1946	John Brown & Co., Ltd., Clydebank

VANGUARD

ANSON **DUKE OF YORK** **HOWE** **KING GEORGE V**

Originally five in number, the *Prince of Wales* having been lost in the Second World War, these ships were designed to the Washington Treaty limitations. They are the first British ships to have quadruple gun turrets, and only the third class to be so fitted in the world, although the French "Normandie" class were to have had them in 1914. *Anson*, *Howe* and *Duke of York* were originally named *Jellicoe*, *Beatty* and *Anson*, respectively, the names being altered in 1938 and 1940. The 14-inch guns, a new calibre in British ships, are understood to be more efficient than the 15-inch formerly used, as assessed by effect of shell at varying ranges. The aircraft and catapult formerly carried between the funnels were removed as there is little likelihood of battleships operating apart from carriers and the fire danger of the fuel is considerable.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
35,000 tons	44,510 to 45,360 tons	745 feet	103 feet	36 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
10-14 inch	16-5·25 inch	60-64 2 pdr., 2-14 40 mm., 8-12 20 mm.	16 inch belt	1,553, to 1,613

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	112,000	8 3-drum type	28 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Anson	20 July 1937	24 Feb. 1940	22 June 1942	Swan Hunter	Wallsend
Duke of York	5 May 1937	28 Feb. 1940	4 Nov. 1941	John Brown & Co.	Builders
Howe	1 June 1937	9 April 1940	29 Aug. 1942	Fairfield Shipbuilding Co.	Builders
King George V	1 Jan. 1937	21 Feb. 1939	11 Dec. 1940	Vickers-Armstrongs, Tyne	Vickers-Armstrongs, Barrow

KING GEORGE V

IOWA **MISSOURI** **NEW JERSEY** **WISCONSIN**

Probably the most powerful ships afloat, excluding carriers, and certainly the largest, these four vessels were built in a remarkably short time considering their size. All saw considerable service in the Pacific, the Japanese surrender being signed on board the *Missouri*. A fifth ship, the *Kentucky*, is laid up incomplete (70% finished), a proposal to convert her to a guided-missile ship not having materialised; and a sixth vessel, the *Illinois*, was cancelled in August 1945 when still on the building slip. As ships are refitted some modifications are being carried out, including replacement of catapults and cranes by helicopters and of 40 mm. mountings by the new twin 3-inch guns. Very successful ships from the viewpoint of Pacific warfare, speeds of 35 knots have been reached in service.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
45,000 tons	57,450 tons	888 feet	108 feet	38 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
9–16 inch	20–5 inch	80–40 mm. or 30–3 inch	19 inch side 10 inch decks	2,000 peace 2,700 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Geared turbines	212,000	8 Babcock & Wilcox	33 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Iowa	27 June 1940	27 Aug. 1942	22 Feb. 1943	New York Navy Yard	G.E.C.
Missouri	6 Jan. 1941	29 Jan. 1944	11 June 1944	New York Navy Yard	G.E.C.
New Jersey	16 Sept. 1940	7 Dec. 1942	23 May 1943	Philadelphia Navy Yard	Westinghouse
Wisconsin	25 Jan. 1941	7 Dec. 1943	16 April 1944	Philadelphia Navy Yard	Westinghouse
Kentucky	6 Dec. 1942	20 Jan. 1950		Norfolk Navy Yard	Westinghouse

IOWA

ALABAMA **INDIANA** **MASSACHUSETTS** **SOUTH DAKOTA**

The fourth ship of this class, the *South Dakota*, varies in some degree from the other three in her armament; all four were originally intended to be of the "North Carolina" class, described on the following page, but were redesigned with reduced length and increased freeboard. Played a prominent part in the Pacific war, being the first reinforcements after Pearl Harbour. All now in reserve.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
35,000 tons	44,374 tons	680 feet	108 feet	36 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
9–16 inch	20–5 inch	56–40 mm., 40–20 mm.	18 inch side 10 inch deck	1,808 peace 2,500 war
	(*South Dakota*) 16–5 inch	68–40 mm., 40–20 mm.		
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Aircraft*
Geared turbines	130,000	Foster Wheeler (first two) Babcock & Wilcox (others)	28 knots	3

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Alabama	1 Feb. 1940	16 Feb. 1942	Nov. 1942	Norfolk Navy Yard	Westinghouse
Indiana	20 Nov. 1939	21 Nov. 1941	Oct. 1942	Newport News Co.	Westinghouse
Massachusetts	20 July 1939	23 Sept. 1941	Sept. 1942	Bethlehem Steel Co.	G.E.C.
South Dakota	5 July 1939	7 June 1941	16 Aug. 1942	New York Shipbuilding Corp.	G.E.C.

SOUTH DAKOTA

NORTH CAROLINA **WASHINGTON**

The first battleships built for the United States Navy since 1920, these ships were much delayed in their construction by changes in design and late delivery of material. Building slips also proved inadequate and had to be lengthened and strengthened. Originally to have been a class of six, the four later ships were modified in the light of the first pair and appeared as the "Alabama" class described earlier. *Washington* served in Northern waters with the British Home Fleet for a time in 1942. Now both laid up in reserve.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
35,000 tons	46,770 and 45,370 respectively	729 feet	108 feet	35 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
9–16 inch	20–5 inch	60–40 mm., 56–20 mm.	16 inch side 10 inch decks	2,500 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Aircraft*
Geared turbines	121,000	8 Babcock & Wilcox	28 knots	3

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
North Carolina	27 Oct. 1937	13 June 1940	Aug. 1941	New York Navy Yard	G.E.C.
Washington	14 June 1938	1 June 1940	Mar. 1942	Philadelphia Navy Yard	G.E.C.

NORTH CAROLINA

COLORADO **MARYLAND** **WEST VIRGINIA** **CALIFORNIA** **TENNESSEE**

These five ships are, in actual fact, two separate and distinct classes with the *West Virginia* forming the link. The three latter ships received very extensive damage at Pearl Harbour, *West Virginia* and *California* being reduced to wrecks. When rebuilt the three ships were identical in appearance although of differing armament. All five ships have electric drive, indeed they are as near "all electric" as is possible, and they are unique in that respect. All saw considerable war service in the Pacific after their refits and are now in reserve. *Maryland* and *Colorado* still have the remnants of the old "basket" foremast, supporting an enormous control top.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
(first two) 32,000 tons	40,000 tons	624 feet	108 feet	34 feet
(third) 31,800 tons	40,354 tons	624 feet	114 feet	34 feet
(last two) 32,600 tons	40,354 tons	624 feet	114 feet	35 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
(first two) 8–16 inch	8–5 inch 38 cal. 8–5 inch 51 cal.	32–40 mm., 50–20 mm.	16 inch side, 6 inch deck	2,100
(third) 8–16 inch	16–5 inch 38 cal.	40–40 mm., 50–20 mm.	16 inch side, 6 inch deck	2,100
(last two) 12–14 inch	16–5 inch 38 cal.	40–40 mm., 42 to 50–20 mm.	14 inch side, 6 inch deck	1,808

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Aircraft*
Turbines, electric drive	(first three) 29,500 (last two) 30,000	8 Babcock 8 Bureau Express in *California*	20·5 knots	3 or 4

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Colorado	29 May 1919	22 Mar. 1921	30 Aug. 1923	New York Shipbuilding Corp.	Westinghouse
Maryland	24 April 1917	20 Mar. 1920	20 July 1921	Newport News Co.	G.E.C.
West Virginia	12 April 1920	19 Nov. 1921	1 Dec. 1923	Newport News Co.	G.E.C.
California	25 Oct. 1916	20 Nov. 1919	15 Sept. 1921	Mare Island Yard	G.E.C.
Tennessee	14 May 1917	30 April 1919	16 Sept. 1920	New York Navy Yard	Westinghouse

CALIFORNIA

OKTYABRSKAYA REVOLUTSIA **SEVASTOPOL**

These vessels are certainly the most peculiar-looking battleships left in existence and it would be impossible to mistake them for any other vessel in the world. Of an Italian basic design, the original plans were amended by the Tsarist Navy to conform to Russian views. Originally four in number, one ship was scrapped long before the last war and the third lies in Kronstadt harbour as an accommodation ship after her forecastle was removed by German bombers in the siege of Leningrad. Damaged during the Revolution, neglected after it, and hard worked during the last war it is doubtful if these ships have any remaining value except as training vessels. Information is sparse, but even twenty years ago naval authorities were unanimous in condemning them as "unseaworthy, ineffective and insanitary". A more effective unit of the Russian fleet is the *Novorossiisk* (ex-Italian *Giulio Cesare*), which was acquired under the Italian Peace Treaty. This vessel is similar to her half-sisters described in the Italian pages.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
23,606 and 23,256 tons	over 26,000 tons	619 feet	87 feet	27½ feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
12–12 inch	(*O. Revolutsia*) 12–4·7 inch	8–3 inch, 12–37 mm.	9 inch belt 3 inch deck	1,087 peace 1,275 war
	(*Sevastopol*) 16–4·7 inch	8–3 inch, 16–37 mm.		
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Parsons turbines direct drive	50,000	25 Yarrow		23 knots designed (now less)

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Oktyabrskaya Revolutsia	June 1909	7 Oct. 1911	Jan. 1914	Galernii	Franco-Russ
Sevastopol	June 1909	29 June 1911	Jan. 1915	Baltic Works	Builders

SEVASTOPOL CLASS

JEAN BART **RICHELIEU**

The only battleships of the French Navy, these ships are of a curious design, reminiscent of the British *Rodney* and *Nelson*. The main armament is disposed in two quadruple turrets forward, the secondary armament providing the after firepower. This predeliction for quadruple turrets showed itself as long ago as 1914 when the "Normandie" class were to have been completed with them. *Jean Bart* and *Richelieu* are survivors of a class of four: of the others, the *Clemenceau* was sunk incomplete in Brest in 1944 and the *Gascogne* was never laid down. The two survivors escaped from France in 1940 and spent the first years of the war in French colonial possessions, coming over to the Allied cause in 1942 and 1943. *Richelieu*, the more complete of the two, was refitted in America and joined the British East Indies Fleet in 1944. *Jean Bart* was somewhat less completed and her rebuilding commenced at Brest in 1945, being finished in 1949 although her anti-aircraft armament was not mounted until 1952.

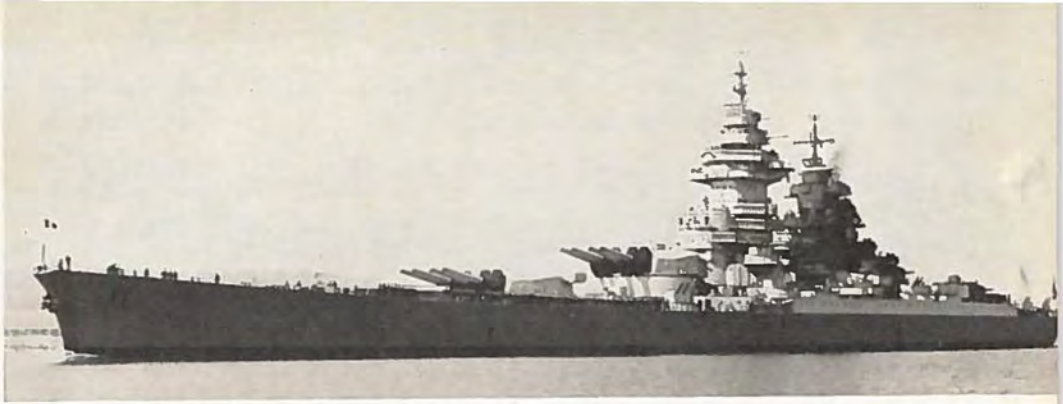
Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
38,750 tons	49,000 tons	813¾ feet	116½ feet	30 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*
8–15 inch	9–6 inch	(*J. Bart*) 24–3·9 inch, 28–57 mm., 20–20 mm. (*Richelieu*) 12–4 inch, 60–40 mm., 14–20 mm.	16 inch belt 8 inch deck

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	150,000	6 Indret-Sural	30 knots	1,670 peace

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Jean Bart	Jan. 1939	6 Mar. 1940	End 1949	A. C. Loire and Brest Dockyard	Loire
Richelieu	22 Oct. 1935	17 Jan. 1939	July 1940	Brest Dockyard	Loire

RI CHELIEU



JEAN BART

ANDREA DORIA **CAIO DUILIO**

These two modern-looking vessels are actually over forty years old and represent a most successful conversion of an old vessel. As originally designed they mounted an unusual main armament of thirteen 12·6-inch guns, an additional triple turrent being mounted amidships. When they were rebuilt this turret was removed together with its magazines and the space utilised to re-engine the ships, increasing the S.H.P. from 34,000 to 75,000, and the speed from 21 knots to 27 knots. Altogether an unusual and most successful rebuilding. Of two near sisters, one, the *Conte di Cavour*, was sunk and the other, the *Giulio Cesare*, has been ceded to Russia (renamed *Novorossiisk*). Both these vessels had been similarly reconstructed.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
23,622 tons	28,882 tons	611½ feet	92 feet	30 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
10–12·6 inch	12–5·3 inch	10–3·5 inch, 19–37 mm. 12–20 mm.	9¾ inch belt	1,198
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Belluzo geared turbines	75,000	8 3-drum type		27 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Andrea Doria	24 Mar. 1912	30 Mar. 1913	Mar. 1916	Spezia	Ansaldo
Caio Duilio	25 April 1912	24 April 1913	May 1915	Castellammare	Ansaldo

ANDREA DORIA

MORENO **RIVADAVIA**

Two ships of unique and unmistakable appearance, possessing the only remaining example of the famous American cage masts of the dreadnought era. The unusual arrangement of beam turrets capable of firing across the hull can be found in these ships, a feature they share with the Turkish battle cruiser *Yavuz*. Last refitted thirty years ago it is highly probable that these ships will soon be discarded as they are hardly likely to be of any use to a modern navy; their continued retention is more probably due to prestige value and their use as accommodation ships.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
27,720 tons	31,000 tons	585 feet	97 feet	28 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo Tubes*	*Armour*
12–12 inch	12–6 inch	4–3 inch, 4–40 mm.	2–21 inch	11 inch belt
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Curtis geared turbines	45,000	18 Babcock	22·5 knots	1,215

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Moreno	May 1910	26 Aug. 1911	Dec. 1914	Fore River Co.	Builders
Rivadavia	July 1910	23 Sept. 1911	Mar. 1915	New York Shipbuilding Co.	Fore River

MORENO

ALMIRANTE LATORRE

Almirante Latorre, ex-*Canada*, ex-*Almirante Latorre*, ex-*Valparaiso*, this much renamed battleship, which has served in two navies, is one of the last remaining examples of the super-dreadnought, from which our modern battleships have evolved. Building in Britain, she was seized for the Royal Navy in August 1914 in company with other ships and served as H.M.S. *Canada*, being returned in 1920. Her sister, which was somewhat less complete, was taken over and rebuilt as the aircraft carrier *Eagle* (lost 1942). In appearance she is little different from when she was first completed and is typical of the majority of British battleships of the period.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
28,950 tons	32,000 tons	661 feet	92½ feet	32 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
10–14 inch	14–6 inch	4–4 inch, 18–20 mm.	10 inch side 4 inch deck	1,176
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Parsons turbines	37,000	21 Yarrow		22·75 knots
Begun	*Launched*	*Completed*	*Builders*	*Engineers*
Nov. 1911	Nov. 1913	Sept. 1915	Armstrong	Builders

ALMIRANTE LATORRE

CAPITAL SHIPS

THE term "capital ship", until the First World War, meant a battleship, the most heavily armed and most massively protected class category of warship extant. But with the completion in 1914 of the battle cruiser *Tiger*, which was actually larger and faster than contemporary battleships, although twenty per cent less heavily armed and armour belted, the term was applied to battle cruisers, and between the two great wars it was used to refer to both battleships and battle cruisers. Today "capital ship" has changed its meaning. It still implies the most formidably gunned and most stoutly protected warships, but it also embraces the ultimately most important category of warship, the quickest striking, most threatening and farthest reaching. It now means the largest, most powerful or most effective warship which a nation can afford to build or finds it necessary to maintain. No more battleships are being built, and fewer are in service than ever before. Battle cruisers are almost extinct, the type having merged with the battleship. But more aircraft carriers of larger size are being built and the term "capital ship" is now being applied to aircraft carriers, large cruisers and guided-missile ships.

BATTLE CRUISERS

THE battle cruiser, sometimes regarded as the culminating evolution of the cruiser, was actually a contemporaneous development with the battleship, of the original *Dreadnought*. It was a hybrid with the gun-calibre and displacement of the battleship and the speed and protection of the cruiser, but strictly had no place in the development of either the battleship or the cruiser, though at its highest expression the battle cruiser was almost an equal partner of the battleship in the battle fleet. The first "dreadnought cruisers"—the term battle cruisers was not adopted until 1911—were the *Invincible*, *Inflexible* and *Indomitable*, completed in 1908. Displacing 17,250 tons, only slightly less than the *Dreadnought* but 40 feet longer, each carried a main armament of eight 12-inch guns at a speed of 25 knots. They were succeeded by the larger *Indefatigable*, *New Zealand* and *Australia*, the improved *Lion*, *Princess Royal* and *Queen Mary* with eight guns of 13·5-inch calibre, displacing up to 27,000 tons with speeds up to 28 knots, then the handsome three-funnelled *Tiger* of 28,500 tons with a speed of 30 knots, completed in 1914 and the largest ship in the Royal Navy until the *Hood* was built, followed by the *Renown* and *Repulse* with six 15-inch guns (their displacement after reconstruction between the wars was 32,000 tons) and finally by the *Hood*, completed in 1920, a symmetrical and powerful-looking warship, the largest in the world, with a displacement of 42,100 tons, eight 15-inch guns, and a speed of 31 knots. From first to last Britain built 13 battle cruisers, of which four were blown up, one was torpedoed, and seven were scrapped after only half the normal life of ships of such size and cost. The type became extinct in the Royal Navy when the *Renown* was scrapped in 1948. But a vessel of the original battle cruiser type, the *Yavuz* in the Turkish Navy, formerly the German *Goeben*, still exists. And strangely enough the battle cruiser type was revived by the United States, which had never previously had battle cruisers, in the shape of the *Alaska* and *Guam* (officially known as "large cruisers"), completed in 1944, which displace 27,500 tons with a main armament of nine 12-inch guns and a speed of 33 knots.

ALASKA **GUAM**

Officially described by the U.S.N. as "Large Cruisers" and by other nations as battle cruisers these vessels were designed as a counter to somewhat similar vessels the Japanese were believed to be building. These vessels did not materialise and the *Alaska* and *Guam* are now unique in the world's navies. They are not true battle cruisers as the armament is not that of contemporary battleships; they approximate more to the armoured cruiser of pre-dreadnought days. Although now laid up in reserve, they would seem, on paper at least, to be the answer, albeit an expensive one, to the threat of a raiding force of the "Sverdlov" type Russian vessels that currently occupies the minds of NATO commanders. A third ship, the *Hawaii* is laid up almost complete. The original intention was to complete her as a guided missiles ship, and it was later announced that she was to be converted to a Large Tactical Command ship, presumably a development of the Command Ship *Northampton* later described, but this project has been cancelled. The ships are of unusual appearance and unlikely to be mistaken for any other, the peculiar funnel, the large gap between funnel and bridge and the beam catapults amidships marking them out from the recognition aspect.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
27,500 tons	34,250 tons	808½ feet	91 feet	31½ feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
9-12 inch	12-5 inch	56-40 mm., 34-20 mm.	9 inch side 4 inch deck	1,370 peace 1,900 war
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Aircraft*
Geared turbines	150,000	8 Babcock & Wilcox	33 knots	4

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Alaska	16 Dec. 1941	15 Aug. 1943	17 June 1944	New York Shipbuilding Corp.	G.E.C.
Guam	2 Feb. 1942	21 Nov. 1943	17 Sept. 1944	New York Shipbuilding Corp.	G.E.C.

ALASKA

NORTHAMPTON

This ex-heavy cruiser of the "Baltimore" class has a rating unique in the world's navies that will, if pursued have the result of withdrawing a commander from his fleet in the same way as an army commander is remote from his fighting forces. As completed *Northampton* disposes of a radar and communications system of a complexity not possible to mount in even an aircraft carrier without detracting from a ship's fighting efficiency, and her existence should to some degree solve the constructors' problem of the ship being so filled with electronic equipment and the means to run it that there is no rroom for the weapons it is intended to control. Counterparts of these two vessels already exist for an invasion force in the Amphibious Force Flagships of the "Blue Ridge" and "Mount Olympus" classes, but these ships are basically mercantile hulls and lack the speed of a modern Fleet.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
17,200 tons		676 feet	71 feet	29 feet
Main armmaent	*Anti aircraft-armament*	*Aircraft*	*Armour*	*Complement*
4–5 inch	8–3 inch	2 helicopters	6 inch side, 5 inch deck	1,675
Propelling machinery	*Shaft horse powe*	*Boilers*		*Speed*
Geared turbines	120,000	4 Babcock & Wilcox		33 knots

Begun	*Launched*	*Completed*	*Builders*	*Engineers*
31 Aug. 1944	27 Jan. 1951	7 Mar. 1953	Bethlehem Steel Corp.	G.E.C.

NORTHAMPTON

CRUISERS

THE word cruiser denotes a self-sufficient fighting ship able to cruise independently half across the world without refuelling, a vessel of high speed, adequate protection and substantial armament which although inferior in fighting power to the battleship is superior to all other types of warships. The main functions of modern cruisers are to patrol the main ocean highways for the defence of sea-borne trade, to search the outer seas and narrow waters for enemy surface raiders attempting to destroy merchant ships carrying vital cargoes, to destroy merchant ships of the enemy or otherwise interfere with his commerce, to hunt down, bring to action and destroy hostile cruisers or armoured ships known to have escaped from a blockaded port or to be at large, to act as scouts and provide reconnaissance for the main task force at sea, keeping in touch with the enemy and communicating his movements, duties which have now largely been taken over by aircraft or reduced by the use of wireless, to form a screen against lighter craft when in company with battleships or aircraft carriers, and to carry out the important duty of "showing the Flag". There has always been a wide variation of both displacement and armament within the cruiser category. The generic term cruiser once included all ships not ranked as fighting ships of the line and was applied indiscriminately to frigates, corvettes, sloops and cutters. Later it was used to describe a variety of types ranging from rapid little scouts of 2,000 tons to the monster armoured gun platforms of 14,000 tons, really second-class battleships, which came into the category of cruising ships at the turn of the century. The ultimate development of the armoured cruiser was represented by the *Minotaur*, *Defence* and *Shannon* of 14,600 tons carrying four 9·2-inch guns and ten 7·5-inch guns at a speed of 23 knots. Formerly cruisers were divided into 1st, 2nd and 3rd classes, but in 1913 the terms cruiser and light cruiser were introduced. In a rapid succession of light cruisers the eight scouts of 2,670 to 2,940 tons with 3-inch guns were succeeded by the four "Town" classes of 4,800 to 5,400 tons with 6-inch guns. The "Arethusa" class of 3,500 tons completed in 1914 were oil fired, with turbines, a speed of 28½ knots, carrying 6-inch and 4-inch

guns. The numerically large "C" class of 3,750 to 4,290 tons with four or five 6-inch guns were followed by the "D" class of 4,850 tons with six 6-inch guns and the "E" class of 7,580 tons with seven 6-inch guns and a speed of 33 knots. Meanwhile the semi-heavy cruisers of the "Hawkins" class had appeared with a displacement of 9,770 tons and a main armament of seven 7·5-inch guns. For six years after 1918 no cruisers were laid down. When construction was resumed under the restrictions of the Washington Treaty it resulted in 13 cruisers of 10,000 tons with eight 8-inch guns (of which the *Cumberland* survives today) and two of 8,390 tons with six 8-inch guns. From these heavy cruisers a reversion was made to cruisers of moderate dimensions. The "Leander" and "Perth" classes of 6,830 to 7,270 tons carried eight 6-inch guns and were followed by the altruistically inspired dimunitions of the "Arethusa" class of 5,220 tons with six 6-inch guns. In the succeeding group of eight large cruisers of the "Southampton" class the triple turret was introduced for the first time in British cruisers. These, of 9,100 to 9,600 tons, originally mounted twelve 6-inch guns. Although now elderly they are still in service (described in the following pages) and are regarded in the fleet as one of the most successful cruiser designs ever produced. Great Britain now has 23 cruisers. Jellicoe estimated the number of cruisers necessary for the protection of British seaborne trade to be an absolute minimum of 70, a figure not attained since 1919. There are 73 cruisers in the United States Navy: 29 heavy cruisers, including three of 17,000 tons, and 44 light cruisers, including two of 14,700 tons. Russia has 30 cruisers.

