# The Wartime Diary of Clare L. Sutton, V68693, RCNVR

**Due to the size of the diary, it has been broken down into 2 sections.**

**Section 1: This section, 96 pages, has general informaton on the Commonwealth nations, warships of the Commonwealth and other nations, world flags, morse code, visiual signalling, rank and trade structure, etc.**

**Section 2: This section contains Clare Sutton's written entries, a small section on those who owed him money, and a brief event summary with dates ie: 01 Sep 1943 - Joined Navy; 29 Nov 1943 - Drafted to Cornwallis, etc.**

# Section 1

## CALENDAR, 1945

### JANUARY

| | | | | | | |
|---|---|---|---|---|---|---|
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| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | | | |

### FEBRUARY

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### MARCH

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### MAY

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### JUNE

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### JULY

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| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | 31 | |

### SEPTEMBER

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| 30 | | | | | | |

### OCTOBER

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| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
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### NOVEMBER

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| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | |

### DECEMBER

| | | | | | | |
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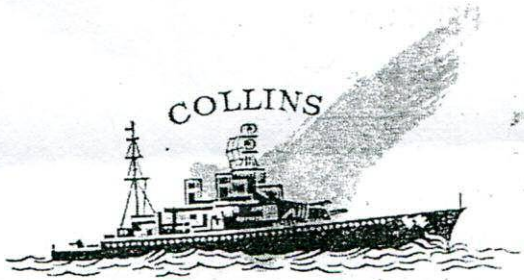
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 31 | | | | | |




# NAVAL DIARY

## PERPETUAL

TO ORDER THIS DIARY GIVE
NUMBER STAMPED ON COVER

COLLINS
CLEAR-TYPE PRESS
LONDON, GLASGOW AND TORONTO

## PERSONAL MEMORANDA

**Not to be taken into combat area.**

Owner Clare I. Sutton

Military Address C/O F.M.O. Halifax N.S.

Home Address 485 Wellington St. Sarnia Ont.

Date, place entered service London, Ont., 1/9/43

Navy Serial No. V.68693

Watch No.

Auto No.

Auto Insurance with

.....

Insurance with

Falls due on

.....

Sizes: Gloves.....Collars.....Hats.....

Weight.....lbs. Date.....

Height.....ft.....in. Date.....

In case of emergency ~~notify~~ send to

Mrs. A. R. Sutton

485 Wellington St.

Sarnia, Ontario.

Canada.

# FOREWORD

AT the present time, when naval matters are of paramount importance and a day seldom passes without some mention of activity at sea, the need of a small, handy reference book is often experienced. This Naval Diary has been compiled partly to meet that need and partly to satisfy the natural leaning towards nautical matters which is common to every man in the Royal Canadian Navy and Merchant Marine.

The addition of a diary makes this of personal interest and affords a ready means of collating any naval news irrespective of the usual uses of a diary.

Wartime brings many restrictions and, although the tables and illustrations give all the principal large and small warships of the major and minor combatant navies, many new British ships may not be mentioned though it is hoped to remedy this as soon as Censorship relaxes. Similar conditions prevent the inclusion of particulars of both the entry into and careers in the Royal Navy with the exception of physical standards and the "Y" scheme.

Much of the navy's work will not be revealed until the end of the war. At that time this book should be of value as a reference for those ships which are doing so much now and of which we shall hear when the need for secrecy has passed.

Much information has been obtained from that most valuable of naval publications—*Jane's Fighting Ships.*

# CONTENTS





COLLINS CLEAR-TYPE PRESS
LONDON, GLASGOW AND TORONTO



# Population of Canada

1941 Census

Provinces and Chief Cities and Towns

Total Population—11,506,655

### Provinces

| | |
|---|---|
| Alberta | 796,169 |
| British Columbia | 817,861 |
| Manitoba | 729,744 |
| New Brunswick | 457,401 |
| Nova Scotia | 577,962 |
| Ontario | 3,787,655 |
| Prince Edward Island | 95,047 |
| Quebec | 3,331,882 |
| Saskatchewan | 895,992 |
| Yukon | 4,914 |
| North-West Territories | 12,028 |

### Alberta

| | |
|---|---|
| Calgary | 88,904 |
| Edmonton (capital) | 93,817 |
| Lethbridge | 14,612 |
| Medicine Hat | 10,571 |

### British Columbia

| | |
|---|---|
| New Westminster | 21,967 |
| Vancouver | 275,353 |
| Victoria (capital) | 44,068 |

### Manitoba

| | |
|---|---|
| Brandon | 17,383 |
| St. Boniface | 18,157 |
| Winnipeg (capital) | 221,960 |

### New Brunswick

| | |
|---|---|
| Fredericton (capital) | 10,062 |
| Moncton | 22,763 |
| Saint John | 51,741 |

### Nova Scotia

| | |
|---|---|
| Dartmouth | 10,847 |
| Glace Bay | 25,147 |
| Halifax (capital) | 70,488 |
| Sydney | 28,305 |
| Truro | 10,272 |

### Ontario

| | |
|---|---|
| Belleville | 15,710 |
| Brantford | 31,948 |
| Brockville | 11,342 |
| Chatham | 17,369 |
| Cornwall | 14,117 |
| Fort William | 30,585 |
| Galt | 15,346 |
| Guelph | 23,273 |
| Hamilton | 166,337 |
| Kingston | 30,126 |
| Kitchener | 35,657 |
| London | 78,264 |
| Niagara Falls | 20,589 |
| North Bay | 15,599 |
| Oshawa | 26,813 |
| Ottawa | 154,951 |
| Owen Sound | 14,002 |
| Pembroke | 11,159 |
| Peterborough | 25,350 |
| Port Arthur | 24,426 |
| St. Catharines | 30,275 |
| St. Thomas | 17,132 |
| Sarnia | 18,734 |
| Sault Ste. Marie | 25,794 |
| Stratford | 17,038 |
| Sudbury | 32,203 |
| Timmins | 28,790 |
| Toronto (capital) | 667,457 |
| Forest Hill | 11,757 |
| Welland | 12,500 |
| Windsor | 105,311 |
| Woodstock | 12,461 |

### Prince Edward Island

| | |
|---|---|
| Charlottetown (capital) | 14,821 |
| Summerside | 5,034 |

### Quebec

| | |
|---|---|
| Granby | 14,197 |
| Hull | 32,947 |
| Lachine | 20,051 |
| Montreal | 903,007 |
| Outremont | 30,751 |
| Quebec (capital) | 150,757 |
| St. Hyacinthe | 17,798 |
| Shawinigan Falls | 20,325 |
| Sherbrooke | 35,965 |
| Three Rivers | 42,007 |
| Valleyfield | 17,052 |
| Verdun | 67,349 |
| Westmount | 26,047 |

### Saskatchewan

| | |
|---|---|
| Moose Jaw | 20,753 |
| Prince Albert | 12,508 |
| Regina (capital) | 58,245 |
| Saskatoon | 43,027 |
| Weyburn | 6,179 |

## THE BRITISH COMMONWEALTH

| | Area (Sq. Miles) | Population |
|---|---|---|
| Australia | 2,974,581 | 6,630,600 |
| Canada | 3,700,000 | 11,506,655 |
| Eire | 26,600 | 3,000,000 |
| Great Britian and Northern Ireland | 94,980 | 46,000,000 |
| India | 1,900,000 | 353,000,000 |
| Newfoundland and Labrador | 162,800 | 289,600 |
| New Zealand | 105,155 | 1,618,778 |
| Union of South Africa | 800,000 | 8,000,000 |

## OTHER COUNTRIES

| | | |
|---|---|---|
| Argentina | 1,080,000 | 12,400,000 |
| Belgium | 11,400 | 8,300,000 |
| Brazil | 3,300,000 | 47,800,000 |
| Bulgaria | 39,825 | 6,090,000 |
| Chile | 285,133 | 4,508,000 |
| China | 3,870,000 | 428,000,000 |
| Czechoslovakia | 55,000 | 14,730,000 |
| France | 213,000 | 41,900,000 |
| Germany (with Austria) | 214,380 | 72,600,000 |
| Greece | 50,270 | 6,830,000 |
| Italy | 120,000 | 43,000,000 |
| Japan | 260,800 | 97,000,000 |
| Mexico | 769,000 | 16,409,000 |
| Netherlands, The | 12,760 | 8,000,000 |
| Norway | 124,588 | 2,814,000 |
| Poland | 150,000 | 32,000,000 |
| Spain | 200,000 | 24,000,000 |
| Sweden | 173,347 | 6,249,500 |
| Switzerland | 16,000 | 4,100,000 |
| Turkey | 294,000 | 16,188,767 |
| United States | 3,738,000 | 137,000,000 |
| U.S.S.R. | 8,095,728 | 165,847,000 |
| Yugoslavia | 95,000 | 14,000,000 |

## Geographical Notes

Canada has 28 per cent of the area of the British Empire, is as large as thirty United Kingdoms or eighteen Germanys; twice size of British India; almost as large as Europe; eighteen times size of France; thirty-three times size of Italy.

Canada is Britain's largest overseas Dominion. Bounded by three oceans. Coastal distances: Pacific coastal line, 7,180 miles; Hudson Bay coast line mainland, 6,000 miles; Atlantic coastline, 5,000 miles—total, 18,180 miles. Canada's greatest width in due east and west direction, approximately 3,050 miles; greatest distance between southerly and known northerly land extremities, approximately 2,870 miles. Canada has an area of 3,694,863 square miles.