SUPERB **SWIFTSURE** **CEYLON** **NEWFOUNDLAND**

These four ships represent successive developments from the pre-war "Southampton" class with "X" turret suppressed and additional anti-aircraft armament. All practically identical from the recognition aspect, except *Newfoundland*, which has the new pattern lattice masts. *Ontario* and *Uganda*, of this type, transferred to the Royal Canadian Navy. Three developments of the *Superb*, the *Blake*, *Defence* and *Tiger* have been laid up incomplete since 1946. It is now announced that they are to be completed with a new armament of four 6-inch guns of a new quick-firing pattern and twelve 3-inch guns, presumably similar to the U.S. model. Although these ships are similar to *Superb* in appearance at the moment it is difficult to predict their new appearance on completion.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
8,800 to 9,000 tons	11,110 to 11,560 tons	555½ feet	62 to 64 feet	21 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
9–6 inch	(first two) 10–4 inch (others) 8–4 inch	18–2 pdr. or 17–40 mm. or 12–40 mm. and 12–20 mm.	6–21 inch	4 inch side 2 inch deck

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	72,500	4 Admiralty 3-drum	31·5 knots	800–860 peace 950–1,000 war

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Superb	23 June 1942	31 Aug. 1943	16 Nov. 1945	Swan Hunter	Builders
Swiftsure	22 Sept. 1941	4 Feb. 1943	22 June 1944	Vickers-Armstrongs, Tyne	Vickers-Armstrongs, Barrow
Ceylon	27 April 1939	30 July 1942	13 July 1943	A. Stephens & Sons	Builders
Newfoundland	9 Nov. 1939	19 Dec. 1941	31 Dec. 1942	Swan Hunter	Wallsend

CEYLON

BELLONA	**DIADEM**	**ARGONAUT**	**DIDO**	**PHOEBE**
BLACK PRINCE	**ROYALIST**	**CLEOPATRA**	**EURYALUS**	**SIRIUS**

These ten vessels, representing the "Dido" and improved "Dido" classes, are the survivors of a class of sixteen, five having become war losses and one having been scrapped due to serious war damage. Two of the modified "Dido" class are on loan to the Royal New Zealand Navy, the *Bellona* and *Black Prince*. The first four ships can be distinguished from the remainder by their funnels and masts, which have no rake whatsoever. *Royalist* is also reported to be fitting with lattice masts. In the original "Dido" class two ships, *Dido* and *Sirius*, retain the third forward turret with which the whole class was at one time fitted. This has been removed in the remaining ships, and was never mounted in the improved "Dido" class, in order to reduce top weight on the fitting of radar equipment. *Argonaut* had her bow and stern blown off in the Mediterranean during the war, but was able to make Philadelphia Navy Yard where she was rebuilt. One of the New Zealand units are active, remainder in reserve. New Zealand is to exchange *Bellona* for *Royalist* in 1955–56.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
5,770 tons	7,120 to 7,560 tons	512 feet	50½ feet	18 feet

Main armament	*Secondary armament and anti-aircraft armament*	*Torpedo tubes*	*Armour*
10 or 8 5·25 inch	8 to 12 2 pdr., 2 to 12 40 mm., 4 to 13 20 mm.	6 21 inch in some	2 inch deck 2 inch side

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	64,000	4 Admiralty 3-drum	32 knots	550–620

Dido, *Argonaut* built by Cammell Laird, *Euryalus* by Chatham Dockyard, *Phoebe*, *Bellona* by Fairfield Shipbuilding Co. *Sirius* by Portsmouth Dockyard, *Cleopatra*, *Diadem* by Hawthorn Leslie, *Royalist* by Scotts Shipbuilding & Engineering, Co., and *Black Prince* by Harland & Wolff.

CLEOPATRA

BELLONA

BERMUDA **GAMBIA** **JAMAICA** **KENYA** **MAURITIUS**

Five of a class of eight ships, two having been lost in action and one sold, these very successful ships are the intermediate between the original "Town" class and the *Superb* and her half sisters. Originally designed with four triple turrets these have now been reduced to three to cut down top weight. *Nigeria*, the vessel sold to the Indian Navy and now refitting on Merseyside, is the only vessel still to retain this fourth turret and it is possible that this may be removed prior to completion of her refit. All ships identical in appearance, except for differing A.A. armament, not apparent at any but close range; except that *Jamaica* has a radar mast mounted by the after funnel.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
9,000 tons	11,000 to 11,270 tons	555½ feet	62 feet	21 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
9–6 inch	8–4 inch	various 2 pdr. and/or 40 mm. maximum 24–2 pdr., 26–40 mm.	6–21 inch	4½ inch side 2 inch deck

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	72,500	4 Admiralty 3-drum	31·5 knots	730 peace 980 war

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Bermuda	30 Nov. 1939	11 Sept. 1941	5 Aug. 1942	Clydebank	Builders
Gambia	24 July 1939	30 Nov. 1940	21 Feb. 1942	Swan Hunter	Wallsend
Jamaica	28 April 1939	16 Nov. 1940	29 June 1942	Vickers-Armstrongs, Barrow	Builders
Kenya	18 June 1938	18 Aug. 1939	28 Aug. 1940	A. Stephens & Sons	Builders
Mauritius	31 Mar. 1938	19 July 1939	14 Dec. 1940	Swan Hunter	Wallsend

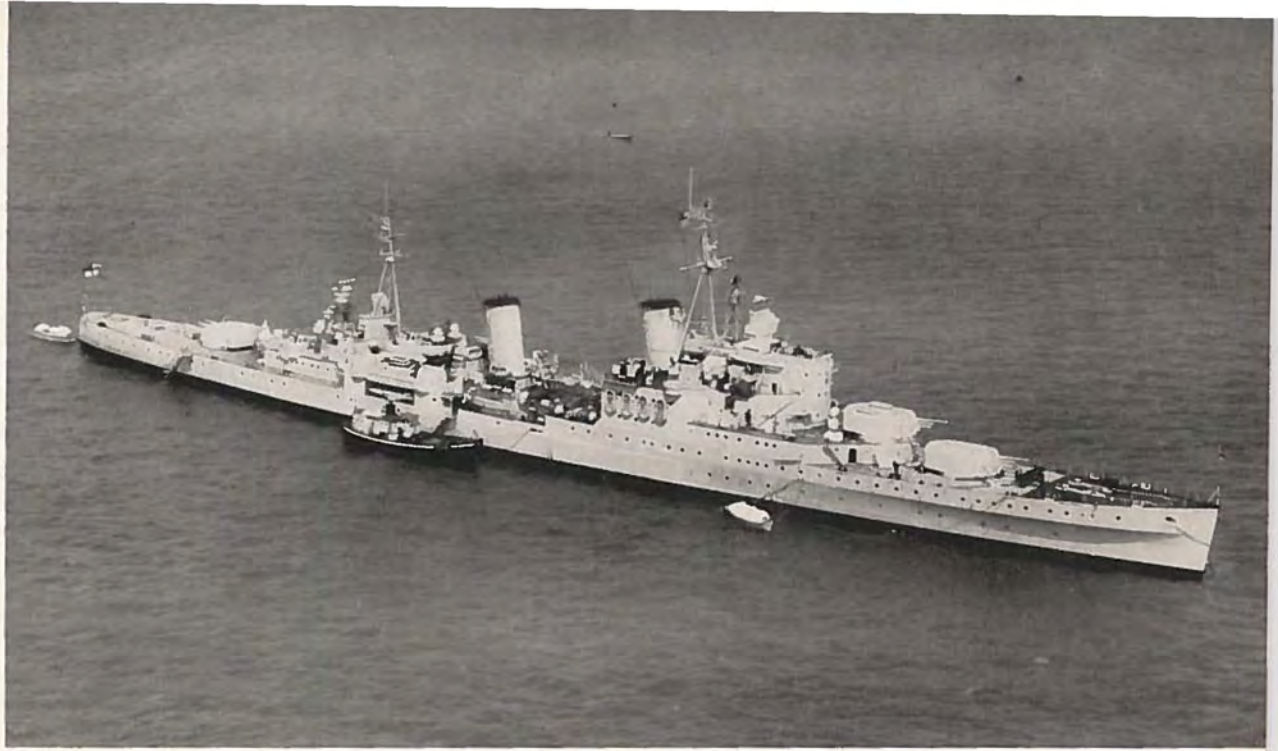
GAMBIA

BELFAST **LIVERPOOL** **BIRMINGHAM** **NEWCASTLE** **GLASGOW** **SHEFFIELD**

Two distinct classes, one again subdivided. *Liverpool* is somewhat larger than the four original "Southampton" class ships, whilst *Belfast* is considerably larger and differs totally in appearance. These ships have proved to be probably the most successful class of cruiser built for many years for the Royal Navy. Three were lost during the war. Originally built with four turrets, one has now been removed to reduce top weight. Recognitionally: *Birmingham* is the only ship without a knuckle to her bows, *Birmingham* and *Newcastle* have lattice foremasts, *Glasgow* has a homing beacon mast abeam the after funnel, *Sheffield* has a less rounded bridge front than *Liverpool*. *Belfast* is unique in her appearance. Not only does she retain her four turrets but the after funnel is abaft the mainmast and there is a considerable break between the fore funnel and the bridge. This ship had her back broken by a mine and was rebuilt. Her sister ship, *Edinburgh*, was lost in action.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
9,100 tons (9,400 *Liverpool*) 11,550 tons (*Belfast*)	12,100 to 12,680 tons 15,000 tons (*Belfast*)	592 feet 613½ feet	62 feet 66½ feet	20 feet 23 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
9 6 inch 12 6 inch (*Belfast*)	12 5 inch, 8 4 inch	26 2 pdr. or 18 40 mm. 32 2 pdr., 9 40 mm.	6 21 inch	4 inch side 2 inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	75,000 82,500 (*Liverpool*) 80,000 (*Belfast*)	4 Admiralty 3-drum	32 knots 32·3 knots 30·5 knots	711 to 850

Birmingham built by Devonport Dockyard, *Glasgow* by Scotts, *Newcastle* and *Sheffield* by Vickers-Armstrongs, Tyne, *Liverpool* by Fairfield and *Belfast* by Harland & Wolff. First four completed 1937, *Liverpool* 1938 and *Belfast* 1939.



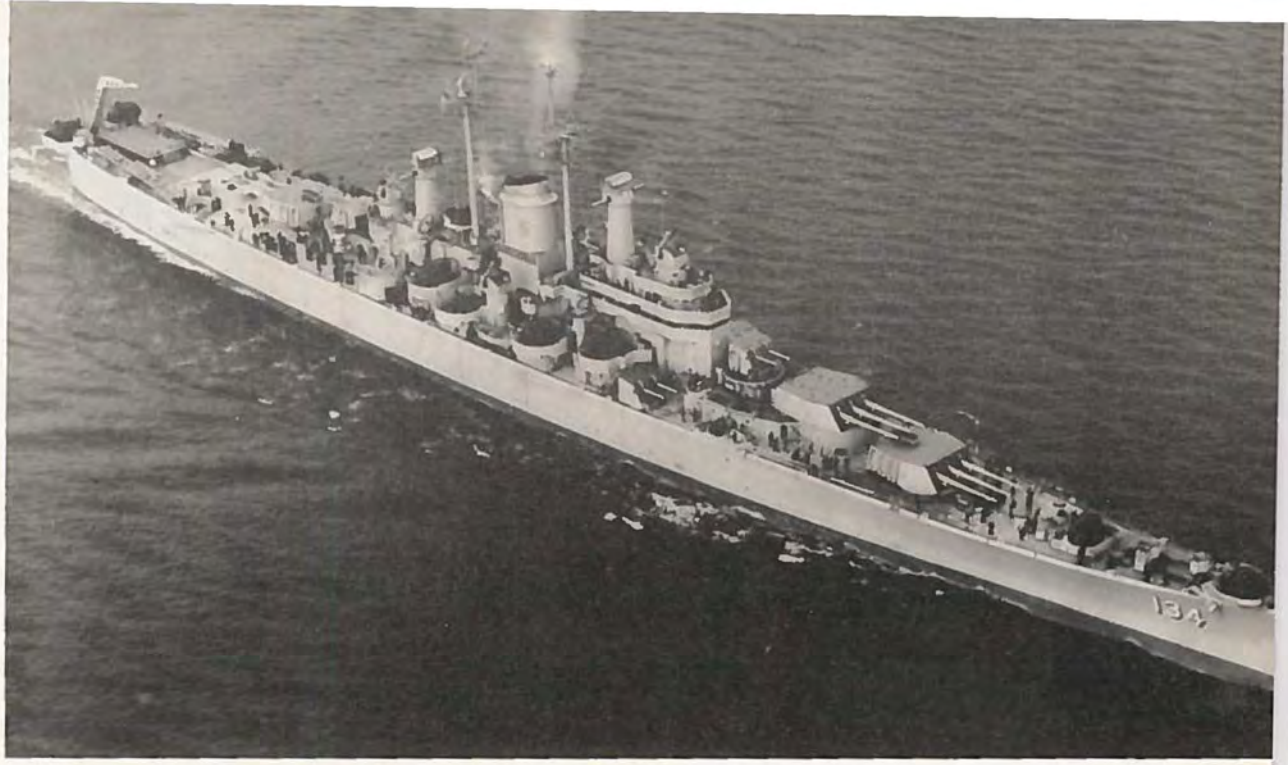
SHEFFIELD

DES MOINES **NEWPORT NEWS** **SALEM**

The biggest cruisers ever built, these ships mount the new fully automatic eight-inch gun. The large tonnage can be accounted for by the extra magazine space required and the great amount of loading and handling gear. The class is, in fact, nearly twice the size of the standard British cruiser and carries twice the complement. New type main armament is said to be capable of a twenty-round-a-minute rate of fire, brass cartridge cases having replaced the old wrapped charges. Whilst capable of delivering an incredible weight of shellfire in a short time, the ship might be at a disadvantage if a shell hit disorganised or put out of action the complex loading and fusing mechanism, forcing turret crews to go into local control and manual handling. Superstructure is not so heavy, and they have pole masts, otherwise this class could be mistaken for the "Alabama" class battleships in a hasty observation, the more so as they are in fact thirty-six feet longer than the battleships.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
17,000 tons	21,500 tons	716½ feet	75½ feet	26 feet
Main armament	*Secondary armament*	*Aircraft*	*Armour*	*Complement*
9–8 inch	12–5 inch, 24–3 inch	1 helicopter	8 inch side, 5 inch deck	1,860 war
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Geared turbines	120,000	4 Babcock & Wilcox		33 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Des Moines	28 May 1945	27 Sept. 1946	17 Nov. 1948	Bethlehem Steel Co.	Builders
Newport News	4 June 1945	25 Mar. 1947	9 May 1949	Bethlehem Steel Co.	Builders
Salem	1 Oct. 1945	6 Mar. 1947	29 Jan. 1949	Newport News Co.	Builders



DES MOINES

ALBANY **OREGON CITY** **ROCHESTER**

The prototype of the "Des Moines" class of ship, these ships represent the sum of lessons learnt in the earlier part of the Pacific war, witness the enormous anti-aircraft battery and the arrangements made to control it. The single funnel is an attempt to keep as much deck space clear as possible for A.A. weapons and also to provide a clear field of fire. As ships are refitted they will receive the new twin 3-inch mount in lieu of their 40 mm. and 20 mm. weapons. This is standard procedure in all American warships, as it was found in 1945 that the 20 mm. gun was incapable of stopping a suicide plane, and the 40 mm. little better. Twenty 3-inch guns will be or have been mounted instead of the battery shown in the details. As in all American ships, catapults and aircraft are being discarded in favour of helicopters as ships refit for active duty. *Oregon City*, in reserve, still has her catapults, but will lose these shortly.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
13,700 tons	17,500 tons	673½ feet	71 feet	26 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Aircraft*	*Armour*
9–8 inch	12–5 inch	52–40 mm., 24–20 mm.	1	6 inch side, 5 inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
G. Electric geared turbines	120,000	4 Babcock & Wilcox	33 knots	1,700

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Albany	8 April 1944	9 April 1945	16 Feb. 1946	Bethlehem Steel Co.	Builders
Oregon City	6 Mar. 1944	30 June 1945	15 June 1946	Bethlehem Steel Co.	Builders
Rochester	29 May 1944	28 Aug. 1945	20 Dec. 1946	Bethlehem Steel Co.	Builders

ALBANY

BALTIMORE	**CANBERRA**	**FALL RIVER**	**MACON**	**ST. PAUL**
BOSTON	**CHICAGO**	**HELENA**	**PITTSBURGH**	**TOLEDO**
BREMERTON	**COLUMBUS**	**LOS ANGELES**	**QUINCY**	

The standard American heavy cruiser of the Second World War developed from the *Wichita*. A number of units converted into aircraft carriers prior to their launch. Two ships, *Boston* and *Canberra*, have have their after turrets removed and replaced by guided missiles launching platforms. A third ship, *Los Angeles*, has also become a guided missile ship, but without loss of armament. *Canberra*, a departure from the usual naming system of American cruisers, is so named to commemorate the Australian cruiser of that name sunk with several American ships in the Battle of Savo Island, 1943. In all active units 40 mm. mounts are replaced by twenty 3-inch guns in twin mounts. Reserve units will be so converted during refit for active service.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
13,600 tons	17,200 tons	673½ feet	71 feet	26 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Aircraft*	*Armour*
9–8 inch	12–5 inch	52–40 mm.	1	6 inch side, 5 inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Geared turbines	120,000	4 Babcock & Wilcox	34 knots	1,700

Baltimore, *Boston*, *Canberra*, *Quincy*, *Pittsburgh*, *St. Paul*, *Columbus* and *Helena* by Bethlehem Steel Co.; *Bremerton*, *Fall River*, *Macon* and *Toledo* by New York Shipbuilding Corporation; *Los Angeles* and *Chicago* by Philadelphia Navy Yard. All completed in order of names for each yard between April 1943 and October 1946.

BALTIMORE

NEW ORLEANS **MINNEAPOLIS** **TUSCALOOSA** **SAN FRANCISCO**

The last heavy cruisers to be built for the Navy prior to the war, these ships and the very similar *Wichita*, form the basis for the wartime "Baltimore" design. All are now in reserve and are not likely to be re-commissioned except in grave emergency. Neither, however, will they be disposed of, as is shown by the reversal of a decision to dispose of the older *Chester* and her sisters which were restored to the Fleet List after being offered for disposal after the war.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
9,950 tons	13,500 tons	588 feet	61¾ feet	25 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Aircraft*	*Armour*
9–8 inch	8–5 inch	24–40 mm., 19–20 mm.	4	5 inch side, 5 inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Geared turbines	107,000	8 Babcock & Wilcox	33 knots	876 peace, 1,200 war

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engines*
New Orleans	14 Mar. 1931	12 April 1933	18 April 1934	New York Navy Yard	Westinghouse
Minneapolis	27 June 1931	6 Sept. 1933	20 June 1934	Philadelphia Navy Yard	Westinghouse
Tuscaloosa	3 Sept. 1931	15 Nov. 1933	17 Aug. 1934	New York Shipbuilding Corp.	Builders
San Francisco	9 Sept. 1931	9 Mar. 1934	23 April 1935	Mare Island Navy Yard	Westinghouse

NEW ORLEANS

PORTLAND **AUGUSTA** **CHESTER** **LOUISVILLE**

The oldest surviving American cruisers, all these ships were placed on the disposal list in 1946, but were re-instated in the Reserve in 1952 in view of the worsening world situation. They differ very considerably in appearance from their successors, the widely spaced funnels and mainmast forward of the after funnel marking them out. The considerable gap between the funnels is filled by a catapult on a tall turntable; in the event of them recommissioning for an emergency this feature would probably be removed as has been the case in all other active units.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
(*Portland*) 9,800 tons	13,000 tons	610 feet	66 feet	24 feet
9,050 tons	12,000 tons	600 feet	66 feet	23 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Aircraft*	*Armour*
(*Portland*) 9–8 inch	8–5 inch	24–40 mm., 16–20 mm.	1	4 inch side, 4 inch deck
9–8 inch	8–5 inch	32–40 mm., 27–20 mm.	1	3 inch side, 3 inch deck

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	107,000	8 White Forster (*Portland* 8 Yarrow)	32·7 knots	870 peace, 1,200 war

Name	*Begun*	*Launched*	*Completed*	*Builders and Engineers*
Portland	17 Feb. 1930	21 May 1932	23 Feb. 1933	Bethlehem Steel Co.
Augusta	2 July 1928	1 Feb. 1930	30 Jan. 1931	Newport News
Chester	6 Mar. 1928	3 July 1929	24 June 1930	New York Shipbuilding Corp.
Louisville	4 July 1928	1 Sept. 1930	15 Jan. 1931	Puget Sound Navy Yard

LOUISVILLE

AUGUSTA

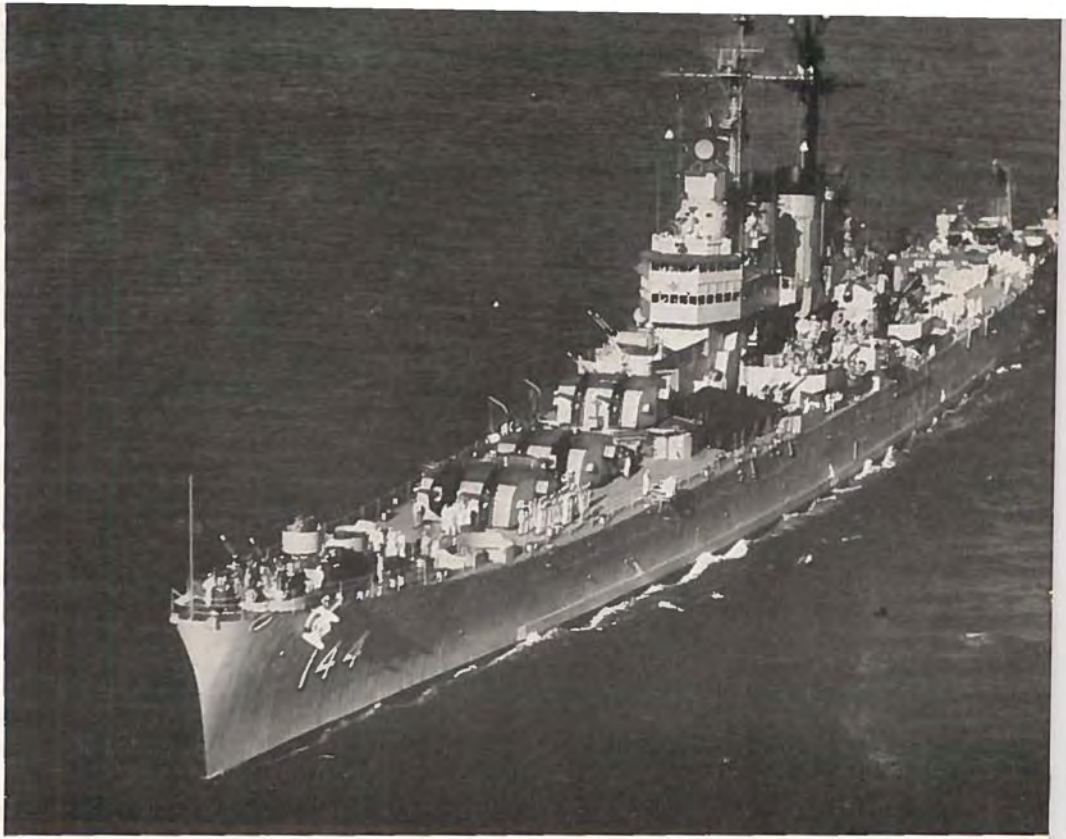
ROANOKE **WORCESTER**

The latest American so-called light cruisers, these vessels revert to the twin turret, unusual for American design. Armed with 6-inch guns they are, by Treaty definition, "light" cruisers even though in tonnage they surpass the majority of the world's heavy cruisers. Eight intended sisters to these ships were cancelled at the end of the last war, two had actually been commenced. The main armament is semi-automatic and can be used as an anti-aircraft battery. Gun layout, and indeed the general design of the ships, is the same as the "Juneau" class anti-aircraft cruisers for which they could easily be mistaken.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
14,700 tons	18,000 tons	679½ feet	71 feet	25 feet
Main armament	*Secondary armament*	*Aircraft*	*Armour*	*Complement*
12 6 inch	24 3 inch	1 helicopter	6 inch side, 5 inch deck	973 peace, 1,700 war
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Geared turbines	120,000	4 Babcock & Wilcox		32 knots

Name	*Begun*	*Launched*	*Completed*	*Builders and Engineers*
Roanoke	15 May 1945	16 June 1947	4 April 1948	New York Shipbuilding Corp
Worcester	29 Jan. 1945	4 Feb. 1947	25 June 1948	New York Shipbuilding Corp

WORCESTER



FARGO **HUNTINGTON**

These two ships are very similar to the "Cleveland" class next described, from which they are developed. The large single funnel and simplified superstructure is an attempt to extend the arcs of fire of the light anti-aircraft armament as a result of lessons learnt in the last days of the Pacific war, when heavy and accurate fire was essential to preserve ships from the suicide attacks then prevalent. At present in reserve, the ships will no doubt lose their catapults and aircraft in favour of helicopters on next commissioning.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
10,000 tons	13,755 tons	610 feet	66 feet	25 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Aircraft*	*Armour*
12–6 inch	12–5 inch	24–40 mm., 19–20 mm.	3	5 inch side, 5 inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
G.E. geared turbines	100,000	4 Babcock & Wilcox	32·5 knots	916 peace, 1,200 war

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Fargo	23 Aug. 1943	25 Feb. 1945	9 Dec. 1945	New York Shipbuilding Corp.	G.E.C.
Huntington	4 Oct. 1943	8 April 1945	23 Feb. 1946	New York Shipbuilding Corp.	G.E.C.

HUNTINGTON

AMSTERDAM	**COLUMBIA**	**LITTLE ROCK**	**PASADENA**	**VICKSBURG**
ASTORIA	**DAYTONA**	**MANCHESTER**	**PORTSMOUTH**	**VINCENNES**
ATLANTA	**DENVER**	**MIAMA**	**PROVIDENCE**	**WILKES-BARRE**
BILOXI	**DULUTH**	**MOBILE**	**SANTA FE**	
BIRMINGHAM	**GALVESTON**	**MONTPELIER**	**SPRINGFIELD**	
CLEVELAND	**HOUSTON**	**OKLAHOMA CITY**	**TOPEKA**	

Although classed as light cruisers on account of their 6-inch guns, these ships are larger than many heavy cruisers of the pre-war era. Numerically the largest class ever ordered, nine were converted into aircraft carriers. Typically American in appearance; with raking pole masts and tall funnels set close together, they could be mistaken for the "Baltimore" class heavy cruisers in a hasty observation. The cranes and catapults aft are giving way to stowage space for helicopters as ships are refitted. The class represents a force greater than the entire cruiser strength of the Royal Navy. In due course the anti-aircraft armament will be modernised by 3-inch weapons replacing the current 40 mm. and 20 mm. mounts. This has already been done in the *Manchester*.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
10,000 tons	13,755 tons	610 feet	66 feet	25 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Aircraft*	*Armour*
12–6 inch	12–5 inch	24 to 28–40 mm., 19–20 mm.	3	5 inch side, 3 inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
G.E. geared turbines	100,000	4 Babcock & Wilcox	33 knots	916 peace, 1,200 war

All vessels built between July 1940 and June 1945 by the New York Shipbuilding Corporation (*Cleveland, Columbia, Montpelier, Denver, Santa Fe, Wilkes-Barre, Atlanta* and *Dayton*); Bethleham Steel Co. (*Vincennes, Pasadena, Springfield, Topeka, Providence* and *Manchester*); Cramp Shipbuilding Co. (*Miama, Astoria, Olkahoma City, Little Rock, Galveston*); Newport News Co. (*Birmingham, Mobile, Biloxi, Houston, Vicksburg, Duluth. Amsterdam* and *Portsmouth*). Ships are named in sequence of completion by builders.

MANCHESTER

HONOLULU **SAVANNAH**

These two ships, now in reserve, have six sister ships serving in South American navies: the Argentinian *17 de Octubre* (ex-*Phoenix*) and *9 de Julio* (ex-*Boise*), Brazilian *Barroso* (ex-*Philadelphia*) and *Tamandare* (ex-*St. Louis*) and Chilean *Prat* (ex-*Nashville*) and *O'Higgins* (ex-*Brooklyn*). All these ships were transferred in 1951 as part of a plan to strengthen South American forces. Transfer was carried out for ten per cent of original cost plus refitting expenses. The ships are of somewhat unusual appearance, with a lattice tower between the funnels and a considerable gap between the after funnel and mainmast, they are thus similar in appearance to the *Wichita* and "New Orleans" class, with the difference of the main armament, with a third turret forward at main deck level trained aft. This arrangement is somewhat similar to the British *Rodney*, and was also used in a number of contemporary Japanese cruisers.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
9,650 and 9,475 tons	14,000 and 12,600 tons	608½ feet	69 feet	24 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Aircraft*	*Armour*
15–6 inch	8–5 inch	28–40 mm., 24–20 mm.	4	4 inch side, 5 inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Geared turbines	100,000	8 Babcock & Wilcox	32·5 knots	975 peace, 1,200 war

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Honolulu	31 May 1934	8 May 1937	30 Aug. 1938	New York Shipbuilding Corp.	Builders
Savannah	10 Sept. 1935	26 Aug. 1937	7 Sept. 1938	New York Navy Yard	Builders

BARROSO

FLINT **JUNEAU** **RENO** **SAN JUAN** **TUCSON**
FRESNO **OAKLAND** **SAN DIEGO** **SPOKANE**

The smallest cruisers in the United States Navy, these vessels are now rated as anti-aircraft cruisers. Three to four years later than the British *Dido*, these vessels are very similar in armament and layout. Original ships mounted two more twin 5-inch turrets on the beam in lieu of the torpedo tubes. These have since been removed, as have the torpedo mounts. Sole active ship, *Juneau*, has had her 40 mm. and 20 mm. pieces replaced by fourteen 3-inch guns in twin mounts. It is assumed that all other ships will be so refitted eventually.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
6,000 tons	8,100 to 8,300 tons	541 feet	52½ feet	24 feet

Main armament	*Anti-aircraft armament*	*Aircraft*	*Armour*	*Complement*
12–5 inch	24 to 32–40 mm., 12 to 16–20 mm. or 14–3 inch	1 helicopter	3½ inch side, 2 inch deck	579 peace, 700 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Westinghouse geared turbines	75,000	4 Babcock & Wilcox	35 knots (32 in service)

Name	*Begun*	*Launched*	*Completed*	*Builders*
Flint	23 Oct. 1942	25 Jan. 1944	31 Aug. 1944	Bethlehem Steel Co.
Fresno	12 Feb. 1945	5 Mar. 1946	27 Nov. 1946	Federal Shipbuilding and D.D. Co.
Juneau	15 Sept. 1944	15 July 1945	14 Feb. 1946	Federal Shipbuilding and D.D. Co.
Oakland	13 July 1941	23 Oct. 1942	17 July 1943	Bethlehem Steel Co.
Reno	12 Aug. 1941	23 Dec. 1942	28 Dec. 1943	Bethlehem Steel Co.
San Diego	27 Mar. 1940	26 July 1941	10 Jan. 1942	Federal Shipbuilding and D.D. Co.
San Juan	15 May 1940	6 Sept. 1941	28 Feb. 1942	Federal Shipbuilding and D.D. Co.
Spokane	15 Nov. 1944	22 Sept. 1945	17 May 1946	Federal Shipbuilding and D.D. Co.
Tucson	23 Dec. 1942	3 Sept. 1944	3 Feb. 1945	Federal Shipbuilding and D.D. Co.

FRESNO

ADMIRAL NACHIMOV	DIMITRI DONSKOI	OLEG	SUVOROV	VARYAG
ADMIRAL USHAKOV	DZERZHINSKI	ORDZHONIKIDZE	SVERDLOV	VOIKOV
ALEXANDER NEVSKI	MIKOJAN	RURIK	TCHERBAKOV	ZHDANOV

The most modern and amongst the most powerful cruisers afloat, little was known of these ships until 1953, three years after the first launching, when the *Sverdlov* attended the Coronation Review at Spithead, and one of her sisters paid a courtesy visit to Sweden. It is believed that twelve vessels have been launched and a further six are under construction. The names given above are subject to confirmation, accurate information being difficult to obtain. From photographs there seems to be slight variation in later ships in the siting of the anti-aircraft mountings. From external inspection there is an armour belt around the whole hull, of at least three-inch thickness. Two sets of mine rails are fitted on the quarterdeck. Guns are reported to be German models and may well be 5·9-inch and 3·5-inch pieces captured after the war. The secondary armament turrets are very similar to the German 4·1-inch mounts with the guns mounted very far back in the turret and elevating in the roof rather than the turret face. To be distinguished from "Tchapayev" class by break of forecastle being aft, not abeam the bridge.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
12,800 tons	17,000 tons	689 feet	66 feet	24 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Mines*
12–6 inch	12–3·5 inch	32–37 mm.	10–21 inch	140
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Turbines	130,000	6	34·5 knots	1,050

SVERDLOV

FRUNSE **TCHAPAYEV** **TCHAKLOV** **ZHELESNYAKOV**

Intended as a development of the original "Kirov" design, the construction of these ships had to be halted during the war and was not resumed until 1946 or 1947. They differ little in appearance from their successors of the "Sverdlov" class, except that the break in deck level occurs at the bridge and not right aft; they also have a somewhat more built-up appearance aft of the funnels.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
11,500 tons	13,000 tons	656 feet	64½ feet	21 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Mines*	*Armour*
12–6 inch	8–4 inch	28–37 mm	100	Heavy side belt
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Geared turbines	113,000	6	35 knots	834

ZHELESNYAKOV

KIROV **MOLOTOV** **KAGANOVITCH** **MAKSIM GORKI**
KALININ **VOROSHILOV**

The first modern cruisers of the Russian Navy since the Revolution, these ships are said to have been designed by Italian experts, a belief certainly not belied by their appearance. Actually falling into two groups of two and four ships, these vessels have identical armament and dimensions. Two sisters were destroyed incomplete on the slip at the time of the German invasion. One vessel at least has had a long refit, making her recognitionally similar to the later "Tchapayev" and "Servdlov" types. Lack of recent uncensored photographs makes a definite description difficult. The remaining vessels of the Russian cruiser fleet are of somewhat mixed ancestry. One, the *Admiral Makarov* (ex-*Nurnberg*), is the sole survivor of the German cruisers. She is a 9,100-ton vessel, disposing nine 5·9-inch guns with a speed of 31·5 knots. The second modern ship is the *Stalingrad* (ex-Italian *Emmanuele Filiberto Duca D'Aosta*), handed over in the Black Sea after the Peace Treaty. Original details were eight 6-inch guns in a 36-knot, 10,500-ton hull, but it is not known if the Russians have rearmed this ship as they are believed to have done the *Makarov*. Two other ships are relics of Tsarist days, the *Krasni Kavkaz*, laid down in 1914 and completed in 1932, and the *Krasni Krim*, laid down in 1913 and completed in 1924. Both these vessels suffered from neglect in the post-revolutionary days and have had a long life. They are unlikely to be fit for further service except as barracks or training ships. Details of the "Kirov" class ships are given below.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draugh*
8,800 tons	9,500 tons	626¾ feet	59 feet	20 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Mines*
9–7·1 inch	8–4 inch	10–37 mm., 6–13 mm.	6–21 inch	60
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Geared turbines and cruising diesels	110,000	6 Yarrow or Normand	35 knots	734

KIROV

DE GRASSE

A vessel with a very chequered career before she even began her trials. Laid down in 1938, her construction has been stopped twice, by war and financial stringency. Redesigned twice, her final *corpus delicti* was to flood in dock prior to her trials due to valves having been left open when the dry dock was flooded to float her out, after completing in Brest dockyard. Repaired and dried out after this mishap, she is now on trials and she should be in full commission this year, seventeen years after construction commenced. A recognitionally identical ship, the *Colbert*, is under construction at Brest and when completed these two ships will form a formidable anti-aircraft defence for a fleet or convoy.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
9,000 tons	11,300 tons	592 feet	60 feet	18½ feet
Main armament	*Secondary armament*	*Armour*		*Complement*
16·5 inch	20·57 mm.	4 inch side, 3 inch deck		1,074
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Geared turbines	120,000	4		33·5 knots

Begun	*Launched*	*Completed*	*Builders*	*Engineers*
Nov. 1938	11 Sept. 1946	1955	Lorient Dockyard, Brest Dockyard	A. Ch. de Bretagne

DE GRASSE

GLOIRE GEORGES LEYGUES MONTCALM

Survivors of a class of six, three ships having been scuttled at Toulon in 1942, these vessels form the French Navy's only cruiser force, other vessels being for training or anti-aircraft duties only. Said to be a very successful design, these vessels can still make their designed speed in a full-load condition after seventeen years' service. Designed with only one mast and possessors of a long low silhouette, this has now been marred by the addition of a heavy mainmast of the American pattern, equipped with radar scanners and aerials. Another vessel is the training cruiser, *Jeanne D'Arc*, which has a useful armament of eight 8-inch guns. She is, however, twenty-six years old. She can be recognised by her liner-like accommodation decks, and a prominent crane between her twin funnels. Particulars of the "Gloire" class are:

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
7,600 tons	10,850 tons	581 feet	57½ feet	17½ feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
9-6 inch	8-3·5 inch	24–40 mm., 16–20 mm	4–21·7 inch	4 inch side, 2¾ inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Geared turbines	84,000	4 Indret	31 knots	674 peace, 764 war

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Gloire	1933	28 Sept. 1935	Dec. 1937	F. C. Gironde	A. Ch. de Bretagne
Georges Leygues	1933	24 Mar. 1936	4 Dec. 1937	Penhoet	Builders
Montcalm	1933	26 Oct. 1935	Oct. 1937	F. C. Med.	Builders

GLOIRE

GIUSEPPE GARIBALDI **LUIGI DI SAVOIA DUCA DEGLI ABRUZZI**

These two ships, together with the *Raimondo Montecuccoli*, a similar ship to the Greek *Elli*, described on a later page, are the sole survivors of the once large Italian cruiser force. Both were refitted during 1950 to 1953 and are now comparable with modern cruisers, effective units even though their speed has dropped to 31 knots from its original 35. The 3·9-inch guns in the *Luigi di Savoia Duca degli Abruzzi* are star shell firing weapons only, not anti-aircraft as in the *Giuseppe Garibaldi*. Originally both ships mounted torpedo tubes and catapults.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
9,802 tons	11,590 tons	614 feet	61 feet	17 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
(*G.G.*) 10–6 inch	10–3·9 inch	12–37 mm., 10–20 mm., 3–8 mm.	4½ inch side	600
(*L.S.D.A.*) 10–6 inch	4–3·9 inch	24–40 mm.		

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	100,000	8 3-drum type	35 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Garibaldi	Dec. 1933	21 April 1936	1937	C. R. dell' Adriatico
Abruzzi	Dec. 1933	21 April 1936	1937	Oderno-Terni-Orlando

LUIGI DI SAVOIA DUCA DEGLI ABRUZZI

DE RUYTER **DE ZEVEN PROVINCIEN**

Bearing the names of famous warships of the past, and, incidentally, that of one another, their names having been transposed, these ships represent the last word in European naval design. Laid down in 1939 the hulls of these ships were captured by the Germans and intermittent work continued. One, the present *De Ruyter*, was launched by the Germans, but as the *De Zeven Provincien*. The change of names and, indeed, the retention of the Dutch name is puzzling and unexplained. Somewhat American in design, the secondary armament is superimposed over the main armament. The grotesque mast-funnel design is unparalleled in the world. Originally the mainmast was abaft the after funnel, but has since been moved forward of it, possibly because heat and fumes affected radar gear. Pennant numbers carried on the bow after the American pattern, C 801 and C 802 respectively. Differing shape of bow accounts for discrepancy in lengths.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
9,664 tons	11,926 tons	614½ feet 609 feet	57 feet	22 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Armour*	*Complement*
8–6 inch	8–57 mm.	8–40 mm.	3 inch side	973

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	78,000	4 3-drum type	32 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
De Ruyter	5 Sept. 1939	24 Dec. 1944	18 Nov. 1953	Wilton-Fijenoord
De Zeven Provincien	19 May 1939	22 Aug. 1950	17 Dec. 1953	Rotterdam D.D. Co.

DE RUYTER

GÖTA LEJON TRE KRONOR

The Royal Swedish Navy's most modern heavy ships, these cruisers are unmistakable for any other ship, an enormous director on a box bridge, ultra light masts and very heavily raked, squat funnels being their recognition feature. An unusual gun arrangement with a triple turret forward and two twin turrets aft also mark them out. So large is the bridge in comparison to the forward turret that at a distance the ships do not seem to mount a forward armament. Fast, well armed and modern, they have been reconstructed and refitted already in their seven years of life; and they could well prove a match for other ships of the cruiser type in the Baltic. Another unusual vessel completes Sweden's cruiser squadron, the *Gotland*, 4,750 tons. Truly a ship of many parts she was designed as a cruiser/seaplane carrier with a flight deck aft and a cruiser armament of six 6-inch guns. Converted since to an anti-aircraft cruiser with nests of light A.A. guns in place of the flight deck she now serves as a training ship. She is also equipped as a minelayer. Built in 1934 she is the last ship designed to mount her armament in the antiquated casemate mounting. Two of her six main guns are so mounted at upper deck level under the bridge. Particulars of *Gota Lejon* and *Tre Kronor* are:

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
8,000 tons	10,000 tons	590½ feet	54 feet	20 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Mines*	*Complement*
7–6 inch	27–40 mm.	6–21 inch	160	618
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Armour*
De Laval geared turbines	100,000	4 4-drum type	33 knots	5 inch side

Name	*Begun*	*Launched*	*Completed*	*Builders*
Göta Lejon	27 Sept. 1943	17 Nov. 1945	1947	Eriksberg
Tre Kronor	27 Sept. 1943	16 Dec. 1944	1947	Gotaverken

GÖTA LEJON

CANARIAS

This ship, the largest in the Spanish Navy, is unique among the world's cruisers in that she reverted to a twenty-five-year-old design. From her launching until her last refit she was distinguished by an enormous single-trunked funnel, but she has now reverted to her original design of twin funnels, a reversal of the usual procedure. A sister ship, *Baleares*, was a victim of the Civil War, being torpedoed during a night action. *Canarias*' refit poses some recognition problems as at a hasty glimpse she is not now dissimilar to the ships of the "Galicia" class next detailed. Heavy turrets and absence of funnel rake should distinguish her to the careful observer.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
10,670 tons	12,230 tons	636 feet	64 feet	17½ feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
8–8 inch	8–4·7 inch	4–40 mm., 3–20 mm.	12–21 inch	2 inch side
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	90,000	8 Yarrow	33 knots	1,042
Begun	*Launched*	*Completed*	*Builders*	
15 Aug. 1928	28 May 1931	Sept. 1936	Soc. Espanol de Cons. Navale, Ferrol.	

CANARIAS

ALMIRANTE CERVERA **GALICIA** **MIGUEL DE CERVANTES**

These ships were designed in Britain shortly after the end of the First World War with a gun layout not dissimilar to the British *Emerald* (scrapped after the Second World War). *Almirante Cervera* still retains the original design, altered in her sisters in their refits, 1940–6. Her amidships turret reduces her secondary armament and precludes the mounting of the aircraft catapult found in the other ships. This class, with *Canarias*, represents the cruiser force of the Spanish Navy. Two other ships are of little account, the *Mendez Nunez* having been converted to an anti-aircraft cruiser of modernistic looks but thirty-seven years old; while the *Navarra*, two years older, has been officially removed from the effective fleet. There is no news of any intended replacements for any ship of this ageing cruiser fleet. "Galicia" class details follow.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
7,457 tons	9,385 tons	580 feet	54 feet	20 feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
8–6 inch	8–3·5 inch (4–4·1 inch in *Al. Cervera*)	8–37 mm., 20–20 mm.	6–21 inch (12 in *Al. Cervera*)	3 inch side, 1 inch deck

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*	*Aircraft*
Parsons geared turbines	80,000	8 Yarrow	33 knots	564	1

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Almirante Cervera	25 Nov. 1922	16 Oct. 1925	May 1927	Ferrol Dockyard	S.E.C.N.
Galicia	Aug. 1922	3 Jan. 1925	Dec. 1925	Ferrol Dockyard	S.E.C.N.
Miguel de Cervantes	April 1926	19 May 1928	1931	Ferrol Dockyard	S.E.C.N.

MIGUEL DE CERVANTES

ONTARIO **QUEBEC**

Ex-*Minotaur* and *Uganda* respectively, these ships are sisters of the British *Swiftsure* and *Ceylon*, and were transferred to the Royal Canadian Navy in 1944 and 1945. Both are now employed as training cruisers on the west and east coasts respectively and *Ontario* has been largely disarmed to provide extra accommodation, most of her secondary and anti-aircraft guns having been removed. There are no other recognition differences from their R.N. sisters, but they can be distinguished by the R.C.N. colour scheme of a dark-grey hull and light-grey superstructure, the maple leaf on the after funnel and the presence of pennant numbers on the bows in the American style.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
8,700 and 8,000 tons	11,480 and 10,840 tons	555½ feet	63 and 61½ feet	21 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
9–6 inch	2–4 inch (8 in *Quebec*)	4–40 mm. (18 in *Quebec*)	6–21 inch	4½–3 inch side
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	72,500	4 Admiralty 3-drum	31·5 knots	730

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Ontario	20 Nov. 1941	29 July 1943	25 May 1945	Harland & Woolff	Builders
Quebec	20 July 1939	7 Aug. 1941	3 Jan. 1943	Vickers-Armstrongs, Tyne	Builders

QUEBEC

HOBART

Survivor of a class of three, and sole member of the former Commonwealth squadron of six cruisers, *Hobart* is at present being reconstructed for use as a training cruiser. Details given below are as she was prior to this modernisation and it is not possible to forecast her appearance and details when completed, which is expected to be in late 1955 or early 1956. *Hobart* was originally named *Apollo* and was acquired with her two sisters, *Perth* and *Sydney*, lost in the Second World War, from the Royal Navy in 1938 to supplement the Commonwealth's two "County" class ships. These two vessels are now being broken up.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
7,105 tons	9,420 tons	555 feet	57 feet	16 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
6–6 inch	8–4 inch	8–2 pdr., 9–40 mm., 2–20 mm.	8–21 inch	3–2 inch side 2 inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	72,000	4 Admiralty 3-drum	32·5 knots	550

Begun	*Launched*	*Completed*	*Builder*	*Engineers*
15 Aug. 1933	9 Oct. 1934	Jan. 1936	Devonport Dockyard	Beardmore

HOBART

LA ARGENTINA **ALMIRANTE BROWN** **25 DE MAYO**

Two distinctly different types, totally unlike in appearance and reflecting their designers and builders. *La Argentina* was designed and built by Vickers-Armstrongs (Barrow) as a training cruiser and is not unlike the British "Colony" class in looks, though not so tall about the masts, bridge and funnels. The "Almirante Brown" class, on the other hand, betray their Italian origin in every line to anyone familiar with the pre-war Italian cruisers. These ships carry an unusual main armament of 7.5-inch weapons, a gun previously mounted in the British "Hawkins" class cruisers of 1919–46. It is understood from unofficial reports that the *Almirante Brown* and her sister are a disappointment in service, and they are in any case aged by modern standards. Now that they have been replaced by the ex-American ships of the "Brooklyn" class they will presumably pass from the scene.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
6,000 tons (*La Argentina*)	7,500 tons	541½ feet	56½ feet	16½ feet
6,800 tons (other two)	8,600 tons	545¾ feet	58 feet	16¼ feet

Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
9–6 inch	nil	14–40 mm.	6–21 inch	3 inch side, 2 inch deck
6–7·5 inch	12–3·9 inch	6–40 mm.	6–21 inch	3 inch side, 1 inch deck

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*	*Aircraft*
Parsons geared turbines	54,000	4 Yarrow	30 knots	764	2
Parsons geared turbines	85,000	6 Yarrow	32 knots	600	2

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
La Argentina	Jan. 1936	16 Mar. 1937	31 Jan. 1939	Vickers-Armstrongs, Barrow	Builders
Almirante Brown	1927	28 Sept. 1929	Sept. 1931	Odero, Sestri Ponente	
25 de Mayo	1927	11 Aug. 1929	Sept. 1931	Orlando	

LA ARGENTINA

DELHI

Delhi, the first major unit of the Indian Navy, has now served in three fleets, British, New Zealand and Indian. Prior to transfer she was the *Achilles* of River Plate fame. Taken over in July 1948, she has since served as flagship of the Indian Navy, and will be joined in 1957 by the *Mysore* (ex-British *Nigeria*), which has been purchased and is now refitting in Great Britain prior to joining the fleet. As regards identification, her sisters having been scrapped, there is little possibility of mistaking the *Delhi*, as the only vessels resembling her appearance are the Argentinian "Almirante Brown" class. Like most cruisers that served in the Royal Navy, "X" turret has been removed to save top weight. Whether the new Indian acquisition *Mysore* will suffer a like operation is not yet known.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
7,030 tons	9,740 tons	554½ feet	55½ feet	20 feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
6–6 inch	8–4 inch	15–40 mm.	8–21 inch	4 inch side, 2 inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Parsons geared turbines	72,000	4 Admiralty 3-drum	32 knots	680
Begun	*Launched*	*Completed*	*Builders*	*Engineers*
11 June 1931	1 Sept. 1932	10 Oct. 1933	Cammell Laird	Builders

DELHI

ELLI

An ex-Italian cruiser assigned to Greece as reparations for the sinking of the Greek warship *Helle* (or *Elli*) prior to the outbreak of the war in 1940. She has proved somewhat of a white elephant to the Royal Hellenic Navy, causing great manning difficulties as she absorbs most of the specialised ratings, which are badly needed for the destroyer and frigate squadrons. Typical of the inter-war development of Italian ships, speed having been gained at the cost of protection. To distinguish from her Italian half-sister, *Raimondo Montecuccoli*, note that the Italian ship no longer mounts the forward superfiring turret and that the superstructure around the after funnel is much smaller than that of the *Elli*.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
8,855 tons	10,660 tons	610 feet	57½ feet	16½ feet
Main armament	*Secondary armament*	*Anti-aircraft armament*	*Torpedo tubes*	*Armour*
8 6 inch	6 3·9 inch	8 37 mm., 12 20 mm.	6 21 inch	4 inch side, 1½ inch deck
Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Belluzzo geared turbines	110,000	6 3-drum type	36·5 knots	551

Begun	*Launched*	*Completed*	*Builder*
Jan. 1932	16 Mar. 1935	Jan. 1936	Ansaldo

EI LI

NORFOLK

A rather peculiar vessel of hybrid type, difficult to classify, this ship was first designated a cruiser, hunter killer ship, subsequently re-classified as a destroyer leader, and again re-classified as a frigate early in 1955. On a cruiser hull she mounts the armament of a destroyer, and was intended as a flagship for destroyers accompanying a heavy task force, her heavier displacement enabling her to carry the accumulation of modern anti-submarine and anti-aircraft devices impossible to mount in a destroyer hull. Her design has been evolved in the light of atomic experiments, and it is hoped and believed in the American Navy that neither atomic explosions nor weather will hinder this remarkable ship from operating at her full efficiency at all times. The ships to work with the *Norfolk* in the envisaged anti-submarine screen will, ideally, be of the new "Mitscher" type, later described.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
5,600 tons	7,300 tons	540 feet	54 feet	26 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
8 3 inch D.P.	8 20 mm.	4	8 Mk 108	480
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
G.E. geared turbines	80,000	4 Babcock & Wilcox		32 knots

Begun	*Launched*	*Completed*	*Builders*
1 Sept. 1949	29 Dec. 1951	4 Mar. 1953	New York Shipbuilding Corporation

NORFOLK

MITSCHER **JOHN S. McCAIN** **WILLIS A. LEE** **WILKINSON**

These ships, the latest counters in anti-submarine warfare, as big as light cruisers, were intended to be the Leaders of a force of the converted DDE of the "Gearing" type later described. They are the first ships of the destroyer type to be designed specifically for anti-submarine warfare with little provision for surface duties. Their photographs show them to approximate in appearance with the projected destroyers of the "Forrest Sherman" type. Mechanically, they employ the machinery tested in the *Timmerman*, and they employ steam pressures and temperatures very considerably in excess of normal warship engineering practice. There are two types of boilers in use in the two pairs of ships, presumably to gain operational experience of the new machinery. Begun under the designation of destroyers, the "Mitscher" class were re-rated as destroyer leaders while still under construction in 1951, but were again re-classified as frigates early in 1955

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
3,700 tons	4,400 tons (last two) 4,730 tons	493 feet	49 feet	20 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
2 5 inch	4 3 inch	4 fixed A/S	2 Mk 108	322 peace, 440 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Geared turbines	80,000	(first two) 4 Combustion Engineering (others) 4 Foster Wheeler	35 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Mitscher	3 Oct. 1949	26 Jan. 1952	16 May 1953	Bath Iron Works	G.E.C.
John S. McCain	24 Oct. 1949	12 July 1952	12 Oct. 1953	Bath Iron Works	G.E.C.
Willis A. Lee	1 Nov. 1949	26 Jan. 1952	5 Oct. 1954	Bethlehem Steel Co.	Westinghouse
Wilkinson	1 Feb. 1950	22 April 1952	3 Aug. 1954	Bethlehem Steel Co.	Westinghouse

WILKINSON

CHATEAURENAULT **GUICHEN**

These remarkable vessels have had a somewhat chequered career. Begun as the Italian light cruisers *Attilio Regolo* and *Scipione Africano*, respectively, they were completed not long before the Italian surrender in 1943. Ceded to France in 1948 they have since undergone an extensive refit and have emerged as the Frenc hversion of that new type of ship, the "Destroyer Leader". This erstwhile American classification described a vessel of cruiser size, sometimes originally a cruiser, mounting an armament similar to, and sometimes less than, the modern destroyer plus the now customary agglomeration of radar and anti-submarine detection devices recently evolved. As reconstructed, these ships bear a superficial resemblance to their former sisters, the Italian *San Giorgio* and *San Marco* (ex-*Pompeo Magno* and *Giulio Germanica*, respectively). The Italian ships, although rebuilt to serve as destroyer leaders, appear to be not so well equipped as their French counterparts.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
3,680 tons	5,400 tons	456½ feet	47¼ feet	15 feet
Main armament	*Secondary armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
6–4·1 inch	10–57 mm. A.A.	12 fixed mounts	A/S torpedoes	329 peace, 420 war
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Geared turbines	90,000	4 3-drum type		38 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Converted by*
Chateaurenault	28 Sept. 1939	28 Aug. 1940	14 May 1942	Odero-Terni-Orlanda	F.C. Med.
Guichen	28 Sept. 1939	12 Jan. 1941	18 Feb. 1943	Odero-Terni-Orlando	F.C. Med.