# CANADIAN REHABILITATION BENEFITS

## for

## SAILORS, SOLDIERS AND AIRMEN

AFTER THEIR DISCHARGE FROM THE SERVICES

1. CLOTHING ALLOWANCE—Over 6 months' service, $35; under 6 months' service, $27 in winter, $17 in summer.

2. REHABILITATION GRANT—Grant of 30 days' pay and Dependents' Allowance to those with over 183 days continuous service.

3. TRANSPORTATION—Transportation with travelling expenses provided to point of enlistment, or to place of bona fide residence at time of enlistment, or to any other point in Canada that can be reached without additional expenditure.

4. TREATMENT—Free treatment with allowances for family is available at any time in hospitals of the Pension Department for conditions which are related to service. Free hospital treatment is also available, with one or two exceptions, for any remediable condition requiring active hospitalization arising within one year from date of discharge.

5. COMPULSORY RE-EMPLOYMENT—Subject to certain reasonable safeguards, employers are required with respect to those who left their employment to enlist, to reinstate them in employment under conditions not less favourable than those which would have been applicable had enlistment not taken place.

6. UNEMPLOYMENT INSURANCE—Discharged persons who enter insurable employment are entitled after 15 weeks of such employment, assuming that they have made the contributions required of them, to be credited with the time they spent in the Forces since July 1, 1941 (that being the date when the Unemployment Insurance Act became effective) without the necessity of making contributions to the Unemployment Insurance Fund for such period of service with the Forces.

7. OUT-OF-WORK BENEFITS—Benefits similar to Unemployment Insurance Benefits are payable to discharged persons who are capable of employment but for whom no work is available for a period not exceeding their length of service with a maximum of 12 months.

8. Temporarily Incapacitated—Benefits similar to those payable under the preceding paragraph may be paid to discharged persons who are temporarily incapacitated.

9. Vocational Training—Vocational training is available to all discharged persons who have no trade or need a brush-up course in their trade. Maintenance benefits on married and single scale may be paid during such training.

10. Farmers and Others Awaiting Returns—Benefits similar to out-of-work benefits and subject to similar limitations may be paid to those engaged in farming or other business on their own account while awaiting returns from their enterprise.

11. Educational Benefits—Maintenance benefits and student fees may be paid to those who resume education which was interrupted by their enlistments. Students are required to enter a university within 15 months after discharge, and the period for which benefits may be paid is determined by the length of service of the student.

12. Post-Graduate Courses—Post-graduate courses may be given with maintenance in approved cases.

13. Pensions—Any disability arising or aggravated during service is pensionable if the applicant saw service in a theatre of actual war, and any disability arising as a direct result of service is pensionable regardless of where the applicant served. Advocates are provided to assist pensioners in presenting their claims.

14. Employment Service—Under the Unemployment Insurance Act a Dominion Government Employment Service has been instituted with employment offices in all main centres across Canada.

15. Preference in Employment—Preference in employment is provided in all war contracts to those who have served in the Forces.

16. Civil Service—Preference in employment is provided in the Dominion Civil Service on the same basis as that applying to ex-members of the C.E.F.

17. Veterans' Land Act—Subject to reasonable conditions this Act provides for loans up to $4,800. $3,600 is maximum for land and buildings, of which 10% deposit by settler is required, $1,200 maximum for chattels (no deposit). Interest rate 3½%.

Three main types of assistance provided for:

(a) Full-time farming for qualified farmers.

(b) Small holdings coupled with wide range of employment.



(c) Small holdings coupled with commercial fishing.

Substantial rebate in cost of land and chattels may be granted after fulfilment of contract for a given period. A booklet giving complete information is available from Department of Mines and Resources.

18. Welfare Division—A Welfare Division of the Department of Pensions and National Health has been established with Welfare Officers stationed at all main centres throughout the Dominion to assist former members of the Forces in becoming re-established and advise them on legislation affecting discharged persons and also with respect to their individual problems.

19. Citizens' Committees.—Citizens' Committees have been established in most centres in the Dominion to co-operate with Welfare Officers in assisting discharged persons in their re-establishment problems.

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The foregoing are some of the measures enacted to assist those discharged from the Forces in their problem of rehabilitation and are designed to provide social security and an opportunity to acquire a trade or to complete one's education.

For further information see the Welfare Officer or get in touch with the nearest office of the Department of Pensions and National Health.

## IF TAKEN PRISONER

Under international law, every prisoner of war is bound to give, if questioned on the subject, his rank, true name, number.

Infringement of this rule may mean curtailment of advantages usually given to prisoners of his rank.