CHATEAURENAULT

APOLLO **ARIADNE** **MANXMAN**

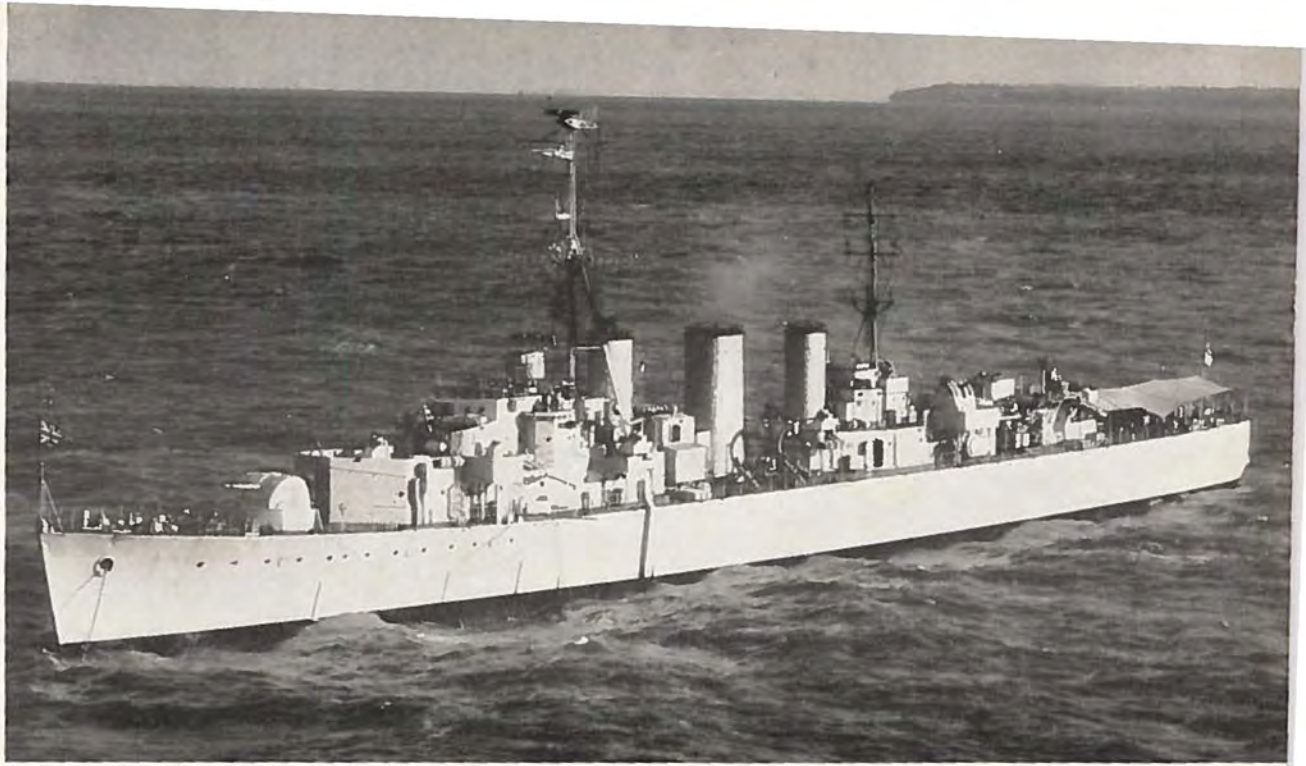
Unique, both at home and abroad, these ships are the fastest surface warships designed for the Royal Navy, excluding Coastal Forces. *Manxman*, the oldest of the trio, is the survivor of a pre-war class of four, while the *Apollo* and *Ariadne* are a wartime repeat. Intended as fast minelayers, these ships spent rather more of their war careers as fast transports. At the height of the seige of Malta they were the only ships that could make the latter part of the trip when menaced by the enemies' European-based bombers during one night. They are unmistakable for any other craft, a very high freeboard, three vertical funnels, and masts without any trace of rake marking them out. Mining deck presumably extends right forward to the bridge on either side. The mine complement appears rather small for ships of this size. The phenomenal speed can be attained, but only in a light condition, and reasonably calm water. *Apollo* has recently served as a flagship for the Commander-in-Chief, Home Fleet.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,650 tons	4,000 tons	418 feet	40 feet	16 feet

Main armament	*Anti-aircraft armament*	*Mines*	*Complement*
(*Manxman*) 6–4 inch (others) 4–4 inch	6–40 mm. 10 or 11–40 mm.	100	242–246

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	72,000	4 Admiralty 3-drum	40 knots

Name	*Begun*	*Launched*	*Completed*	*Builders and Engineers*
Apollo	10 Oct. 1941	5 April 1943	12 Feb 1944	R. & W. Hawthorn Leslie
Ariadne	15 Nov. 1941	16 Feb. 1943	9 Oct. 1943	A. Stephen & Sons
Manxman	24 Mar. 1939	5 Sept. 1940	20 June 1941	A. Stephen & Sons



APOLLO

DESTROYERS

THE word destroyer was a diminutive of the older term "torpedo-boat destroyer", self explanatory of the vessel's original function. In 1892 the menace of the torpedo-boat was so formidable that it was resolved to take special measures against it. The result was the construction of torpedo-boat destroyers. In designing the first destroyers the evolution of a decade was bridged by taking the characteristics of the torpedo-boat and magnifying them to twice the displacement of the craft they were intended to destroy. The first British destroyers, the *Havock* and *Hornet*, displaced 240 tons and carried a 12-pounder gun, three 6-pounders and one 18-inch torpedo tube, reciprocating engines giving them a speed of 26½ knots. The success of these ships, which proved to be good sea-boats, justified the construction of destroyers on a large scale. The first destroyers propelled by turbines were the *Viper* and *Cobra* of 400 tons, designed for a speed of 35 knots. In a decade the torpedo-boat destroyer had usurped the functions of the torpedo-boat itself which was rendered ineffective and obsolete. The two types had practically merged. By 1906–8 British destroyers had grown progressively through the A, B, C, D, and E classes into the F class of ocean-going ships of 855 to 1,062 tons with two 4-inch guns and two 18-inch torpedo tubes, oil-fired boilers and turbines giving speeds of 35 knots. With the passing of the 1,000-ton displacement mark, the adoption of oil fuel and the introduction of the 4-inch gun the shape of the modern destroyer could be discerned. The last coal-fired British destroyers were the "G" class, 1910, in which 21-inch torpedoes were introduced. By the outbreak of the First World War in 1914 some 240 destroyers had been built. Developed through the H, I, K, L, M, N, O, P boats, about 280 destroyers were built during the period of hostilities. Geared turbines instead of direct turbines were installed, resulting in an increase of speed to 36 knots, and the R, S, T, and U group were of basically standard design to which the bulk of the destroyers were built during the war, and a dozen were still in service in 1939, eight surviving until the end of the Second World War. In the V and W boats a great advance in fighting power was effected, and the design

of these ships remained the essential pattern upon which were based all subsequent destroyers built between the two great wars, not only in Great Britain but all over the world. No fewer than 54 of the V and W class were still in service in 1939 and over 40 survived until 1946 after careers of over a quarter of a century. By the end of the First World War the destroyers' original function of destroying torpedo-boats was almost completely extraneous to its many and varied new duties. Although the main use of destroyers was with the battle fleet, to ward off enemy destroyers and torpedo-attack the enemy battle fleet, it was as anti-submarine hunters and killers that they shone. During the 1914–18 war Britain lost 69 destroyers. Of the 370 which survived the war many were soon scrapped. In 1922 there were only 185 left, a number which remained fairly constant between the wars by scrapping old ones as new vessels were built. No new destroyers were laid down for ten years after the Armistice except the experimental *Ambuscade* and *Amazon*. Then a new alphabetical cycle was initiated, the 68 destroyers of the "A" to "I" flotillas, completed 1930–8, displacing 1,335 to 1,375 tons with four 4.7-inch guns, eight 21-inch torpedo tubes, and speeds of 35–36 knots. Then followed the giant "Tribal" class of 16 units, completed in 1938–9, displacing 1,870 tons, heavily armed with eight 4.7-inch guns in twin shields, seven smaller guns and four 21-inch tubes, and steaming at 36½ knots. The 24 vessels of the J, K and N flotillas of 1,760 tons mounted six 4.7-inch guns, six smaller weapons and ten 21-inch torpedo tubes, and the 16 of the L and M flotillas completed early in the late war displaced 1,920 tons. The alphabetical cycle was completed during the war with O, P, Q, R, S, T, U, V, W, and Z flotillas. These, and the "C" group, "Battle" and "Weapon" classes, and the "Daring" class, which constitute the ultimate development of the destroyer type, are described on the following pages. In 1939 Britain had 180 destroyers. During the war no fewer than 148 were lost. Some 150 were built during the war, and 50 were acquired from the United States. About 250 were still in service in 1946. In 1955 Britain has 80 destroyers. The United States has 380 destroyers (and 360 destroyer escort types). Russia has 150 destroyers.

DAINTY DARING DECOY DEFENDER DELIGHT DIAMOND DIANA DUCHESS

Latest and largest destroyers of the Royal Navy, these ships represent a development and a combination of the "Battle" and "Weapon" designs. Basically a wartime conception they embody the latest ideas in warship construction and incorporate many features new to British ships. Their propelling machinery, uses a higher steam pressure and temperature than ever before. *Decoy*, *Diamond*, *Diana* and *Duchess*, are equipped with an AC electrical system, a new departure for the Royal Navy. Remaining ships have the usual DC system. Three similar ships are under construction for the Royal Australian Navy. They are officially and somewhat clumsily categorised as "Daring class ships" and not as destroyers, but they have D pennant numbers.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,610 tons	3,500 tons	390 feet	43 feet	17 feet

Main armament	*Anti-aircraft armament*	*Torepdo tubes*	*Anti-submarine weapons*	*Complement*
6-4·5 inch	6-40 mm.	10 21 inch	Squid	278 308

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	54,000	2 Foster Wheeler or 2 Babcock	34·75 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Dainty	17 Dec. 1945	16 Aug. 1950	26 Feb. 1953	J. Samuel White, Cowes
Daring	29 Sept. 1945	10 Aug. 1949	8 Mar. 1952	Swan, Hunter, Wallsend
Decoy	22 Sept. 1946	29 Mar. 1949	28 April 1953	Yarrow, Scotstoun
Defender	22 Mar. 1949	27 July 1950	5 Dec. 1952	Alex. Stephen, Govan
Delight	5 Sept. 1946	21 Dec. 1950	9 Oct. 1953	Fairfield, Govan
Diamond	15 Mar. 1949	14 June 1950	21 Feb. 1952	John Brown, Clydebank
Diana	3 April 1947	8 May 1952	29 Mar. 1954	Yarrow, Scotstoun
Duchess	2 July 1948	9 April 1951	23 Oct. 1952	John I. Thornycroft, Woolston

DARING

BATTLEAXE **BROADSWORD** **CROSSBOW** **SCORPION**

When first commissioned these ships were regarded as the ugliest and most peculiar-looking destroyers ever built. Certainly they have little chance of being mistaken for other classes. Still classed as destroyers and fleet A/S escorts, they are actually not far removed from the frigate category, as will be seen if their details are compared with those of the "full conversion" frigates described later. Sixteen other vessels of this type were cancelled at the end of the last war. All were intended as fast anti-submarine escorts for the main fleet with the emphasis on the anti-submarine aspect rather than the surface equipment as had been the case in previous ships used to screen the fleet. In the first two ships the A/S squids are forward of the bridge, in the latter pair they are aft having been interchanged with the twin 4-inch mount. A new type A/S weapon, the Limbo, has had trials in *Scorpion*. This weapon is an improved squid, having a longer barrel, and is capable of projecting its bombs to a range considerably greater than its predecessor. It is to be presumed that this weapon will, in time, replace the squid in all ships as it becomes available.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,980 tons	2,840 tons	365 feet	38 feet	17 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
4–4 inch	6–40 mm.	10–21 inch	2 squids	234
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Geared turbines	40,000	2 Foster Wheeler		34 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Battleaxe	22 April 1944	12 June 1945	23 Oct. 1947	Yarrow & Co., Scotstoun
Broadsword	20 July 1944	5 Feb. 1946	4 Oct. 1948	Yarrow & Co., Scotstoun
Crossbow	26 Aug. 1944	20 Dec. 1945	4 Mar. 1948	John I. Thornycroft & Co., Woolston
Scorpion	16 Dec. 1944	15 Aug. 1946	17 Sept. 1947	J. Samuel White & Co., Cowes

BATTLEAXE

AGINCOURT	**CORUNNA**	**ARMADA**	**FINISTERRE**	**LAGOS**	**SLUYS**
AISNE	**DUNKIRK**	**BARFLEUR**	**GABBARD**	**SAINTES**	**SOLEBAY**
ALAMEIN	**JUTLAND**	**CADIZ**	**GRAVELINES**	**ST. JAMES**	**TRAFALGAR**
BARROSA	**MATAPAN**	**CAMPERDOWN**	**HOGUE**	**ST. KITTS**	**VIGO**

These vessels were designed with an eye to Pacific operations. The design of some of the ships was altered to displace one 40 mm. mounting and provide a fifth 4.5-inch gun abaft the funnel, and these ships, the first eight named, form the "Later Battle" type. In several vessels of the earlier design a 4-inch gun was mounted abaft the funnel for star shell firing. Two similar ships, *Anzac* and *Tobruk*, are serving in the Royal Australian Navy.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,315 to 2,380 tons	3,235 to 3,375 tons	379 feet	40½ feet	17 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
(early) 4-4·5 inch	9 or 10 40 mm.	8 21 inch	1 squid	247–308
(late) 5 4·5 inch	8 40 mm.	10–21 inch	1 squid	232–268

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	50,000	2 Admiralty 3-drum	35·75 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Agincourt	12 Dec. 1943	29 June 1945	25 June 1947	Hawthorn Leslie
Aisne	26 Aug. 1943	12 May 1945	20 Mar. 1947	Vickers-Armstrongs, Tyne
Alamein	1 Mar. 1944	28 May 1945	21 May 1948	Hawthorn Leslie
Barrosa	28 Dec. 1943	17 Jan. 1945	14 Feb. 1947	Clydebank
Corunna	12 April 1944	29 May 1945	6 June 1947	Swan, Hunter
Dunkirk	19 July 1944	27 Aug. 1945	27 Nov. 1946	Stephen
Jutland	27 Nov. 1944	20 Feb. 1946	30 April 1947	Stephen
Matapan	11 Mar. 1944	30 April 1945	5 Sept. 1947	Clydebank

VIGO

Name	*Begun*	*Launched*	*Completed*	*Builders*
Armada	29 Dec. 1942	9 Dec. 1943	2 July 1945	Hawthorn Leslie
Barfleur	28 Oct. 1942	1 Nov. 1943	14 Sept. 1944	Swan, Hunter
Cadiz	10 May 1943	16 Sept. 1944	12 April 1946	Fairfield
Camperdown	30 Oct. 1942	8 Feb. 1944	18 June 1945	Fairfield
Finisterre	8 Dec. 1942	22 June 1944	11 Sept. 1945	Fairfield.
Gabbard	2 Feb. 1944	16 Mar. 1945	10 Dec. 1946	Swan, Hunter
Gravelines	10 Aug. 1943	30 Nov. 1944	14 June 1946	Cammell Laird
Hogue	6 Jan. 1943	21 April 1944	24 July 1945	Cammell Laird
Lagos	8 April 1943	4 Aug. 1944	2 Nov. 1945	Cammell Laird
Saintes	8 June 1943	19 July 1944	27 Sept. 1946	Hawthorn Leslie
St. James	20 May 1943	7 June 1945	12 July 1946	Fairfield
St. Kitts	8 Sept. 1943	4 Oct. 1944	21 Jan. 1946	Swan, Hunter
Sluys	24 Nov. 1943	28 Feb. 1945	30 Sept. 1946	Cammell Laird
Solebay	3 Feb. 1943	22 Feb. 1944	11 Oct. 1945	Hawthorn Leslie
Trafalgar	15 Feb. 1943	12 Jan. 1944	23 July 1945	Swan, Hunter
Vigo	11 Sept. 1943	27 Sept. 1945	9 Dec. 1946	Fairfield.

CAESAR	**CASSANDRA**	**CHEQUERS**	**COCKADE**	**CONSTANCE**
CAMBRIAN	**CAVALIER**	**CHEVIOT**	**COMET**	**CONTEST**
CAPRICE	**CAVENDISH**	**CHEVRON**	**COMUS**	**COSSACK**
CARRON	**CHAPLET**	**CHIEFTAIN**	**CONCORD**	**CREOLE**
CARYSFORT	**CHARITY**	**CHILDERS**	**CONSORT**	**CRISPIN**

Numerically the largest destroyer class built for some time for the Royal Navy. Originally there were four flotillas of eight ships, the "Ca", "Ch", "Co" or "Cr" classes. *Crescent* and *Crusader* were transferred to the Royal Canadian Navy. *Chivalrous* was sold to the Royal Pakistan Navy, *Cromwell*, *Crown*, *Crystal* and *Croziers* were sold to the Royal Norwegian Navy as *Bergen*, *Oslo*, *Stavanger* and *Trondheim* respectively. Originally all ships had 4–4.5 inch guns, but there are now many variations. It is intended that they will be standardised to two types, one with a squid mounting and three guns, the other with two guns and fitted for minelaying. The "Ca" ships all have two sets of tubes, others only one.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,710 tons	2,515 to 2,560 tons	362¾ feet	35½ feet	16 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
2, 3 or 4–4·5 inch	2 to 7–40 mm. 2 to 6 20 mm. or 2 pdr.	4–21 inch	2 squid	186
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Parsons geared turbines	40,000	2 Admiralty 3-drum		36·75 knots

Caesar and *Cavendish* built by Clydebank; *Childers* by Denny; *Cambrian*, *Carron*, *Chequers* and *Chieftain* by Scotts; *Cheviot*, *Chevron* and *Consort* by Stephen; *Chaplet*, *Charity*, *Comus* and *Concord* by Thornycroft; *Constance* and *Cossack* by Vickers-Armstrong, Tyne; *Carysfort*, *Cavalier*, *Contest* and *Crispin*, *Creole* by White; *Caprice*, *Cassandra*, *Cockade* and *Comet* by Yarrow. All completed 1944–46.

COCKADE

ZAMBESI **ZEBRA** **ZEPHYR** **KEMPENFELT** **WAGER** **SAVAGE**

These six destroyers are the survivors of three flotillas of eight. Of the other ships of these classes, three are serving in the Royal Netherland Navy, the ex-*Scourge*, *Scorpion* and *Serapis*, now *Evertsen*, *Kortenaar* and *Piet Hein*; two are with the South African Navy, the ex-*Wessex* and *Whelp*, now *Jan van Riebeeck* and *Simon van der Stel*; *Success*, now *Stord*, is in the Royal Norwegian Navy; *Shark*, *Swift*, *Saumarez* were war losses. In 1945 the *Myngs* and *Zenith* were sold to the Egyptian Navy and the *Zealous* and *Zodiac* to the Israeli Navy. The "T", "U" and "V" flotillas and the remaining four ships of the "W" and one of the "Z" flotillas have been converted to frigates. *Savage* mounts a twin turret forward, the prototype of that designed for the "Battle" class.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,710 to 1,730 tons	2,505 to 2,575 tons	362¾ feet (*Savage* 366½ feet)	35¾ feet	16 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
3 or 4–4·5 inch (4·7 in "W" class)	1 to 6–40 mm.	8–21 inch	D.C.T.	186 (*Savage* 230)

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	40,000	2 3-drum type	36·75 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Savage	7 Dec. 1941	24 Sept. 1942	8 June 1943	Hawthorn Leslie
Kempenfelt	24 June 1942	8 May 1943	25 Oct. 1943	John Brown
Wager	20 Nov. 1942	1 Nov. 1943	14 April 1944	John Brown
Zambesi	21 Dec. 1941	21 Nov. 1943	18 July 1944	Cammel Laird
Zebra	14 May 1942	8 Mar. 1944	13 Oct. 1944	Denny
Zephyr	13 July 1942	15 July 1943	6 Sept. 1944	Vickers-Armstrong, Tyne

ZEPHYR

NAPIER **NIZAM** **NOBLE** **MARNE** **METEOR** **MUSKETEER**
NEPAL **NORMAN** **MATCHLESS** **MILNE**

The main armament is in open shields in the "N" class and in power-worked gun houses in the "M" class, probably the most handsome destroyers ever built. *Napier*, *Nizam* and *Norman* served in the R.A.N. until 1943. *Noble*, former *Nerissa*, served as Polish *Piorun*; original *Noble* and *Nonpareil* were transferred to the Netherlands in 1942. *Nestor* was a war loss. Three "M" class sunk. One, *Myrmidon*, had been renamed *Orkan*, and was serving under the Polish flag. *Nepal* is disarmed and was for a time used as a Commander-in-Chief's despatch vessel.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*	*Main armament*
("M" class) 1,920 tons	2,840 tons	362½ feet	36½ feet	16½ feet	6–4·7 inch
("N" class) 1,760 tons	2,540 tons	356½ feet	35¾ feet	9 feet	6–4·7 inch

Anti-aircraft armament	*Torpedo tubes*	*Propelling machinery*	*Shaft horse power*	*Boilers*	*Speed*
1–4 inch, 10–20 mm.	8–21 inch	Parsons geared turbines	48,000	2 3-drum type	36 knots
4–40 mm., 6–20 mm.,	10–21 inch	Parsons geared turbines	40,000	2 3-drum type	36 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Marne	23 Oct. 1939	30 Oct. 1940	2 Dec. 1941	Vickers-Armstrongs, Tyne
Matchless	14 Sept. 1940	4 Sept. 1941	26 Feb. 1942	Stephen
Meteor	14 Sept. 1940	3 Nov. 1941	12 Aug. 1942	Stephen
Milne	24 Jan. 1940	30 Dec. 1941	6 Aug. 1942	Scotts
Musketeer	7 Dec. 1939	2 Dec. 1941	18 Sept. 1942	Fairfield
Napier	26 July 1939	22 May 1940	11 Dec. 1940	Fairfield.
Nepal	9 Sept. 1939	4 Dec. 1941	29 May 1942	Thornycroft
Nizam	27 July 1939	4 July 1940	8 Jan. 1941	J. Brown
Noble	26 July 1939	7 May 1940	4 Nov. 1940	Thornycroft
Norman	27 July 1939	30 Oct. 1940	29 Sept. 1941	J. Brown

MARNE

NORMAN

CARPENTER	**HARWOOD**	**LLOYD THOMAS**	**NORRIS**
FRED T. BERRY	**KEPPLER**	**McCAFFERY**	**ROBERT A. OWENS**

Originally intended as units of the "Gearing" class fleet destroyers, these ships have been converted to form a fast, long-range anti-submarine striking force. In due course they will combine with the new destroyer leaders and the projected "Forrest Sherman" class destroyers to form the most potent anti-submarine counters in existence. The intention is to use them in the same manner as the British "Killer groups" of the last war, with the added advantage of another twenty knots speed. The prominent pennant numbers are in the destroyer series, but these ships are classified as DDE (i.e. fleet destroyers [DD] modified for escort duties [E]). Originally described as DDK, killer destroyers. All launched in 1945 and 1946. First line in armament details refers to *Carpenter* and *Robert A. Owens* only.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,425 tons	over 3,300 tons	390½ feet	41 feet	19 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
4 5 inch	4 to 6 3 inch 8 3 inch	None 5 21 inch	ahead throwing weapons 1 a s mortar	350 350
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
geared turbines	60,000	4		35 knots

KEPPLER

AGERHOLM	GEORGE H. McKENZIE	LANSDALE	RUPERTUS
ARNOLD J. ISBELL	GLENNON	LEONARD F. MASON	SAMUEL B. ROBERTS
BAUSSELL	GURKE	MEREDITH	SEAMAN
BRINKLEY BASS	GYATT	NOA	SEYMOUR D. OWENS
BROWNSON	HAMNER	ORLECK	SHELTON
CHARLES H. ROAN	HAROLD J. ELLISON	OZBOURN	STRIBLING
CHARLES R. WARE	HENDERSON	PERRY	THEODORE E. CHANDLER
CONE	HOLLISTER	POWER	VOGELGESANG
EVERSOLE	JAMES E. KYES	RICHARD B. ANDERSON	WARRINGTON
FLOYD B. PARKS	JOHN R. CRAIG	RICHARD E. KRAUS	WILLIAM C. LAWE
FORREST ROYAL	JOHNSTON	ROBERT H. McCARD	WILTSIE
GEARING	JOSEPH P. KENNEDY	ROWAN	WITEK

Representing the ultimate development of the American destroyer, these ships incorporate the lessons learnt in four years of Pacific warfare. The former pole mast is being replaced by a tripod to carry the radar assembly, the 40 mm. guns are being replaced by eight 3-inch guns as ships refit. *Lansdale*, *Seymour D. Owens* and *Seaman* are laid up incomplete. Two other incomplete units, *Castle* and *Woodrow R. Thompson*, are being scrapped.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,425 tons	3,479 tons	390½ feet	41 feet	19 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
6–5 inch	16–40 mm. or 8–3 inch	5–21 inch	2 headgehogs	257 peace, 350 war
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
geared turbines	60,000	4		35 knots

WILLIAM C. LAWE

BASILONE **EPPERSON** **NEW** **ROBERT L. WILSON**
DAMATO **HOLDER** **RICH** **SARSFIELD**

Further conversions of "Gearing" class destroyers, somewhat similar to the previously described "Carpenter' class. *Basilone* and *Epperson* had been laid up incomplete after the war and were completed in their present state. Others were converted after service as destroyers.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,425 tons	3,300 tons	390½ feet	41 feet	19 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
4–5 inch	4 to 10–3 inch	5–21 inch	1 A.T.W.	350
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
geared turbines	60,000	4		35 knots

Name	*Landed*	*Completed*	*Builders*
Basilone	21 Dec. 1945	21 July 1949	Consolidated Steel Corp.
Damato	21 Nov. 1945	26 April 1946	Bethlehem, Staten Island
Epperson	22 Dec. 1945	19 Mar. 1949	Federal S. B. & D. D. Co.
Holder	25 Aug. 1945	17 May 1946	Consolidated Steel Corp.
New	18 Aug. 1945	4 April 1946	Consolidated Steel Corp.
Rich	5 Oct. 1945	2 July 1946	Consolidated Steel Corp.
Robert L. Wilson	5 Jan. 1946	28 Mar. 1946	Bath Iron Works Corp.
Sarsfield	27 May 1945	31 July 1945	Bath Iron Works Corp.

BASILONE

BENNER	EVERRET F. LARSEN	HERBERT J. THOMAS	ROGERS
BORDELON	FECHTELER	HIGBEE	SOUTHERLAND
CHARLES P. CECIL	FISKE	KENNETH D. BAILEY	STEINAKER
CORRY	FRANK KNOX	LEARY	STICKELL
DENNIS J. BUCKLEY	FURSE	McKEAN	TURNER
DUNCAN	GOODRICH	MYLES C. FOX	VESOLE
DYESS	HANSON	NEWMAN K. PERRY	WILLIAM M. WOOD
ERNEST G. SMALL	HAWKINS	O'HARE	WILLIAM R. RUSH
EUGENE A. GREENE	HENRY W. TUCKER	PERKINS	

A development of the "Gearing" class, the necessity for these ships arose in the later stages of the Pacific war. Increasing aircraft speeds and suicide bombers demanded the greatest possible warning of approach, so these ships and a number of destroyer escorts had their torpedo mountings removed and a tripod mainmast fitted to carry an imposing collection of radar aerials. These ships were then disposed in an extended screen many miles from the main fleet in order to give as early a warning as possible of the approach of aircraft. They undoubtedly saved much damage to the main fleet, but suffered heavily themselves, most especially in the Okinawa campaign. In some ships the tripod mainmast has now been removed and the aerials are mounted at deck level.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,425 tons	3,300 tons	390½ feet	41 feet	19 feet
Main armament		*Anti-aircraft armament*		*Complement*
6–5 inch		12–40 mm. or 6 to 10–3 inch		350 war
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
geared turbines	60,000	4		35 knots

PERKINS

ALFRED A. CUNNINGHAM	DOUGLAS H. FOX	JOHN R. PIERCE	ROBERT K. HUNTINGTON
ALLEN M. SUMNER	ENGLISH	JOHN W. THOMASON	SOLEY
AULT	FRANK E. EVANS	JOHN W. WEEKS	STORMES
BARTON	GAINARD	LAFFEY	STRONG
BEATTY	HANK	LOFBERG	SAMUEL L. MOORE
BLUE	HARLAN R. DICKSON	LOWRY	TAUSSIG
BORIE	HARRY E. HUBBARD	LYMAN K. SWENSON	WALDRON
BRISTOL	HAYNSWORTH	MADDOX	WALKE
BRUSH	HENLEY	MANSFIELD	WALLACE L. LIND
BUCK	HUGH PURVIS	MASSEY	WILLARD KEITH
CHARLES H. SPERRY	HYMAN	MOALE	ZELLARS
COLLETT	INGRAHAM	O'BRIEN	
COMPTON	JAMES C. OWEN	PURDY	
DE HAVEN	JOHN A. BOYLE	PUTNAM	

Known as the "Allen M. Sumner" class, and constituting a shorter, earlier version of the "Gearing" type, these ships were the first twin turret destroyers in the American Navy. Twelve of this class were fitted with mine rails and rated DM (destroyer minelayer), but externally they are identical with their sisters and details are the same.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,200 tons	3,000 tons	376½ feet	41 feet	19 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
6–5 inch	6 to 10 3 inch	5 21 inch	2 hedgehogs	350 war
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
geared turbines	60,000	4 Babcock & Wilcox		34 knots

PUTNAM

L

ALBERT W. GRANT	COTTON	JARVIS	PORTER
BEARSS	CUSHING	JOHN WOOD	PORTERFIELD
BENHAM	DASHIELL	KIDD	PRESTON
BENNION	DORTCH	KNAPP	REMEY
BLACK	GATLING	LEWIS HANCOCK	RICHARD P. LEARY
BULLARD	GREGORY	McDERMUT	ROOKS
BRYANT	HALSEY POWELL	McGOWAN	STOCKHAM
CAPERTON	HEALY	McNAIR	UHLMAN
CASSIN YOUNG	HEYWOOD L. EDWARDS	MARSHALL	VAN VALKENBURGH
CHARLES J. BADGER	HICKOX	MELVIN	WADLEIGH
CHAUNCEY	HOPEWELL	MERTZ	WEDDERBURN
CLARENCE K. BRONSON	HUNT	MONSSEN	
COGSWELL	INGERSOLL	NORMAN SCOTT	
CALAHAN	IRWIN	PICKING	

This group is known as the later "Fletcher" class. Practically identical with the original "Fletcher" class, these vessels were, with the "Fletcher" type, the first war-construction destroyers built for the United States Navy. Some units still retain two sets of tubes, ten in all; a number of units have lost the midships 5-inch gun and mount six 3-inch guns and a director in lieu of the 5-inch and 40-mm. mounts. Only reserve units now have 20 mm. As in all destroyers, a tripod foremast is being fitted to take the weight of radar arrays.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,050 tons	2,750 tons	376½ feet	40 feet	18 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
5–5 inch or 4–5 inch	10–40 mm., 8–20 mm. or 6–3 inch	10, 5 or none	350 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
G.E. geared turbines	60,000	4 Babcock & Wilcox	35 knots

MARSHALL

ABBOTT	CONVERSE	HART	McCORD	STEPHEN POTTER
AMMEN	COWELL	HAZELWOOD	McKEE	STEVENS
ANTHONY	DALY	HEERMAN	OWEN	STODDARD
AULICK	DAVID D. TAYLOR	HOWORTH	PAUL HAMILTON	TERRY
BELL	DYSON	HUDSON	PRICHETT	THE SULLIVANS
BENNETT	ERBEN	ISHERWOOD	RINGGOLD	TINGEY
BOYD	FOOT	IZARD	ROBINSON	TRATHEN
BRADFORD	FRANKS	JOHN D. HENLEY	ROSS	TWINING
BRAINE	FULLAM	JOHN RODGERS	ROWE	WADSWORTH
BROWN	GUEST	KILLEN	SCHROEDER	WATTS
BURNS	HALE	KIMBERLEY	SHIELDS	WICKES
CAPPS	HALFORD	LA VALLETTE	SIGOURNEY	WILEY
CHARLES AUSBURN	HALL	LAWS	SIGSBEE	WREN
CHARRETTE	HAILEY	METCALF	SMALLEY	YARNALL
CLAXTON	HARADEN	MILLER	STANLEY	YOUNG
CONNER	HARRISON	MULLANY	STEMBEL	

Original "Fletcher" class. These ships have been seen in various guises. Eighteen vessels have been converted to escort duties and will be found later described; several have been rearmed with the new 3-inch gun in lieu of the smaller A.A. mounts. During the war, six units were equipped with a catapult and seaplane, some of the very few destroyers ever to be so equipped. Pole mast now being replaced with a tripod as refitted.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,050 tons	2,750 tons	376½ feet	39½ feet	18 feet
Main armament	*Anti-aircraft armament*		*Torpedo tubes*	*Complement*
5 or 4–5 inch	6–40 mm., 10–20 mm. or 6–3 inch		5 or 10–21 inch	350 war
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
G.E. geared turbines	60,000	4 Babcock & Wilcox		35 knots

ROWE

HALFORD

BACHE	**CONY**	**JENKINS**	**O'BANNON**	**RENSHAW**	**TAYLOR**
BEALE	**EATON**	**MURRAY**	**PHILIP**	**SAUFFLEY**	**WALKER**
CONWAY	**FLETCHER**	**NICHOLAS**	**RADFORD**	**SPROSTON**	**WALLER**

Former fleet destroyers, like units of the "Fletcher" class previously described, these ships have been converted to provide close support units for convoy escort. Some slight differences between ships: one vessel has no tubes, various others have not yet been fitted with the new-pattern tripod foremast. Further ships of the "Fletcher" class may be converted and added to this class at a later date.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,050 tons	2,940 tons	376½ feet	39½ feet	18 feet
Main armament	*Anti-aircraft armament*	*Anti-submarine weapons*	*Torpedo tubes*	*Complement*
2–5 inch	4–3 inch	1 rocket launcher	5 or 10–21 inch	300
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
G.E. geared turbines	60,000	4 Babcock & Wilcox		35 knots

CONWAY

BALDWIN	FRANKFORD	KEARNEY	PLUNKETT	SWANSON	WILKES
EDISON	GRAYSON	LIVERMORE	SATTERLEE	THORN	WOOLSEY
EDWARDS	GLEAVES	NELSON	STEVENSON	TILLMAN	
ERICSON	HERNDON	NIBLACK	STOCKTON	WELLES	

BAILEY	CHAMPLIN	FRAZIER	KALK	MACKENZIE	MURPHY
BANCROFT	CHARLES F. HUGHES	GANSEVOORT	KENDRICK	MADISON	NIELDS
BOYLE	COGHLAN	GILLESPIE	LAUB	MAYO	ORDRONAUX
CALDWELL	FARENHOLT	HOBBY	McLANAHAN	MEADE	PARKER

A widely distributed and varied class of ship. Ships of the "Gleaves" class will be found serving in the Turkish, Italian, Greek and Japanese navies. In addition, nineteen ships formerly of this type were converted to Large High-Speed Minesweepers for the U.S.N. Sole difference of these ships from the original class is the removal of one after 5-inch gun, and the torpedo tubes. *Ellyson* and *Macomb* were formerly of this variant, but were reclassified as destroyers before their transfer to the new Japanese Navy in 1955. A very similar type of ship are the twenty-four vessels of the "Mayo" class, indistinguishable in detail from the "Gleaves" class. One vessel of this earlier type transferred to Italy, and two to Nationalist China.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
("22 Gleaves" class) 1,630 tons ("24 Mayo" class) 1,620 tons	2,450 tons	348½ feet	36 feet	18 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
4–5 inch	4–40 mm., 7–20 mm.	5–21 inch	250 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
G.E. geared turbines	50,000	4 Babcock & Wilcox	36·5 knots

BALDWIN

SERDI	**SMETLIVI**	**SOKRUSHITELNI**	**STOIKI**
SKORI	**SMISHLYONI**	**SOVERSHENNI**	**STREMITELNI**
SUROVI	**SMYELI**	**STEREGUSHTCHI**	**SVOBODNI**
OBRAZTSOVI	**OSMOTRITELNI**	**OSTOROSHNI**	**OTLICHNI**
OGNEVOI	**OSNOVATELNI**	**OSTROGLASY**	**OTSVESTSVENNI**
OPASSNI	**OSORNI**	**OTCHETLIVI**	
OSMISLENNI	**OSTERVENELI**		

The latest type of Russian destroyer, the "Skori" class ships are, like all major Russian warships, equipped for minelaying. Handsome-looking vessels with a low raking silhouette, they were first properly observed during a courtesy visit to Stockholm in 1953. Names are uncertain, some may be numbered only. Reliable reports give a figure of fifty-eight ships completed and a further ten building. A contemporary of this class are the fifteen ships of the "Ognevoi" type, which are very similar in detail. All these ships are not dissimilar from the earlier craft of the "S" and "R" types. To distinguish: note that the earlier ships have single gun shields fore and aft instead of the single twin turret.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
("Skori" class) 2,200 tons	3,000 tons	393½ feet	37¼ feet	13 feet
("Ognevoi" class) 1,800 tons	2,650 tons	387 feet	36¾ feet	12½ feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Mines*	*Anti-submarine weapons*
4–5·1 inch	2–3 inch, 6 to 10–37 mm., 6–20 mm.	10–21 inch	80	Depth charges
		8–21 inch	60	

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Turbines	70,000	4	38 knots	250
	60,000		36 knots	212

SKORI CLASS

RASTOROPNI	**RYANI**	**VITSI ADMIRAL DROZD**	**STRASHNI**
RAZIASHTCHI	**RYESHITELNI**	**SILNI**	**STROGI**
RAZUMNI	**RYESKI**	**SLAVNI**	**STROINI**
RAZYARYONNI	**RYESVI**	**SOORBRAZITELNI**	**SVIREPI**
RYEDKI	**RYETIVI**	**SPOSSOBNI**	**SVOBODNI**
REKORDNI		**STOROSHEVOI**	

The above-named vessels form two distinct classes, the "R" and "S" types, or improved and later "Gordi" classes. Both are developments of the original "Gordi" type of Italian design. It is reported that the *Svobodni* has been renamed. It is always possible that there are in existence other vessels of this class whose names are not known, or that some of the ships named above may have been lost or discarded, such is the lack of information concerning the Russian Navy.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
("R" class) 2,000 tons	2,500 tons	377 feet	36¾ feet	14¾ feet
("S" class) 1,686 tons	2,150 tons	371 feet	33 feet	14 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Mines*	*Complement*
("R" class) 4–5·1 inch	2–3 inch, 3–37 mm., 4–13 mm.	6–21 inch		
("S" class) 4–5·1 inch	2–3 inch, 4–37 mm., 4–20 mm.	6–21 inch	80	240

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Geared turbines	48,000	4 3-drum type	36 knots

BODRI
BOIKI
GREMIASCHI
GROMKI
GROZNI
GROZYASHTCHI
STEREGUSHCHI
BAKU
LENINGRAD
MINSK
TBILISSI
TOMSK
TULA
TVER

Two separate and distinct types. The first class, known as the "G" or "Gordi" class (the name ship has been sunk), is of Italian design, built just prior to the war. Only seven ships are named and known to exist, but there are unconfirmed reports of as many as fifty of these ships having been built. This may, however, be an error in that the "S" and "R" types have been reported as units of the "G" class. The other vessels named are of French origin, their design and construction reportedly supervised by French technicians. Two ships of this type were incomplete in 1941 and their fate is unknown. Remaining destroyer force of the Russian Navy is composed of five ex-German, two ex-Japanese and two ex-Italian destroyers acquired under the respective peace treaties; and six old Russian destroyers dating from Tsarist days. There are also three other modern ships, one experimental. Details are lacking for these ships.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
("G" class) 1,657 tons	2,150 tons	377 feet	33½ feet	13 feet
("Leningrad" class) 2,225 tons	2,582 tons	418 feet	38½ feet	13 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Mines*	*Complement*
("G" class) 4–5·1 inch	2–3 inch, 4–37 mm.	6–21 inch	100	240
("Leningrad" class) 4–5·1 inch	2–3 inch, 5–37 mm.	8–21 inch		

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
("G" class) Tosi geared turbines	50,000	3-drum type	36 knots
("Leningrad" class) geared turbines	70,000	3 3-drum type	38 knots

BOUVET	**DU CHAYLA**	**GUEPRATTE**	**MAILLE BREZE**
CASABIANCA	**DUPETIT THOUARS**	**JAUREGUIBERRY**	**SURCOUF**
CASSARD	**DUPERRE**	**KERSAINT**	**TARTU**
CHEVALIER PAUL	**FORBIN**	**LA BOURDONNAIS**	**VAUQUELIN**
D'ESTREES			

The first post-war French destroyers, these vessels mount an exceptional anti-aircraft battery, the 57-mm. gun being a new French calibre and somewhat similar to the United States 3-inch. The 5-inch gun has been adopted for the first time in the French Navy so as to facilitate ammunition supply, as it will take the standard U.S. Navy ammunition. Of the twelve torpedo tubes, six are designed to fire the special anti-submarine homing torpedoes that search for and home on any submarine in the vicinity. The remaining six tubes can handle either anti-submarine or conventional torpedoes. The gun layout is somewhat confusing as there is little difference visually in the turrets. The 5-inch armament is disposed with one turret forward on forecastle deck level and two aft. Entirely welded and of prefabricated construction, they will presumably be complimentary to the leaders *Chateaurenalt* and *Guichen*.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,750 tons	3,700 tons	420 feet	41½ feet	16½ feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
6–5 inch	6–57 mm., 6–20 mm.	12–21·7 inch	A/S Torpedoes or Hedgehog	347
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Geared turbines	63,000	4		34 knots

SURCOUF

CARABINIERE **GRANATIERE** **GRECALE**

The only units remaining to Italy of her pre-war modern destroyer force, these ships are now converted into ocean escort vessels, whilst still retaining the appearance and armament of destroyers. No differences between these vessels sufficient to distinguish them. The two other destroyers of the Italian Navy are the *Artigliere* and *Aviere*, ex-U.S.S. *Woodworth* and *Nicholson* of the "Gleaves" and "Mayo" classes respectively. Details of these ships can be found in the American pages. To distinguish them from American ships note that they carry British-pattern pennant numbers; *Artigliere* has a shield to both her after 5-inch guns and a high bridge, *Aviere* has one after gun without a shield and a lower bridge.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,830 tons (*Grecale* 1,641 tons)	2,479 tons (*Grecale* 2,361 tons)	350 feet	33½ feet	10 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Mines*	*Anti-submarine weapons*
3–4·7 inch	6–40 mm., 2–20 mm.	3–21 inch (none in *Grecale*)	36–64 (*Grecale* only)	Hedgehog

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*	*Complement*
Geared turbines	48,000 44,000 (*Grecale*)	3 3-drum type	38 knots 33 knots	189 153

Name	*Begun*	*Launched*	*Completed*	*Builders*
Carabiniere	Feb. 1937	24 July 1938	Dec. 1939	Can del Tirreno
Granatiere	April 1937	24 April 1938	Feb. 1939	C.N. Riuniti, Palermo
Grecale	April 1931	17 June 1934	Nov. 1934	C.N. Riuniti, Ancona

GRECALE

M

GELDERLAND **HOLLAND** **NOORD BRABANT** **ZEELAND**

The Royal Netherlands Navy's first post-war destroyers, these ships are specially designed for escort duties. The engines in these ships were built pre-war for destroyers demolished during the 1940 invasion. Eight vessels, developments of this type, are also under construction, and are to be named, *Amsterdam, Drenthe, Groningen, Limburg, Friesland, Overijsel, Rotterdam* and *Utrecht*. The remainder of the Netherlands destroyers force are ex-British ships of the "Savage", "Q" and "N" types transferred during the war. One ex-British ship, the *Tjerk Hiddes*, has been re-transferred to Indonesia and now serves under the name of *Gadjah Mada*.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,164 tons	2,765 tons	371 feet	37½ feet	12½ feet

Main armament	*Anti-aircraft armament*	*Anti-submarine weapons*	*Complement*
4–4·7 inch	1–40 mm.	2–4 barrelled	246

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Geared turbines	45,000	2	32 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Gelderland	10 Mar. 1951	19 Sept. 1953	Aug. 1955	Wilton-Fijenoord
Holland	21 April 1950	11 April 1953	Feb. 1954	Rotterdam D.D. Co.
Noord Brabant	1 Mar. 1951	28 Nov. 1953	June 1955	K.M. De Schelde
Zeeland	12 Jan. 1951	27 June 1953	Mar. 1954	K.M. De Schelde

ZEELAND

OLAND **UPPLAND**

Fast, rakish looking vessels, there should be no difficulty in recognising these ships as they are the only flush-decked destroyers with a single funnel close up to the bridge in the Baltic navies. Slight differences between the two: the bridge in *Uppland* appears to be a little larger and to extend into the funnel more than that of the *Oland*. These ships are to be supplemented by the *Halland* and *Smaland*, now being completed, and by four other ships projected or laid down. Some or all of these six new ships are to be equipped with guided missiles. Such a new departure is quite in keeping with a nation that has produced much fine, modern naval and aerial equipment in the past ten years.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,880 tons	2,110 tons	351 feet	36½ feet	11½ feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*		*Complement*
4–4·7 inch	7–40 mm., 8–25 mm.	6–21 inch		210
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
De Laval geared turbines	44,000	2		35 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Oland	1943	15 Dec. 1945	1948	Kockums M.V.
Uppland	1943	15 Nov. 1946	1947	Karlskrona Dockyard

UPPLAND

HALSINGBORG **SUNDSVALL** **GAVLE** **KARLSKRONA** **NORRKOPING**
KALMAR **VISBY** **GOTEBORG** **MALMO** **STOCKHOLM**

Actually two classes, of four and six ships, these vessels are practically identical in appearance and detail despite the fact that their construction was spread over the period 1933 to 1943. *Göteborg* was sunk in harbour in 1941 with two other ships, following a disastrous magazine explosion at a Swedish base. She has since been salved and rebuilt, reportedly exceeding her designed speed on trials. Following the example of the NATO powers the Swedish Navy has decided that the *Göteborg*, *Karlskrona*, *Malmo* and *Stockholm* are to be rebuilt as anti-submarine frigates.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
(first four) 1,150 tons	1,320 tons	320 feet	30 feet	12 feet
(others) 1,140 tons	1,300 tons	310 feet	29½ feet	

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
3–4·7 inch	(first four) 2–20 mm. (others) 4–40 mm.	6–21 inch	140 130

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
De Laval geared turbines	(first four) 36,000 (others) 32,000	2 of 3-drum type 3 Penhoet	39 knots 39 knots

Name	*Launched*	*Builders*
Halsingborg	23 Mar. 1943	Gotaverken
Kalmar	20 July 1943	Eriksberg
Sudsvall	20 Oct. 1942	Eriksberg
Visby	16 Oct. 1942	Gotaverken

Name	*Launched*	*Builders*
Gavle	25 Sept. 1940	Gotaverken
Goteborg	14 Oct. 1935	Gotaverken
Karlskrona	16 June 1939	Karlskrona
Malmo	22 Sept. 1938	Eriksberg
Norrkoping	5 Sept. 1940	Eriksberg
Stockholm	24 Mar. 1936	Karlskrona

GAVLE

VISBY

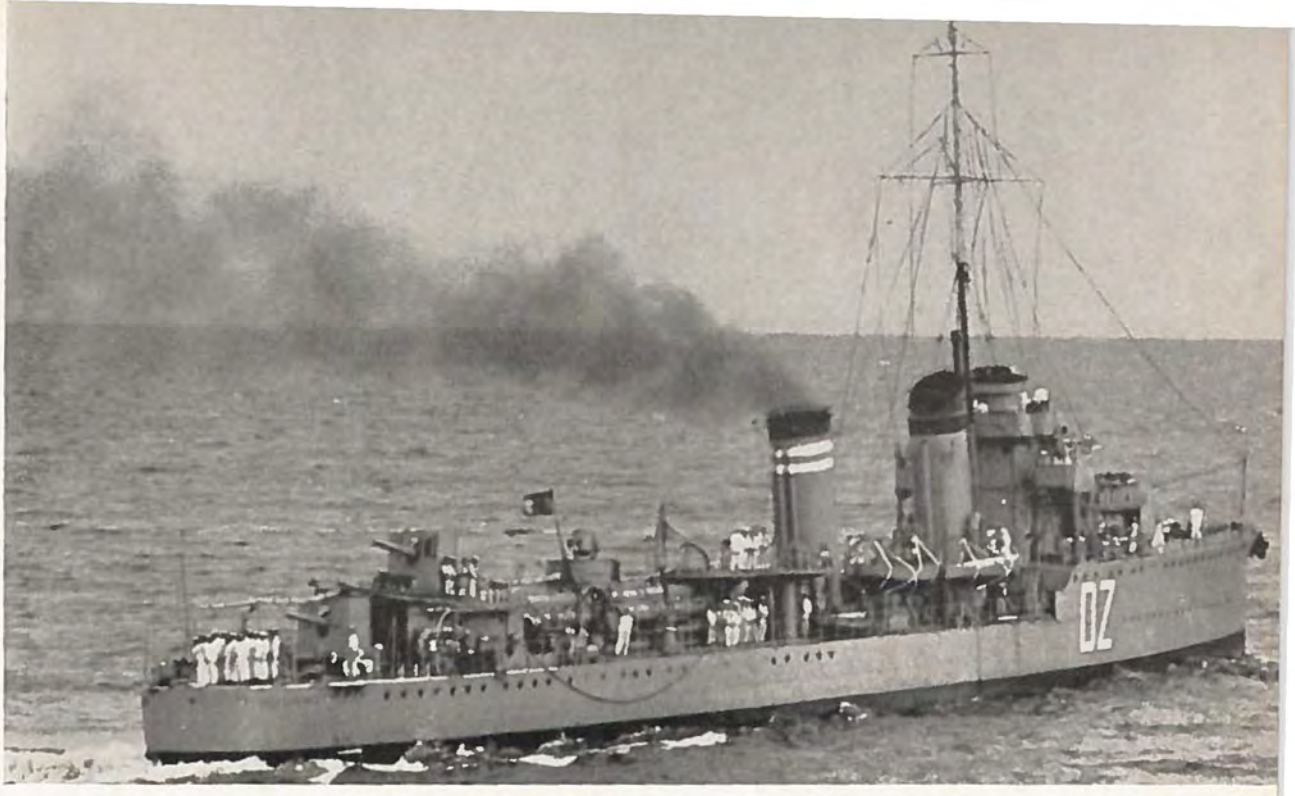
1st Group		2nd Group	
ALCALA GALIANO	JOSE LUIS DIEZ	ALMIRANTE ANTEQUERA	GRAVINA
ALMIRANTE VALDES	LEPANTO	ALMIRANTE MIRANDA	JORGE JUAN
CHURRUCA	SANCHEZ BARCAIZTEGUI	CISCAR	ULLOA
		ESCANO	

Although almost the oldest of the Spanish destroyer force, these ships are its main strength. Built between 1926 and 1936, two early units were sold to Argentina and two were sunk in the Civil War. One of these, the *Ciscar*, has since been salved and placed in service again. Three other destroyers, the *Alsedo*, *Lazaga* and *Velasco*, completed in 1924–5, can easily be identified, being among the very few four-funnelled ships extant. The remainder of the Spanish destroyer force, fourteen ships, is of modern construction but in an unfinished state. Nine ships of the "Audaz" class, the *Ariete*, *Audaz*, *Furor*, *Intrepido*, *Meteoro*, *Osado*, *Ravo*, *Relampago*, and *Temerario*, were begun in 1945, and in 1955 a number of them are in commission. Two other ships, the *Alava* and *Liniers*, were intended as developments of the "Churruca" class. Ordered in 1936, they were held up by the Civil War; restarted, they were again stopped in 1940 and construction finally got under way in 1946, the ships being completed in 1951. The most modern vessels, the *Marques de la Ensenada*, *Oquendo* and *Roger de Lauria*, were ordered as a class of nine in 1947, the last-named being laid down in 1951. The six other ships were cancelled in 1953 due to building difficulties.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,536 tons	2,086 tons	333 feet	31¾ feet	17 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
4–4·7 inch	3–37 mm., 2–20 mm. (also 1–3 inch, 4–37 mm. in second group)	6–21 inch	175

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	42,000	4 3-drum type	36 knots



JOSE LUIS DIEZ

DEMIRHISAR **MUAVENET** **SULTANHISAR**

These three vessels were constructed in British yards and are identical with the pre-war British "I" class. One, the *Muavenet*, served in the Royal Navy as H.M.S. *Inconstant* for some time. Her sister, *Gayret*, was lost while serving as H.M.S. *Ithuriel*. On the ships being handed over to Turkey during and after the war, H.M.S. *Oribi* was ceded to replace the lost vessel. She is now named *Gayret* and is identical with the three similar ships serving in the Royal Pakistan Navy. Balance of Turkey's destroyer strength are four ex-American destroyers of the "Gleaves" class: they are the *Gaziantep*, *Gelibolu*, *Gemlik* and *Giresun*. Two vessels of Italian construction, the *Tinaztepe* and *Zafer*, are also still with the fleet, the latter as a tender to the Naval College. Particulars of the "Demirhisar" class follow:

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,360 tons	2,100 tons	323 feet	33 feet	8½ feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
4–4·7 inch	6–40 mm., 2–20 mm.	8–21 inch (4 in *Muavenet*)	150

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	34,000	3 3-drum type	35·5 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Demirhisar	1939	1941	1942	Denny Bros.
Muavenet	24 May 1939	15 Dec. 1941	24 Jan. 1942	Vickers-Armstrongs
Sultanhisar	1939	1941	1942	Denny Bros.

DEMIRHISAR

ATHABASKAN **HAIDA** **IROQUOIS** **NOOTKA**
CAYUGA **HURON** **MICMAC**

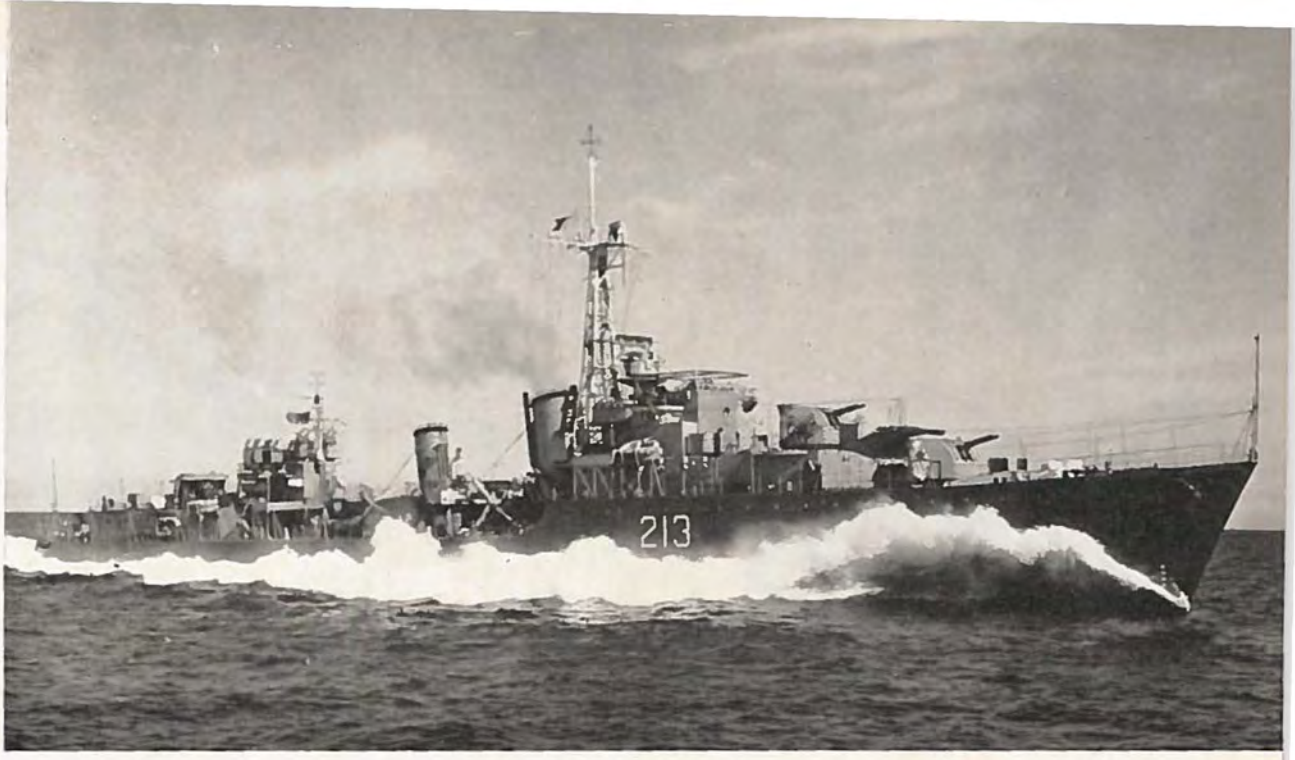
These ships fall into two groups, *Haida*, *Huron*, *Iroquois* and war-loss *Athabaskan* having been built in British yards, while the remaining four (including a new *Athabaskan*) are Canadian built. Originally these ships were identical with the now scrapped British "Tribal" class, three representatives of which still exist in the Royal Australian Navy. Since completion, however, all ships have undergone various alterations. The design has now been standardised and all ships are alike. They have been rearmed to be more effective anti-submarine units. Distinguished from similar Commonwealth ships by two-colour paint work and absence of a letter before the pennant number.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,927 tons	2,745 tons	355½ feet	37½ feet	9½ feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
4–4 inch	2–3 inch (U.S. model) 4–40 mm.	4–21 inch	2 squid	240

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	44,000	3 3-drum type	36·5 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Athabaskan	1943	14 May 1946	20 Jan. 1948	Halifax Shipyards
Cayuga	1943	28 July 1945	20 Oct. 1947	Halifax Shipyards
Haida	29 Sept 1941	25 Aug. 1942	18 Sept. 1943	Vickers-Armstrongs
Huron	15 July 1941	25 June 1942	28 July 1943	Vickers-Armstrongs
Iroquois	19 Sept. 1940	23 Sept. 1941	10 Dec. 1942	Vickers-Armstrongs
Micmac	1941	18 Sept. 1943	12 Sept. 1945	Halifax Shipyards
Nootka	1941	26 April 1944	8 Oct. 1946	Halifax Shipyards



NOOTKA

BUENOS AIRES ENTRE RIOS MISIONES SANTA CRUZ SAN JUAN SAN LUIS

Designed and built in Britain in 1936-8, these ships bear a marked resemblance to contemporary British destroyers. Care must also be taken to distinguish them from the "Serrano" class destroyers of neighbouring Chile, there being little apparent difference at a distance apart from the Argentinian ships having a mainmast. A seventh ship of this type was lost by accident during manœuvres in 1941. There are nine other destroyers in the Argentine fleet; four, the *Cordoba*, *La Plata*, *Catamarca* and *Jujuy*, are three-funnelled German ships, built in 1910 and 1911; two are ex-Spanish, having been bought two years after completion, these being the *Cervantes* and *Garay*. Three British-built vessels complete the series, the *Mendoza*, *La Rioja* and *Tucuman*. The most modern of the three classes they were completed in 1928. The "Buenos Aires" ships have the following particulars.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,375 tons	2,000 tons	323 feet	33 feet	8½ feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*		*Complement*
4–4·7 inch	8–13 mm.	8–21 inch		130
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Parsons geared turbines	34,000	3 3-drum type		35 knots

Name	*Launched*	*Builder*
Buenos Aires	21 Sept. 1937	Vickers-Armstrongs
Entre Rios	21 Sept. 1937	Vickers-Armstrongs
Misiones	23 Sept. 1937	Cammell Laird
San Juan	24 June 1937	Clydebank
San Luis	24 Aug. 1937	Clydebank
Santa Cruz	3 Nov. 1937	Cammell Laird

ENTRE RIOS

ACRE **AJURICABA** **AMAZONAS** **APA** **ARAGUARI** **ARAGUAYA**

Built in Brazil, these vessels are of American design and resemble the pre-war United States destroyers in appearance. They were very seriously delayed in building by the lack of material, held up in America during the war. Laid down in 1940 they were not completed until 1949–51. These five ships are supplemented by the three ships of the "Greenhalgh" class, the *Greenhalgh*, *Marcilio Dias* and *Mariz E. Barros*, also of American design and completed in 1943. With the exception of the Venezuelan ships later described, these two classes form the only modern and effective destroyer force in South America. "Acre" class details follow.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,450 tons	1,800 tons	323 feet	35 feet	9 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
4–5 inch	2–40 mm., 4–20 mm.	8–21 inch	150

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	34,000	3 3-drum type	34 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Acre	28 Dec. 1940	30 May 1945	Dec. 1951	Ilhas das Cobras
Ajuricaba	28 Dec. 1940	30 May 1945	Dec. 1951	Ilhas das Cobras
Amazonas	20 July 1940	29 Nov. 1943	10 Nov. 1949	Ilhas das Cobras
Apa	28 Dec. 1940	30 May 1945	Dec. 1951	Ilhas das Cobras
Araguari	20 July 1940	24 Nov. 1943	3 Sept. 1949	Ilhas das Cobras
Araguaya	28 Dec. 1940	1945	Dec. 1951	Ilhas das Cobras

AMAZONAS

N

RANA **RAJPUT** **RANJIT**

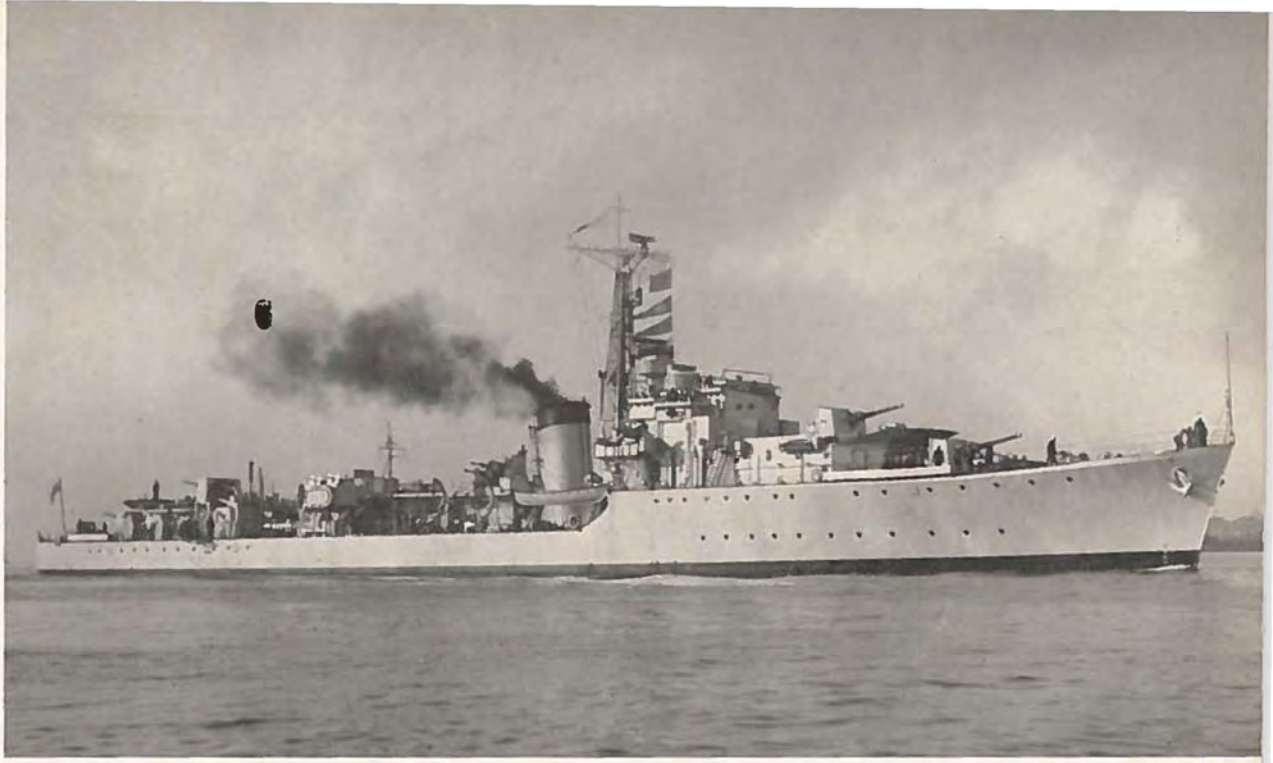
First destroyers of the Indian Navy, these ships are the ex-British *Raider*, *Rotherham* and *Redoubt*. Interesting in that they are the first British-designed destroyers to have officers' accommodation beneath the bridge instead of aft as previously. This was a result of lessons learnt in the first winter of the North Atlantic anti-submarine battle, when many destroyers were unable to relieve the Officer of the Watch and the after guns crews as the ship was cut in halves from the communications point of view by heavy seas continually breaking over the midships portion.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,705 tons	2,425 tons	358½ feet	35⅓ feet	16 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
4–4·7 inch	4–2 pdr., 6–20 mm. (*Rana* and *Ranjit*) 4–40 mm	8–21 inch	180

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	40,000	2 3-drum type	34 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Rana	16 April 1941	1 April 1942	16 Nov. 1942	Cammell Laird
Rajput	10 April 1941	21 Mar. 1942	27 Aug. 1942	John Brown & Co.
Ranjit	19 June 1941	2 May 1942	1 Oct. 1942	John Brown & Co.



RAJPUT

TARIQ **TIPPU SULTAN** **TUGHRIL**

All acquired from the Royal Navy in 1949 and 1951, these ships are the ex-*Offa*, *Onslow* and *Onslaught* of the War Emergency Programme, the first war-designed ships to be laid down. Two similar ships, *Obdurate*, *Obedient* and *Opportune*, are still in the Royal Navy, whilst the Turkish *Gayret* is also of this type. The *Orwell* formerly of this class, has been converted into a fast frigate and the remaining British destroyers were scheduled to be converted. It is difficult to distinguish these three ships from the Indian destroyers. Note that the Pakistanis have only one director on the bridge, whilst the Indians have two.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,540 tons	2,625 tons	345 feet	35 feet	15¼ feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*		*Complement*
4–4·7 inch	4–40 mm.	8–21 inch		150
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Parsons geared turbines	36,000	2 3-drum type		31 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Tariq	15 Jan. 1940	11 Mar. 1941	20 Sept. 1941	Fairfield
Tippu Sultan	1 July 1940	31 Mar. 1941	8 Oct. 1941	John Brown & Co.
Tughril	14 Jan. 1941	9 Oct. 1941	19 June 1942	Fairfield

TIPPU SULTAN

DAO **DOURO** **LIMA** **TEJO** **VOUGA**

British built, these ships were designed by Yarrow and are some of the few vessels still boasting the famous "Yarrow curve", a particular type of destroyer stern peculiar to Yarrow-designed ships. Rebuilt and refitted in British yards in 1946–9, these ships are now quite effective anti-submarine units. They carry British-type pennant numbers as they form part of the NATO organisation. Two former sister ships serve in the Colombian Navy, although these have now been refitted so as to bear little resemblance to the Portuguese flotilla.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,238 tons	1,563 tons	323 feet	31 feet	11 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Mines*	*Complement*
4–4·7 inch	3–40 mm.	4–21 inch	20	179–184
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Parsons geared turbines	33,000	3 Yarrow		36 knots

Name	*Launched*	*Completed*	*Builders*
Dao	27 July 1934	Jan. 1935	Lisbon
Douro	16 Aug. 1935	Feb. 1936	Lisbon
Lima	29 May 1933	Nov. 1933	Yarrow
Tejo	4 May 1935	Oct. 1935	Lisbon
Vouga	25 Jan. 1933	June 1933	Yarrow

VOUGA

ARAGUA **NUEVA ESPARTA** **ZULIA**

The most modern destroyers in the South American navies, indeed they are amongst the newest in existence, these vessels were constructed by Vickers-Armstrongs at Barrow-in-Furness. They are recognitionally very similar to the British and Australian ships of the "Battle" type. In fact, the design would appear to be a combination of a "Daring" armament and layout on a "Battle" hull and appearance. Of considerable size, they do not carry the complicated electronic equipment to be found in the larger navies and there is considerable space below decks that should make for most comfortable and habitable quarters. *Aragua* is still under construction, but the other two vessels have already joined the Venezuelan Fleet.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
2,600 tons	3,300 tons	402 feet	43 feet	12¾ feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*		*Complement*
6–4·5 inch	8 40 mm.	3 21 inch		254
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Parsons geared turbines	50,000	2		34·5 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Arauga	29 June 1953	27 Jan. 1955	End 1955	Vickers-Armstrongs
Nueva Esparta	24 July 1951	19 Nov. 1952	Dec. 1953	Vickers-Armstrongs
Zulia	24 July 1951	29 June 1953	End 1954	Vickers-Armstrongs

NUEVA ESPARTA

FRIGATES

THE appellation "frigate" was early adopted by the French for a particular type of fighting ship, and soon became the accepted term for the smaller, faster and more lightly armed vessel carrying her armament on one deck and intended to act as observer for the line-of-battle ship, but not to occupy a place in the line. In Britain frigate was the name attached to light and speedy one-decked ships, a smaller type of vessel being known as a sloop which had its approximate equivalent in the French corvette. Frigates became a standard class of warship ranking next to ships of the line. They were used to obtain information as to the operations of enemy fleets, and to direct the movements of their own, but it was unusual for them to join in the line of battle, their clashes ordinarily occurring in actions with single ships of their own class. Nelson always complained bitterly of the lack of frigates (as admirals in both the Great Wars did) which by his time were as useful and formidable scouts as were our fast reconnaissance warships of modern times. With the introduction of steam and the growth of the British Navy frigates were developed more than any other class of warship, many of the largest vessels in the fleet belonging to this wide-embracing class. The famous *Warrior*, Britain's first iron-clad, displacing 9,000 tons, was originally rated as a frigate. "Frigate" continued to be used for this type of ship up to 1887 when the old *Raleigh* of 5,200 tons and other ships were still rated as frigates, but after that all the former frigates were rated as cruisers. Thereafter the term "frigate" lapsed for over 55 years. On 3 March 1943 it was officially announced that the name "frigate" was to be revived for a new class of warship. Of an enlarged corvette type and bearing a family likeness to the pre-war sloop, but built more on the lines of the escort destroyer, our first modern frigates, of the numerous "River" class, were described at the time by naval officers as the finest naval weapon yet invented against the U-boat. In essence they were still one-decked ships like the frigates of old. Numbering, with those built for the Royal Canadian Navy, some 120 units, they displaced 1,460 tons, heavier than our pre-war destroyers, and carried two 4-inch guns, ten 20-mm. A.A. guns and a hedgehog at a speed

of 20 knots. Some remain in the Royal Navy and many other navies today. They were followed by a group of nearly 80 frigates of a new type known as the "Captains" class, built in American yards and in most respects similar to the United States destroyer escort types of 1,400 tons with three 3-inch guns and a speed of 24 knots (turbo-electric), or 1,150 tons with a speed of 20 knots (diesel-electric) and 21 American-built frigates of the "Colony" class similar to the original "River" class but of 1,318 tons with 3-inch guns and a speed of 18 knots (reciprocating). The British frigate category is now a very broad one embracing not only the frigates proper of the "River", "Loch" and "Bay" classes but the former sloops of the "Black Swan" classes with six 4-inch guns, the former escort destroyers of the "Hunt" group with displacements up to 1,175 tons and speeds up to 30 knots, the former corvettes of the "Castle" class of 1,100 tons with a speed of 16½ knots (term "corvette" had been revived on 4 July 1940 after a lapse of 53 years), and former destroyers of 1,730 tons with speeds of 36¾ knots. No fewer than 75 British frigates or vessels which would now be classified as frigates were lost during the 1939–45 war. Britain is building 27 new frigates—six of a highly specialised anti-submarine type ("Whitby" or "Seaside Resort" class), twelve of a utility anti-submarine type ("Blackwood" or "Captains" class), five of an anti-aircraft type ("Leopard" or "Big Cat" class), and four of an aircraft direction type ("Salisbury" or "Cathedral City" class). Eight general purpose frigates are to be built under the 1955–6 Navy Estimates. As a type the modern frigate has come to stay. Evolved because the corvette could not quite do all that was required of it, the frigate had developed into a utility destroyer, not so expensive to build and more economical to operate, in fact an ideal escort vessel, submarine killer, anti-aircraft ship and maid-of-all-work. There are now 183 frigates in the British Navy. Their counterparts in the U.S. Navy have hitherto been the destroyer escorts, but early in 1955 the American big destroyer leaders *Norfolk*, 5,600 tons, and the four of the "Mitscher" class, 3,700 tons with speeds up to 35 knots, were reclassified as frigates. The wheel has thus turned full cycle with frigates of the same displacement as those in service 70 years ago.

ZEST	**WAKEFUL**	**VENUS**	**GRENVILLE**	**UNDINE**	**TROUBRIDGE**	**RAPID**
	WHIRLWIND	**VERULAM**	**ULSTER**	**URANIA**		**RELENTLESS**
	WIZARD	**VIGILANT**	**ULYSSES**	**URCHIN**		**ROCKET**
	WRANGLER	**VIRAGO**	**UNDAUNTED**	**URSA**		**ROEBUCK**
		VOLAGE				

The twenty-three vessels listed above represent the latest British conception of the fast anti-submarine vessel. Originally ships of the "Z", "W", "V", "U", "T" and "R" class fleet destroyers they have undergone a complete conversion involving stripping the ship down to deck level, extending the forecastle right aft, fitting new superstructure and an entirely new armament. The ships. originally very similar, are now identical in armament and appearance and it is not possible to distinguish between them. Canadian and Australian destroyers have been converted in a very similar manner. The Australian ships have the bridge a deck higher and the forward guns before the bridge; the Canadian ships have the forward guns on the forecastle deck level, also they mount 3-inch instead of 40-mm. guns. Otherwise the design is the same. Most ships mount two squid anti-submarine weapons, some are fitted with the development of that, the Limbo, and it is expected that all will be so fitted as the weapon becomes available. Tubes, where mounted, are fixed and intended for anti-submarine homing torpedoes, not the conventional type.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1 705 to 1,730 tons	2,500 to 2,530 tons	362½ feet	36 feet	16 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
2–4 inch	2–40 mm.	2 or none	2 squid or limbo	174
Propelling machinery	*Shaft horse power*	*Boilers*		*Speed*
Parsons geared turbines	40,000	2 3-drum type		34 knots

WRANGLER

TEAZER	**TUMULT**	**ORWELL**	**PALADIN**
TENACIOUS	**TUSCAN**		**PETARD**
TERMAGANT	**TYRIAN**		
TERPSICHORE			

Known as "limited conversions", these ships are destroyers converted to fast anti-submarine frigates and are complementary to the full conversions previously detailed. The process of conversion has not involved the complete stripping of the hull, and the ships still retain the appearance of a British destroyer. Due to the limited conversion, the anti-aircraft armament is somewhat stronger and part of the original torpedo armament is retained. While more rapidly converted, their anti-submarine effectiveness is probably not so great as that so the full conversions.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
("T" class) 1,710 tons	2,510 tons	362¾ feet	35¾ feet	16 feet
("O" & "P") 1,540 tons	2,315 tons	345 feet	35 feet	15 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
("T" class) 2-4 inch	7-40 mm.	4-21 inch	2 squid	170
("O" & "P") 2-4 inch	2-40 mm.	4-21 inch	2 squid	150

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	40,000	2 of 3-drum type	34 knots

TENACIOUS

BIGBURY BAY	**CAWSAND BAY**	**MOUNTS BAY**	**ST. BRIDES BAY**	**WHITESAND BAY**
BURGHEAD BAY	**ENARD BAY**	**PADSTOW BAY**	**START BAY**	**WIDEMOUTH BAY**
CARDIGAN BAY	**LARGO BAY**	**PORLOCK BAY**	**TREMADOC BAY**	**WIGTOWN BAY**
CARNARVON BAY	**MORECAMBE BAY**	**ST. AUSTELL BAY**	**VERYAN BAY**	

A development of the "Loch" class next described, all these ships have held "Loch" names. These vessels were completed as anti-aircraft frigates for service in Pacific waters. As they have the same hull form as their predecessors they could probably be refitted for anti-submarine duties if the occasion arose. They are, in any case, partially fitted for them already. Four ships have been completed as survey vessels and two others serve as despatch vessels, or Admirals' Yachts, on the Mediterranean and Far East Stations. As was the case with the pre-war conversions, these ships could revert to their original functions in time of emergency. Four ships of this type are in the Royal Australian Navy.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,580 tons	2,400 tons	307½ feet	38½ feet	12⅞ feet
Main armament	*Anti-aircraft armament*	*Anti-submarine weapons*		*Complement*
4-4 inch	6-40 mm., 2-20 mm.	1 hedgehog		157
Propelling machinery	*Indicated horse power*	*Boilers*		*Speed*
Triple expansion	5,500	2		19·5 knots

ENARD BAY

LOCH ALVIE	**LOCH FADA**	**LOCH INSH**	**LOCH MORE**	**LOCH TARBERT**
LOCH 'ARKAIG	**LOCH FYNE**	**LOCH KILLIN**	**LOCH QUOICH**	**LOCH TRALAIG**
LOCH CRAGGIE	**LOCH GLENDHU**	**LOCH KILLISPORT**	**LOCH RUTHVEN**	**LOCH VEYATIE**
LOCH DUNVEGAN	**LOCH GORM**	**LOCH LOMOND**	**LOCH SCAVAIG**	

The original anti-submarine design from which the "Bay" class were converted, these ships are the successors to the first frigates, the "River" class. A very successful type, some ships of this class will also be found in the South African Navy and the Royal New Zealand Navy. A number of these vessels also served in the Royal Canadian Navy during the war, being returned in late 1945. Some units have been modernised with a new pattern twin 4-inch mounting and new Bofors mountings. Probably all vessels will be so equipped in due course.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,435 tons	2,260 tons	307 feet	38½ feet	12 feet
Main armament	*Anti-aircraft armament*	*Anti-submarine weapons*		*Complement*
1–4 inch or 2–4 inch	4–2 pdr., 4–40 mm. or 6–40 mm.	2 squid		124
Propelling machinery	*Indicated horse power*	*Boilers*		*Speed*
Triple expansion (*Loch Arkaig* and *Loch Tralaig* have geared turbines)	5,500	2 of 3-drum type		19·5 knots

LOCH FYNE

ACTAEON	HART	NEREIDE	SPARROW	BLACK SWAN	PELICAN	STORK
ALACRITY	HIND	OPOSSUM	WILD GOOSE	FLAMINGO		
AMETHYST	MAGPIE	PEACOCK	WOODCOCK			
CRANE	MERMAID	PHEASANT	WREN			
CYGNET	MODESTE	SNIPE				

These ships represent four types of ships known during the war as sloops and since reclassified as frigates. *Pelican* and *Stork* were built before the Second World War, the latter as a surveying ship, being converted to a sloop in 1939. *Black Swan* and *Flamingo* are the survivors of a class of eight, two having been lost, one converted to an R.N.V.R. drill ship, and one sold to the Egyptian Navy. The two remaining vessels are serving as navigational school ships but could easily be re-armed. The remaining nineteen ships which are named in the first four columns were war-built improvements on the original "Black Swan" design. Due to extra equipment they have not the greater speed which was hoped for in the design. Effective and economical vessels, they were well known during the last war for their operations in the "killer groups" in the North Atlantic. Now mainly to be found on foreign stations as their size and cruising endurance suit them for this type of service. Vessels of this and similar types are in the Royal Australian, Royal Pakistan and Indian navies.

Standard displacement 1,190 to 1,490 tons	*Full load displacement* 1,790 to 1,925 tons	*Length* 300 feet (*Stork* 282 feet, *Pelican* 293 feet)	*Beam* 38 feet	*Draught* 11 feet
Main armament 6 4 inch (*Wild Goose* and *Stork* 4)	*Anti-aircraft armament* 2 to 8 40 mm.	*Anti-submarine weapons* 1 hedgehog		*Complement* 180 190 (*Stork* 125)
Propelling machinery Geared turbines	*Shaft horse power* 4,300 (*Stork* 3,300, *Pelican* 3,600)	*Boilers* 2 3-drum type		*Speed* 19 knots

MERMAID

BALLINDERRY	**DERG**	**HELMSDALE**	**LOCHY**	**RIBBLE**	**TOWY**
CHELMER	**EXE**	**JED**	**NESS**	**TAFF**	**WEAR**
DART	**HELFORD**	**KALE**	**ODZANI**	**TAY**	

The original frigate design used in the North Atlantic during the last war with great effect. These ships are now all in reserve after strenuous war service; nine were discarded in 1954. Representatives of this type will be found in the Royal Australian, Royal Canadian, Royal New Zealand, Royal Pakistan, Indian, Danish, Dutch, French, Portuguese, Egyptian and Burmese navies. Similar ships are also to be found in the various South American navies. All are alike except that the French ships are fitted with lattice masts and the Canadian ships are in course of conversion that involves their forecastle being extended right aft and the funnel heightened, a process that alters their appearance completely and has produced an exceptionally ugly vessel. *Plym*, of this class, had the distinction of being the target vessel in the first British atomic bomb trials. *Helmsdale*, in use as an experimental vessel at Portland, is disarmed. Two ships are in use as Landing Ship, Headquarters.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,370 to 1,490 tons	1,920 to 2,216 tons	301 feet	37 feet	14 feet
Main armament	*Anti-aircraft armament*	*Anti-submarine weapons*		*Complement*
2–4 inch	10–20 mm.	1 hedgehog		140
Propelling machinery	*Indicated horse power*	*Boilers*		*Speed*
Triple expansion (*Chelmer* and *Helmsdale* have geared turbines)	5,500	2		20 knots

WEAR

Type I		Type II		Type III	
ATHERSTONE	FERNIE	AVON VALE	MIDDLETON	ALBRIGHTON	STEVENSTONE
BLENCATHRA	GARTH	BICESTER	OAKLEY	BELVOIR	TALYBONT
BROCKLESBY	HAMBLEDON	BLANKNEY	SILVERTON	BLEASDALE	
CATTISTOCK	HOLDERNESS	COWDRAY	TETCOTT	EGGESFORD	
CLEVELAND	PYTCHLEY	CROOME	WHEATLAND	HAYDON	Type IV
COTSWOLD	SOUTHDOWN	FARNDALE	WILTON	MELBREAK	BRECON
EGLINGTON	WHADDON	LEDBURY			BRISSENDEN

Designed as escort vessels, they turned out to be utility destroyers, easily produced in numbers, for use in short ocean and coastal waters. This type constituted an attempt to break away from the growing destroyer size. They are essentially anti-aircraft and surface escorts, not anti-submarine vessels. Vessels of this type can be found in the Indian, Ecuadorian, Egyptian, Danish, Norwegian and Greek navies. Recognitionally, types 1 and 2 are similar but for the additional after gun shield in Type 2; Type 3 has a thinner, upright funnel and unraked mast, the only class like this; Type 4 has the forecastle extended well aft, a squat funnel almost merging into the bridge, and a pronounced knuckle in the bow. Collectively known as the "Hunt" class, being named after well-known hunts. Formerly rated as escort destroyers but reclassified as frigates in 1947.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,000 to 1,175 tons	1,490 to 1,770 tons	280 feet (Type 4 296 feet)	29 to 33½ feet	14 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
Type 1, 4–4 inch	2–20 mm., 4–2 pdr.	None	146
Type 2, 6–4 inch	2 or 4–20 mm., 4–2 pdr.	None	146
Type 3, 4–4 inch	4–2 pdr., 2–20 or 40 mm.	2–21 inch	168
Type 4, 6–4 inch	4–2 pdr., 2–40 mm., 2–20 mm.	3–21 inch	170

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Parsons geared turbines	19,000	2 of 3-drum type	24 to 29 knots

BLEASDALE

BROCKLESBY

ALLINGTON CASTLE
ALNWICK CASTLE
AMBERLEY CASTLE
BAMBOROUGH CASTLE
BERKELEY CASTLE
CAISTOR CASTLE
CARISBROOKE CASTLE
DUMBARTON CASTLE
FARNHAM CASTLE
FLINT CASTLE
HADLEIGH CASTLE
HEDINGHAM CASTLE
KENILWORTH CASTLE
KNARESBOROUGH CASTLE
LANCASTER CASTLE
LAUNCESTON CASTLE
LEEDS CASTLE
MORPETH CASTLE
OAKHAM CASTLE
OXFORD CASTLE
PEVENSEY CASTLE
PORTCHESTER CASTLE
RUSHEN CASTLE
TINTAGEL CASTLE

The "Castle" class were designed by Smiths Dock Co. as the successors to the well-tried "Flower" class corvettes, also designed by the same firm. Vessels of this class served in the Royal Canadian and Norwegian navies during the war. They are now to be found in the Uruguayan and Chinese Communist navies. Hurriedly built on utility lines, and hard worked during the latter part of the war, some of these ships are now worn out, having been in commission since 1944 without a break. Most of those in commission are used for A/S training in home waters; the balance are laid up in reserve and are likely to be commissioned only in an emergency.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,060 to 1,100 tons	1,580 tons	252 feet	37 feet	14 feet

Main armament	*Anti-aircraft armament*	*Anti-submarine weapons*	*Complement*
1–4 inch	2–40 mm. or 2–20 mm. or 4–40 mm.	1 squid	100

Propelling machinery	*Indicated horse power*	*Boilers*	*Speed*
Triple expansion	2,880	2	16½ knots

LEEDS
CASTLE

DEALEY **CROMWELL** **HAMMERBERG**

The only three vessels so far named of a proposed class of fifteen ocean escort vessels. Designed for fast convoy protection, these ships are intended for mass production in the event of war and can be considered as the contemporaries of the British second-rate anti-submarine frigates. Reported that the French ships of the "Le Corse" type are of a very similar design to the "Dealey" class. The distinctive type letter symbol "DE", denoting the category to which these ships belong, stands for "Destroyer Escort", but in the United States official list of classifications of naval vessels they are grouped under the generic heading of "Patrol Vessels" with the specific classification of "Escort Vessels". However, they closely resemble the ships of the frigate category in British and other navies.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,450 tons	1,914 to 1,930 tons	314½ feet	36½ feet	18 feet

Main armament	*Anti-aircraft armament*	*Anti-submarine weapons*	*Complement*
2–3 inch	2 3 inch	2 launchers	150 peace, 220 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Geared turbines	20,000	2	25 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
Cromwell	3 Aug. 1953	4 June 1954	19 Nov. 1954	Bath Iron Works
Dealey	15 Oct. 1952	8 Nov. 1953	3 June 1954	Bath Iron Works
Hammerberg	12 Nov. 1953	20 Aug. 1954	Feb. 1955	Bath Iron Works

DEALEY

L'AGENAIS	**LE BORDELAIS**	**LE BRETON**	**E 5**	**E 7**	**E 9**	**E 11**
LE BASQUE	**LE BOULONNAIS**	**LE CORSE**	**E 6**	**E 8**	**E 10**	
LE BEARNAIS	**LE BRESTOIS**					

The first French escorts to be produced since the war, these vessels are said to be influenced greatly by the design of the U.S.S. *Dealey*, destroyer escort. The numbered vessels will be named in due course. Torpedo tubes are for homing torpedoes.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,290 tons	1,702 tons	315 feet	33½ feet	10 feet

Main armament	*Secondary armament*	*Torpedo tubes*	*Anti-submarine weapons*	*Complement*
6–57 mm.	2–20 mm.	12–21·7 inch	2 mortars	198

Propelling machinery	*Shaft horse power*	*Speed*
Geared turbines	20,000	27 knots

Name	*Launched*	*Completed*	*Builders*
Le Bordelais	14 July 1953	Aug. 1954	F. Ch. de la Mediteranee
Le Boulonnais	12 May 1953	Aug. 1954	A. C. Loire
Le Brestois	15 Dec. 1952	Dec. 1954	Lorient Navy Yard
Le Corse	5 Aug. 1952	Aug. 1954	Lorient Navy Yard

Remaining units of the class are in various stages of construction.

LE CORSE

"Rudderow" Class
CHARLES H. KIMME
COATES
DANIEL A. JOY
DE LONG
DAY
EUGENE E. ELMORE
GEORGE A. JOHNSON
HODGES
HOLT
JOBB
LESLIE L. B. KNOX
LOUGH
McNULTY
METIVIER
PARLE
PEIFFER
RILEY
RUDDEROW
THOMAS F. NICKEL
TINSMAN

"John C. Butler" Class
ABERCROMBIE
ALBERT T. HARRIS
ALVIN C. COCKERELL
BIVIN
CECIL J. DOYLE
CHARLES E. BRANNON
CHESTER T. O'BRIEN
CONKLIN
CORBESIER
CROSS
DENNIS
DOUGLAS A. MUNRO
DOYLE C. BARNES
DUFILHO
EDMONDS
EDWARD H. ALLEN
EDWIN A. HOWARD
FORMOE
FRENCH
GENTRY
GEORGE E. DAVIS
GILLIGAN
GOSS
GRADY
HAAS
HANNA
HOWARD F. CLARK
HEYLIGER
JACCARD
JACK MILLER
JESSE RUTHERFORD
JOHN C. BUTLER
JOHN L. WILLIAMSON
JOHNNIE HUTCHINS
JOSEPH E. CONNOLLY
KENDAL C. CAMPBELL
KENNETH M. WILLETT
KEY
LA PRADE
LAWRENCE C. TAYLOR
LE RAY WILLIAMSON
LELAND E. THOMAS
LEWIS
LLOYD E. ACREE
MACK
MAURICE J. MANUEL
MELVIN R. NAWMAN
McCOY REYNOLDS
McGINTY
NAIFEH
O'FLAHERTY
OLIVER MITCHELL
OSBERG
PRATT
PRESLEY
RAYMOND
RICHARD M. ROWELL
RICHARD S. BULL
RICHARD W. SUESENS
RIZZI
ROBERT BRAZIER
ROBERT F. KELLER
ROLF
ROMBACH
SILVERSTEIN
STAFFORD
STRAUSS
TABBERER
THADDEUS PARKER
TRAW
TWEEDY
ULVERT M. MOORE
WALTER C. WANN
WALTON
WILLIAM SEIVERLING
WILLIAMS
WOODSON

"Buckley Class"
AHRENS
BORUM
COOLBAUGH
CRONIN
CURRIER
DAMON M. CUMMINGS
DARBY
DURIK
EARL V. JOHNSON
EICHENBERGER
FIEBERLING
FOREMAN
FOSS
FOWLER
FRANCIS M. ROBINSON
FRYBARGER
GEORGE

MAURICE
J. MANUEL

POOLE
(*See* p. 227)

"Buckley Class"—contd.
GENDREAU
GILLETTE
GREENWOOD
GUNASON
HARMON
HENRY R. KENYON
HALTON
JACK W. WILKE
JAMES E. CRAIG
J. DOUGLAS BLACKWOOD
JENKS
LOESER
LOVELACE
MAJOR
MALOY
MANNING
MARSH
NEUENDORF
OSMUS
OTTER
PAUL G. BAKER
RABY
SCOTT
SCROGGINS
SPANGLER
THOMASON
VARIAN
VAMMEN
WEEDEN
WHITEHURST
WILLIAM C. COLE
WILLMARTH
WISEMAN

Three very similar types of escort vessels, the "Buckley" class forming the link between the two later types and the original "Edsall" and "Bostwick" classes later described. Recognitionally alike, the "Buckley" class have tall funnels, whilst the others have short. Ten of the fifty "Buckley" type ships mount two 5-inch guns, the balance having three 3-inch, as in the "Edsall" type. A number of the "Buckley" class served with the Royal Navy during the war, further ships and a number of the "Rudderow" type were converted into fast attack transports for use in the Pacific, and nine units were converted into radar picket escort vessels (DER). All approximate to the British frigate, except that their electric or turbine drive gives them an increase of six knots over their British contemporaries.

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,350 to 1,450 tons	2,100 to 2,230 tons	306 feet	37 feet	11 feet

Main armament	*Anti-aircraft armament*	*Anti-submarine weapons*	*Complement*
2–5 inch or 3–3 inch	8–40 mm., 4–20 mm. or 2–40 mm., 6–20 mm.	D.C.T.	220 war

Propelling machinery	*Shaft horse power*	*Boilers*	*Speed*
Turbo electric Geared turbines (in J. C. Butler class)	12,000	2	24 knots

"Edsall" Class

BLAIR
BRISTER
BROUGH
CALCATERRA
CAMP
CHAMBERS
CHATELAIN
COCKRILL
DALE W. PETERSEN
DANIEL
DOUGLAS L. HOWARD
DURANT
EDSALL
FALGOUT
FARQUHAR
FINCH
FLAHERTY
FORSTER
FROST
HAMMAN
HERBERT C. JONES
HILL
HISSEM
HOWARD D. CROW
HURST
HUSE
INCH
JACOB JONES
JANSSEN
J. RICHARD WARD
J. R. Y. BLAKELY
KEITH
KOINER
KRETCHMER
LANCING
LOWE
MARCHAND
MARTIN H. RAY
MENGES
MERRIL
MILLS
MOORE
MOSLEY
NEUNZER
NEWELL
O'REILLY
PETERSEN
PETTIT
POOLE
POPE
PRICE
PRIDE
RAMSDEN
RHODES
RICHEY
RICKETTS
ROBERT E. PEARY
ROY O. HALE
SELLSTROM
SLOAT
SNOWDEN
STANTON
STEWART
STOCKDALE
STURTEVANT
SWASEY
SWENNING
THOMAS J. GARY
TOMICH
VANCE
WILLIS

"Bostwick" Class

ACREE
BOOTH
CARROLL
COFFMAN
COONER
EARL K. OLSEN
HEMMINGER
HILBERT
KYNNE
LAMONS
LEVY
McCLELLAND
McCONNELL
MICKA
MUIR
NEAL A. SCOTT
OSTERHAUS
OSWALD
PARKS
ROBERTS
SNYDER
STRAUB
SUTTON
TILLS
TRUMPETER

These two classes represent the original Destroyer Escort design developed for escort duties with convoys and task forces. Ships of these classes will be found in the Brazilian, Chinese Nationalist, French, Greek, Italian, Netherlands, Peruvian and Uruguayan navies. Several units were also serving with the U.S. Coast

Guard. Distinguishable from the later types by their tall funnels and 3-inch mounts in gun pits, these vessels could be confused with the 3-inch-gunned ships of the "Buckley" class. Diesel or diesel-electric drive with a somewhat lower speed than the later types. Ten units of the "Edsall" class were converted into radar picket escort vessels (DER).

Standard displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,200 to 1,240 tons	1,850 to 1,900 tons	306 feet	37 feet	12 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Anti-submarine weapons*
3–3 inch	2–40 mm., 4–20 mm. 8–40 mm., 4–20 mm. (in "Edsall" class)	3–21 inch in some "Bostwick" class	D.C.T.

Propelling machinery	*Brake horse power*	*Speed*	*Complement*
("Bostwick") diesel-electric	6,000	20 knots	220
("Edsall") diesel	6,000	21 knots	220 war

SUBMARINES

It was largely John P. Holland, a British emigrant to the United States, who invented the modern type of submarine towards the end of the nineteenth century—in essence a submersible torpedo boat, but it was not until the beginning of the twentieth century that the submarine became a practical proposition and took its place as an accepted and distinct category of warship. The first British submarines were of the Holland design, his rights having been acquired by the Admiralty. Five experimental boats were built to his specifications in 1901–2, of 120 tons with a length of 63½ feet, one torpedo tube in the bow (five torpedoes carried), petrol engines giving a speed of 9 knots and storage batteries and electric motors giving a submerged speed of 7 knots. The first development was "A 1", originally Holland No. 6, 180 tons, 11 knots. A 2–A 13, launched 1903–6, 204 tons, 12 knots, had two torpedo tubes. B 1–B 11 and C 1–C 38, 1906–9, displaced 280 tons with a speed of 13 knots. But in the following class, D 1–D 8, 1908–11, there was a vast improvement in design and a leap in size, power, speed and armament. External side ballast tanks were introduced, diesel engines driving twin screws adopted, a stern torpedo tube fitted and bow tubes disposed one above the other. They were safer, had greater habitability and a 12-pounder gun was mounted experimentally. Of 550 tons surface displacement and 620 tons submerged they had a surface speed of 16 knots (10 knots submerged). Considering half a century has elapsed since they were designed it is surprising how little submarines have changed fundamentally. In the "E" class, which continued to be built until 1916–17, broadside tubes were introduced and the hull was sub-divided by watertight transverse bulkheads. Of the Admiralty wing-tank type they displaced 662/807 tons with three to five 18-inch tubes (most mounted a 12-pounder gun, a few carried 20 mines) and a speed of 15/10 knots. The submarine war of 1914–18 was largely fought with this class. No fewer than 55 "E" boats were built. As many as 27 were lost during the war but their record was one of brilliant achievements. There was a brief reversion to the small type with the three coastal submarines of the "F" class, 353/525 tons, three tubes, 14½/8¾ knots,

the first of the Admiralty double hull design; then a volte-face to the "G" class, 700/975 tons, 14/10 knots, whose armament included a 21-inch tube, introduced in submarines for the first time, as well as four 18-inch tubes (bow and beam) and a 3-inch anti-aircraft gun. These were the first genuine ocean-going boats in the Royal Navy. The "H" class were of the single-hulled Holland type. Ten were of 364/434 tons with a speed of 13/11 knots and four 18-inch tubes; 24 of modified Admiralty design were of 410/500 tons with four 21-inch tubes. Successful and popular, reputed to be the fastest divers in the Service, nine of them served in the Second World War. The "J" class, 1915–17, were large ocean-going submarines, the fastest afloat. Of 1,260/1,820 tons and armed with six 18-inch tubes and a 4-inch gun, they had a surface speed of 19½ knots. The giant steam-driven "K" class displaced 1,880/2,650 tons with an armament of eight 18-inch tubes, a 4-inch gun and a 3-inch A.A. weapon, two Yarrow boilers and geared turbines giving them a surface speed of 24 knots. In 1916–18 they were the largest and fastest submarines in the world. *K 26* built 1918–24 of 2,140/2,770 tons with three 4-inch guns, two smaller weapons and ten 21-inch tubes, was practically a submersible light cruiser. In the "L" class, built 1917–22, a return was made to diesels and normal sea-going dimensions, 760/1,080 tons, one 4-inch gun, four 21-inch tubes, 17½/10½ knots. In all-round qualities they were the most successful type produced, and three served in the 1939–45 war. The three vessels of the "M" class represented an attempt to produce submarine battleships or monitors. Of 1,600/1,950 tons they originally carried a 12-inch gun as well as a 3-inch gun and four 18-inch tubes at a speed of 15½/9½ knots. *M 1*, completed in 1918, was lost in 1925 and the big guns were removed from the other two freaks. *M 2*, converted to carry a seaplane and fitted with a hangar and crane, was lost in 1932. *M 3* was transformed into a minelayer. The twelve "R" class boats completed in 1918, of 420/500 tons, were faster below water than on the surface (15 knots submerged, 10 knots surfaced). During 1914–18 no fewer than 54 British submarines were lost.

The unique giant British submarine *X 1*, built 1921–4, was 363½ feet long and 30 feet in beam with a displacement of 2,525/3,600 tons and carried four 5·3-inch guns in two revolving shields, two smaller guns and six 21-inch torpedo tubes. Diesels of 7,000 B.H.P. gave her a speed of 19½ knots. She was the first real underwater cruiser. When normal submarine building was resumed, submarines for the first time were given names, with the same initial letter according to class. The 19 boats of the "O", "P" and "R" classes were of a standard pattern, up to 1,475 tons on the surface and up to 2,040 tons submerged, with eight 21-inch tubes, a 4-inch gun and surface speeds up to 17½ knots. The *Thames*, *Severn* and *Clyde*, 1,850/2,710 tons, 22½ knots were the first submarines to exceed a speed of 21 knots (except the steam "K" class). The six "Porpoise" class boats were submarine minelayers completed 1933–39. Another descent to small dimensions was made with the "S" class. Some 50 improved vessels of this type were completed during the Second World War, and some of these are in service today. These, with the succeeding vessels of the "T", "U" and "A" classes are described on the following pages. No fewer than 77 British submarines were lost during the Second World War. There are 59 submarines in the Royal Navy today, most of which are fitted with the "Snort" breathing equipment. The United States has over 200 submarines, including two atomic-powered vessels. Russia has about 400 submarines.

ACHERON	**ALCIDE**	**AMBUSH**	**ANDREW**	**ASTUTE**
AENEAS	**ALDERNEY**	**AMPHION**	**ARTEMIS**	**AURIGA**
ALARIC	**ALLIANCE**	**ANCHORITE**	**ARTFUL**	**AUROCHS**

Originally there were to have been forty-six units of this "A" class, all designed for Pacific operations. The war in the Far East was over before any ship of the class was able to reach it, and in consequence thirty units were cancelled or scrapped before completion. The *Affray* was lost with all hands in the Channel in April 1951. These ships offer a variety of appearances, appearing with or without guns as the operation requires. All are fitted with the Snort device. These vessels, the latest in Britain's submarine fleet, are being supplemented by a limited amount of new construction. Two ships, *Explorer* and *Excalibur*, are being completed, but these will carry no armament as they are designed for experimental work with new means of propulsion. A further programme also under way provides for at least five new ships with conventional engines. These ships are to be named *Porpoise*, *Rorqual*, *Grampus*, *Narwhal* and *Cachalot*. Four new midget submarines, "X" 51 to 54 were recently completed and they now carry the names *Minnow*, *Shrimp*, *Sprat* and *Stickleback*.

Surface displacement	*Submerged displacement*	*Length*	*Beam*	*Draught*
1,385 tons	1,620 tons	281¾ feet	22½ feet	17 feet

Main armament	*Anti-aircraft armament*	*Forward torpedo tubes*	*Aft torpedo tubes*	*Complement*
1–4 inch	7 machine-guns	2 or 4–21 inch	2–21 inch	60

Propelling machinery	*Shaft horse power*	*Surface Speed*	Submerged speed
Diesels/electric motors	4,300/1,250	18/8 knots	8 knots

AUROCHS

ANDREW

TABARD	**TEREDO**	**TRADEWIND**	**SANGUINE**	**SERAPH**
TACITURN	**THERMOPYLAE**	**TRENCHANT**	**SCORCHER**	**SIDON**
TACTICIAN	**THOROUGH**	**TRESPASSER**	**SCOTSMAN**	**SIRDAR**
TALENT	**THULE**	**TRUMP**	**SCYTHIAN**	**SLEUTH**
TALLYHO	**TIPTOE**	**TRUNCHEON**	**SEA DEVIL**	**SOLENT**
TAPIR	**TIRELESS**	**TUDOR**	**SEA SCOUT**	**SPRINGER**
TAURUS	**TOKEN**	**TURPIN**	**SELENE**	**STURDY**
TELEMACHUS	**TOTEM**		**SENESCHAL**	**SUBTLE**
			SENTINEL	

Both these classes are of ships that served throughout the war, and are developments of a pre-war class. A number of both types have been streamlined and fitted with more powerful batteries to give high submerged speeds for a short period. Some of the "T" class, which are of welded construction, have been lengthened by twenty-seven feet to provide additional battery space. Details given for both classes are of the unconverted ships. Guns may be removed or remounted in a very short time. Ships of both classes will be found in the Netherlands, French and Portuguese navies. *Sidon* sank after explosion at Portland, 16th June 1955, but was later salvaged.

Surface displacement	*Submerged displacement*	*Length*	*Beam*	*Draught*
("S" class) 814 tons	1,000 tons	217 feet	23¾ feet	10½ feet
("T" class) 1,321 tons	1,571 tons	273½ feet	26½ feet	12 feet

Armament	*Forward torpedo tubes*	*After torpedo tubes*	*Complement*
("S") 1-3 or 4 inch	6-21 inch	None	44
("T") 1-4 inch	8-21 inch	1-21 inch and 2-21 inch on beam	59

Propelling machinery	*Shaft horse power*	*Surface speed*	*Submerged speed*
Diesels/electric motors	("S") 1,900/1,300	14·75 knots	9·12 knots
	("T") 2,500/1,450	15 knots	9 knots

TOTEM

SCOTSMAN

NAUTILUS SEA WOLF

On 17 January 1955 the atomic-powered submarine, U.S.S. *Nautilus* got under way and history was made. Seven more atomic-powered submarines are under construction.

Standard displacement	*Length*	*Beam*	*Complement*
3,000 tons	320 feet	30 feet	100

Torpedo tubes	*Propelling machinery*	*Speed*
6–21 inch	Thermal reactor, water coolant (*Nautilus*) Intermediate reactor, liquid metal coolant (*Sea Wolf*)	Over 20 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*	*Engineers*
Nautilus	14 June 1952	21 Jan. 1954	30 Sept. 1954	Electric Boat Co.	Westinghouse
Sea Wolf	15 Sept. 1953	21 July 1955		Electric Boat Co.	General Electric Co.

K 1 **K 2** **K 3**

These ships are designed as submarine hunters. The enormous bow contains the asdic and electronic gear required to hunt a submerged enemy. Eight homing anti-submarine torpedoes are carried.

Standard displacement	*Length*	*Beam*	*Draught*	*Complement*
765 tons	196 feet	25 feet	16 feet	49

Torpedo tubes	*Propelling machinery*	*Shaft horse power*	*Speed*
4–21 inch	Diesel/electric	1,050	13 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
K 1	1 July 1949	2 Mar. 1951	10 Nov. 1951	Electric Boat Co.
K 2	23 Feb. 1950	2 May 1951	11 Jan. 1952	Mare Island Navy Yard
K 3	17 Mar. 1950	21 June 1951	11 Feb. 1952	Mare Island Navy Yard

NAUTILUS

K 1.

GUDGEON	**AMBERJACK**	**GRAMPUS**	**POMODON**	**SIRAGO**	**TRUMPETFISH**
HARDER	**ARGONAUT**	**GRENADIER**	**QUILLBACK**	**TENCH**	**TRUTTA**
TANG	**CONGER**	**IREX**	**REMORA**	**THORNBACK**	**TUSK**
TRIGGER	**CORSAIR**	**MEDREGAL**	**RUNNER**	**TIRANTE**	**UNICORN**
TROUT	**CUTLASS**	**ODAX**	**SARDA**	**TORO**	**VOLADOR**
WAHOO	**DIABLO**	**PICKEREL**	**SEA LEOPARD**	**TORSK**	**WALRUS**

Two classes of somewhat similar appearance, but very different capabilities. The first six ships named are designed as high-speed attack submarines, the latter ships are of war-time construction. A number of the earlier ships have been converted with extra batteries, etc., into "Guppy" type. This name is an Americanism from the initials GUPP (Greater Underwater Propulsive Power), and implies an extremely streamlined submarine, with all external fittings removed or faired into the hull or conning tower.

Surface displacement	*Submerged displacement*	*Length*	*Beam*	*Draught*
("Tang" class) 1,800 tons	2,400 tons	269 feet	27 feet	17 feet
("Tench" class) 1,570 tons	2,500 tons	311¾ feet	27¾ feet	17 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
("Tench" class) 1–5 inch	2–40 mm	10–21 inch	85
("Tang" & "Guppy") nil	nil	6–21 inch	78–83

Propelling machinery	*Shaft horse power*	*Speed*
("Tench") Diesel/electric	6,500/2,750	20/10 knots
("Tang") Diesel/electric		15–20/17 knots

Amberjack, *Grampus*, *Grenadier* and *Pickerell* built by Boston Navy Yard; *Trumpeter* and *Tusk* by Cramp Shipbuilding Co.; *Corsair*, *Unicorn* and *Walrus* by Electric Boat Co.; remainder of "Tench" class by Portsmouth Navy Yard. *Tang*, *Wahoo* and *Gudgeon* by Portsmouth Navy Yard; *Harder*, *Trigger* and *Trout* by Electric Boat Co. "Tench" class all completed between July 1944 and September 1946. "Tang" class completed October 1951 to November 1952.

TRIGGER

ODAX

ARCHERFISH	CABRILLA	DEVILFISH	LIZARDFISH	POMFRET	SEA OWL
ASPRO	CAIMAN	DIODON	LOGGERHEAD	QUEENFISH	SEA POACHER
ATULE	CAPITAINE	DOGFISH	MACABI	RAZORBACK	SEA ROBIN
BALAO	CARP	DRAGONET	MAPIRO	REDFISH	SEGUNDO
BANG	CATFISH	ENTREMEDOR	MENHADEN	RONCADOR	SENNET
BATFISH	CHARR	GREENFISH	MERO	RONQUIL	SPADEFISH
BECUNA	CHIVO	HACKLEBACK	MORAY	SABALO	SPIKEFISH
BERGALL	CHOPPER	HALFBEAK	PAMPANITO	SABLEFISH	SPOT
BESUGO	CLAMAGORE	HARDHEAD	PARCHE	SANDLANCE	SPRINGER
BILLFISH	COBBLER	JALLAO	PICADU	SCABBARDFISH	STERLET
BLACKFIN	CORPORAL	KRAKEN	PINTADO	SEACAT	STICKLEBACK
BLENNY	CREVALLE	LAMPREY	PIPEFISH	SEADEVIL	THREADFIN
BOWFINN	CUBERA	LANCETFISH	PIPER	SEADOG	TILEFISH
BUGARA	CUSK	LING	PIRANHA	SEAFOX	TIRU
CABEZON	DENTUDA	LIONFISH	PLAICE	SEAHORSE	TREPANG

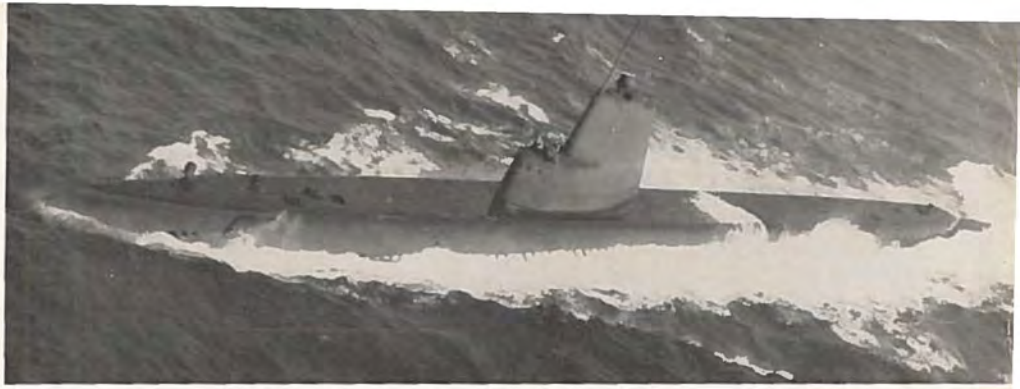
The "Balao" type is a development of the original "Gato" class, of which 35 units survive (*see* photo of *Hake*). A number of units have been converted into "Guppy" style ships. These do not mount any external armament and the length varies by several feet. Variants of these classes also exist, radar picket, troop-carrying, submarine killer and guided-missile launchers being some of the categories.

Surface displacement	*Submerged displacement*	*Length*	*Beam*	*Draught*
1,525 tons	2,425 tons	312 feet	27 feet	17 feet

Main armament	*Anti-aircraft armament*	*Forward torpedo tubes*	*After torpedo tubes*
1 or 2–5 inch	2–40 mm.	6–21 inch	4–21 inch

Propelling machinery	*Shaft horse power*	*Speed*	*Complement*
Diesels/electric	6,500/2,750	20/10 knots	85

CLAMAGORE



HAKE

K 1 K 2 K 20 K 21 K 24 K 51 K 52 K 53 K 54 K 55 K 56 K 57 K 58
K 60 K 61 K 62 K 65 K 77 K 78

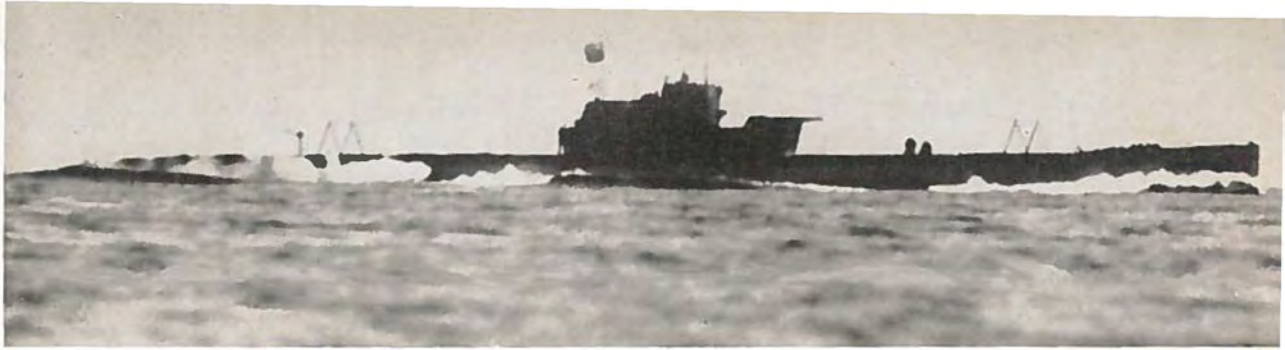
Large ocean-going type of submarine. Above numbers have definitely been reported, and presumably ships exist bearing those missing, but information regarding the Soviet submarine fleet is even more sparse than that of the surface vessels. The presumed total of ships in existence of this and the following classes, plus rumoured new construction, is five hundred. New ships are being added at an estimated thirty per year.

Surface displacement	*Submerged displacement*	*Length*	*Beam*	*Draught*
1,457 tons	2,062 tons	320 feet	24 feet	14 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*		*Complement*
2–4 inch	2–45 mm.	10–21 inch		62
Propelling machinery	*Shaft horse power*			*Speed*
Diesel/electric	8,400/2,400			18 to 22·5/10 knots

S 3 S 9 S 12 S 13 S 14 S 15 S 16 S 17 S 18 S 19 S 20 S 21 S 22
S 23 S 24 S 25 S 26 S 33 S 35 S 36 S 50 S 51 S 52 S 53 S 54 S 55
S 56 S 101 S 102 S 103 S 104 S 137 S 139

Sea-going-type submarine, built from 1937 to 1940. Very little indeed is known about this type. Further ships are reported to be in the Far East, but whether built there or transferred is not known.

Surface displacement	*Length*	*Beam*	*Draught*
780 tons	256 feet	21 feet	13 feet
Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Speed*
1–3 inch	1–45 mm.	6–21 inch	20/8·5 knots



SOVIET SUBMARINES

Sh 101 – 139 141 201 203 205 207 215 303 305 307 308 309 310 317
318 400 401 402 403 404 407 408 410 411 412 419 422 425 426
427 428 429 430 431

The name ship of the class was *Shtshuka*, beginning with the Russian letter Shtcha, which has been taken as the identification letter of the class. Construction spread over the period 1935–47, with consequent variations in design. Details given, however, are common to most units.

Surface displacement	*Submerged displacement*	*Length*	*Beam*	*Draught*
620 tons	738 tons	190½ feet	19½ feet	13 feet

Anti-aircraft armament	*Torpedo tubes*	*Propelling machinery*	*Shaft horse power*	*Speed*
2–45 mm.	6–21 inch	Diesel	1,600	15½/8½ knots

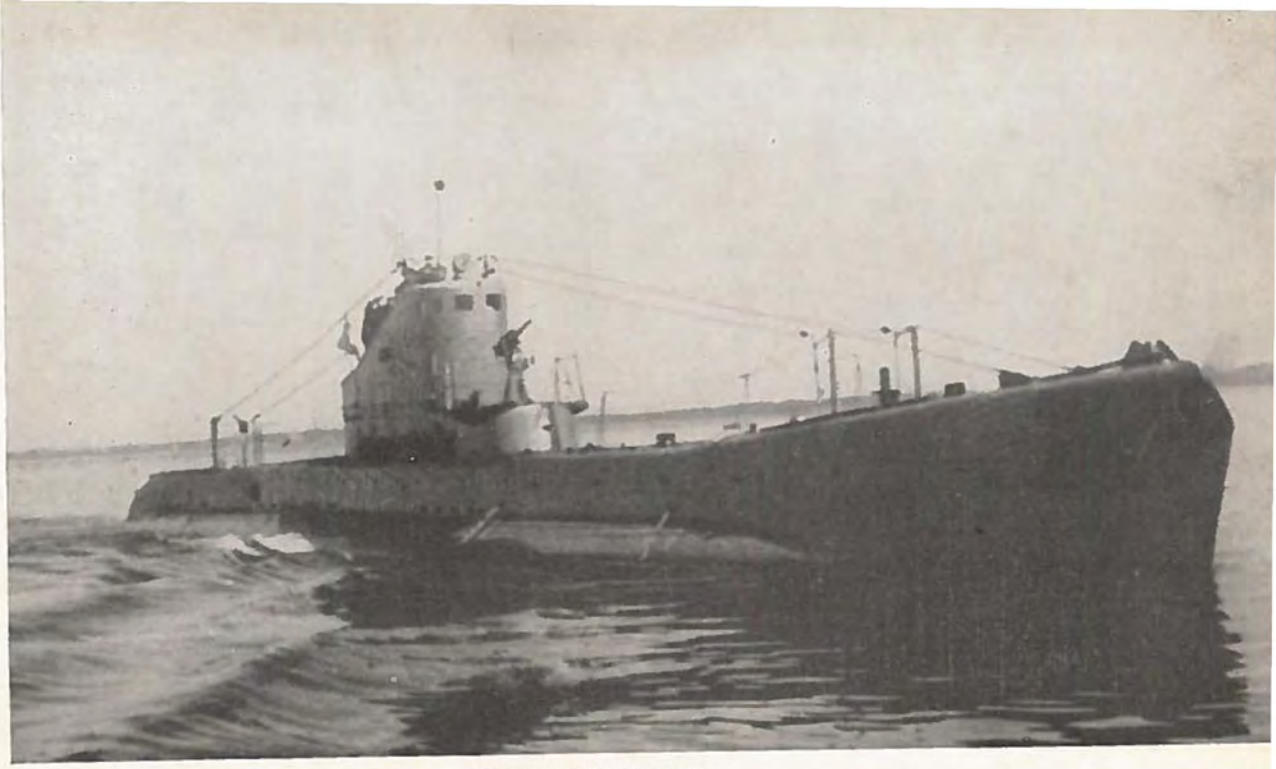
L 3 L 4 L 5 L 6 L 7 L 8 L 9 L 11 L 10 L 12 L 13 L 14 L 15 L 16 L 17 L 18 L 19
L 20 L 21 L 22 L 23 L 25 L 31 L 32

Built over the period 1929 to 1935, this type is possibly derived from the British "L" type, L 55, of which was raised and placed in service by the Russians following the Baltic campaign of 1919–20. Now old and probably only used for training purposes.

Surface displacement	*Full load displacement*	*Length*	*Beam*	*Draught*
1,100 tons	1,450 tons	279 feet	23 feet	16½ feet

Main armament	*Anti-aircraft armament*	*Forward torpedo tubes*	*After torpedo tubes*
1–4 inch	1–37 mm.	6–21 inch	2–21 inch

Shaft horse power	*Speed*	*Complement*
2,500/1,200	16/9 knots	50



SOVIET SUBMARINE

"M" CLASS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
32	33	34	35	36	37	38	39	40	41	42	43	44	54	46
47	48	49	50	51	55	56	57	62	63	73	74	75	77	79
80	82	84	85	86	87	88	89	90	91	92	93	96	102	103
104	105	106	107	111	112	113	114	115	116	117	118	119	120	121
122	130	171	172	174	175	177	200	201	202	203	204	205	206	209
211	212	214	215	216	219	234	235	237	238	239	240	241	242	243
244	245	246	247	248	249	250	251	252	253	254	255	256	257	258
259	260	261	262	263	264	265	266	267	268	269	270	271	272	273
274	275	276	277	278	279	280	281	282	283	404	421	515		

These ships actually form two distinct types, early "M" and later "M", the latter class bearing three-figure numbers. Both classes are very small coastal types, capable of being transported by rail and reassembled at the port of destination. Indeed, many Soviet submarines appear to be constructed inland and taken to a port of assembly for completion.

Surface displacement	*Submerged displacement*	*Length*	*Beam*	*Draught*
(Early "M" class, 161 tons	202 tons	124 feet	10¼ feet	8½ feet
(Later "M" class) 205 tons	256 tons	146 feet	10¾ feet	8¾ feet

Gun armament	*Torpedo tubes*	*Complement*
(Early "M" class) 1-45 mm.	2-21 inch	20
(Later "M" class, 1-45 mm.	2 or 4-21 inch	

Propelling machinery	*Horse power*	*Speed*
Diesel/electric	800/400	13/8 knots
(Early "M" class) Diesel/electric	685/240	13/7 knots

SOVIET SUBMARINE

L'AFRICAINE **L'ANDROMEDE** **L'ARTEMIS** **L'ASTREE** **LA CREOLE**

The only French-built submarines at the moment in service, all these ships are of pre-war design. The incomplete *La Creole* was towed to Britain in 1940 and returned to her builders for completion in 1946. Supplementing these ships is a mixed force of British and German construction. Three ex-British "S" class were loaned in 1951 and 1952 for anti-submarine training, and a fourth was lost with all hands in the Mediterranean in September 1952. Five ex-German craft (prizes) have been acquired and are in effective use. A programme of building includes six ocean-going ships, *Dauphin*, *Espadon*, *Marsouin*, *Morse*, *Narval*, and *Requin*, and four submarine killers, *Amazone*, *Arethuse*, *Argonaute* and *Ariane*.

Surface displacement	*Submerged displacement*	*Length*	*Beam*	*Draught*
910 tons	1,170 tons	241 feet	21 feet	12 feet

Main armament	*Anti-aircraft armament*	*Torpedo tubes*	*Complement*
1–3·5 inch	2–20 mm.	10–21·7 inch (4 external)	50

Propelling machinery	*Shaft horse power*	*Speed*
Diesel/electric	3,000/1,400	17·3/10 knots

Name	*Begun*	*Launched*	*Completed*	*Builders*
L'Africaine	Sept. 1938	7 Dec. 1946	1948	Worms
L'Andromede	1945	17 Nov. 1949	1953	Dubigeon-Nantes
L'Artemis	1945	28 July 1952	1953	Normand
L'Astree	1945	4 May 1946	[illegible]	Dubigeon-Nantes
La Creole	Aug. 1938	5 June 1940	[illegible]	Normand

L'ANDROMEDE

L'ASTREE

DYKAREN **SJOBORREN** **SJOHUNDEN** **SJOORMEN** **TUMLAREN**
SJOBJORNEN **SJOHASTEN** **SJOLEJONET** **SVARDFISKEN**

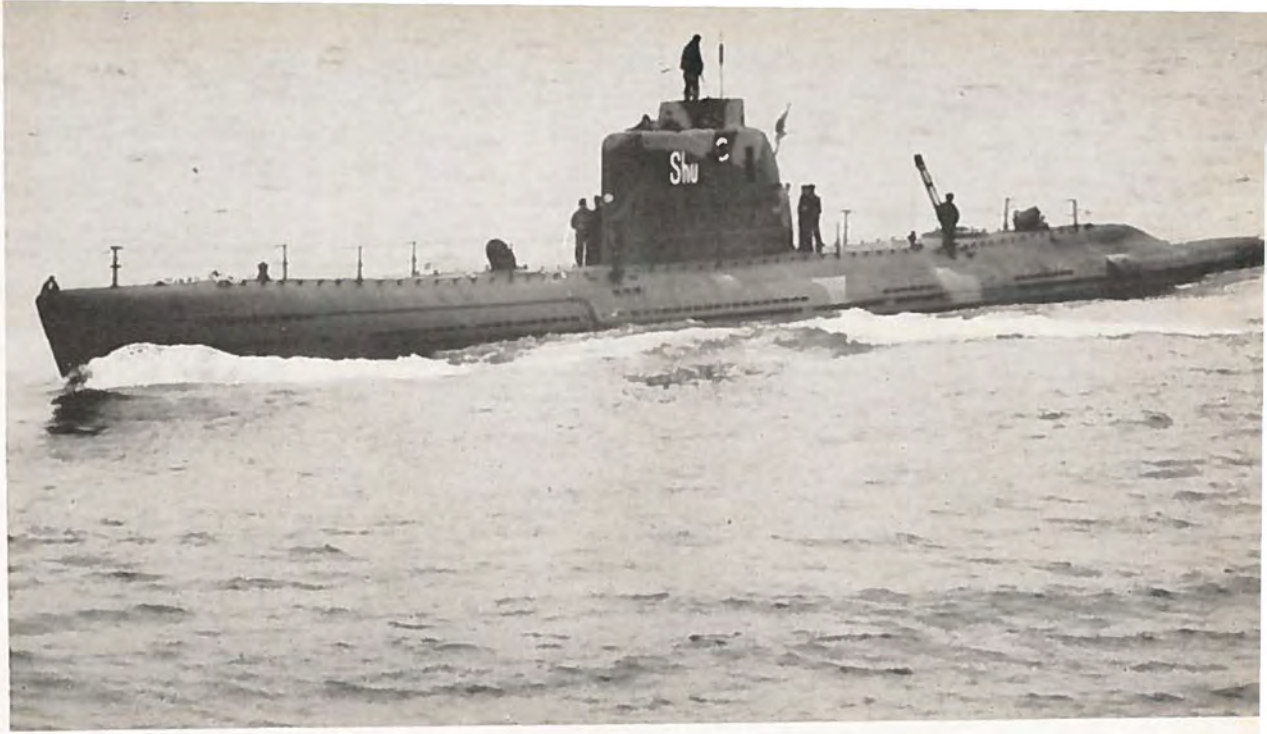
The main effective strength of the Swedish submarine fleet, these ships have been modernised and streamlined since they were built. Will soon be supplemented by a class of six new ships now under construction, and are supported by the remaining units of the "U" class coastal type of nine ships, and the three mine-laying submarines of the "Najad" type. All these ships are of relatively small size bearing in mind the fact that they are designed for operation in the restricted waters of the Baltic.

Surface displacement	*Submerged displacement*	*Length*	*Beam*	*Draught*
650 tons	760 tons	204 feet	20½ feet	11 feet

Gun armament	*Forward torpedo tubes*	*After torpedo tubes*	*Complement*
2–40 mm.	3–21 inch	1–21 inch	32

Propelling machinery	*Shaft horse power*	*Speed*
Diesel/electric	3,000/2,000	15/10 knots

Name	*Launched*	*Builders*
Dykaren	7 Dec. 1940	All by Kockums Mek. Verkstad. A/B, Malmo
Sjobjornen	15 Jan. 1938	
Sjoborren	14 June 1941	
Sjohasten	19 Oct. 1940	
Sjohunden	26 Nov. 1938	
Sjolejonet	25 July 1936	
Sjoormen	5 April 1941	
Svardfisken	18 May 1940	
Tumlaren	7 Sept. 1940	



SJOHUNDEN

INDEX

INDEX