But no information should be given beyond this. On no account must he give name of unit or formation to which he belongs, nor should he answer any questions about uniforms or badges.

Although the enemy's right of interrogation is not limited to name, rank, number, a prisoner is not bound to answer other questions and cannot be punished for so refusing.

A prisoner cannot be punished for giving false information about his own forces, but attempts to give misleading information may end up by the enemy extracting the true information. The best policy is courteous silence.

Beware of listening apparatus in prisoners' quarters.

At the end of hostilities, a sailor who has given information to the enemy while a prisoner is liable to severe punishment.

# FOREIGN TIME-TABLE.

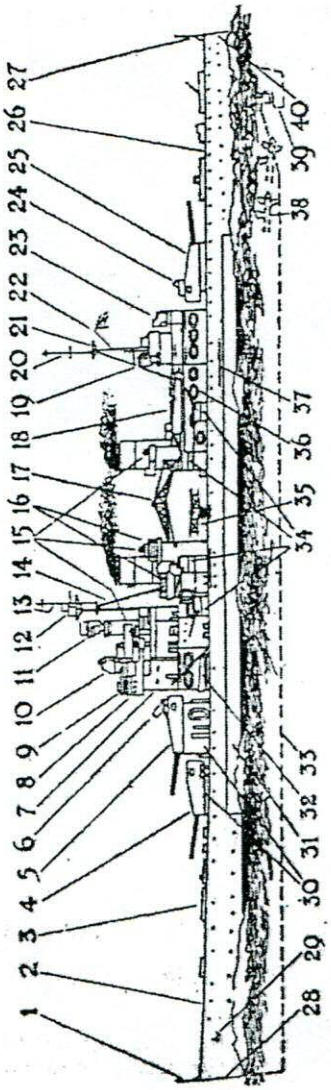
Twelve o'clock noon, Greenwich Mean Time, as compared with the clock in the following places.

| Place | Time h. m. | Place | Time h. m. |
|---|---|---|---|
| Adelaide | 9 30 p.m | New Orleans | 6 0 a.m |
| Amsterdam | 12 20 ,, | New York | 7 0 ,, |
| Athens | 2 0 ,, | Oslo | 1 0 p.m. |
| Auckland, N. Zealand | 11 30 ,, | Ottawa | 7 0 a.m. |
| Berlin | 1 0 ,, | Panama | 7 0 ,, |
| Bombay | 5 30 ,, | Paris | 12 noon. |
| Brindisi | 1 0 ,, | Peiping | 8 0 p.m. |
| Brisbane | 10 0 ,, | Perth, W. Aust. | 8 0 ,, |
| Brussels | 12 noon | Prague | 1 0 ,, |
| Bucharest | 2 0 p.m. | Quebec | 7 0 a.m. |
| Budapest | 1 0 ,, | Rangoon | 6 30 p.m. |
| Buenos Ayres | 8 0 a.m. | Rio de Janeiro | 9 0 a.m. |
| Cairo | 2 0 p.m. | Rome | 1 0 p.m. |
| Calcutta | 5 53 ,, | San Francisco | 4 0 a.m. |
| Cape Town | 2 0 ,, | St. John's (N.F.) | 8 30 ,, |
| Chicago | 6 0 a.m. | St. Louis, Missouri | 6 0 ,, |
| Copenhagen | 1 0 p.m. | Singapore | 7 20 p.m. |
| Gibraltar | 12 noon. | Sofia | 2 0 ,, |
| Hobart | 10 0 p.m. | Stockholm | 1 0 ,, |
| Hong Kong | 8 0 ,, | Suez | 2 0 ,, |
| Istanbul | 2 0 ,, | Sydney | 10 0 ,, |
| Jerusalem | 2 0 ,, | Tokyo | 9 0 ,, |
| Leningrad | 3 0 ,, | Toronto | 7 0 a.m. |
| Lisbon | 12 noon. | Vancouver | 4 0 ,, |
| Madeira | 11 0 a.m. | Vienna | 1 0 p.m. |
| Madras | 5 30 p.m. | Winnipeg | 6 0 a.m. |
| Madrid | 12 noon. | Yokohama | 9 0 p.m. |
| Malta | 1 0 p.m. | | |
| Mauritius | 4 0 ,, | | |
| Melbourne | 10 0 ,, | | |
| Montreal | 7 0 a.m. | | |
| Moscow | 3 0 p.m. | | |

For each degree of Longitude, Time differs four minutes, west of Greenwich being earlier and east, later than Greenwich time.



DESCRIPTIVE VIEW OF A BRITISH CAPITAL SHIP.—H.M.S. DUKE OF YORK




1. Jackstaff. 2. Forecastle. 3. Breakwater. 4. "A" Turret—4 14-inch guns. 5. "B" Turret—2 14-inch guns. 6. Multi Pompom. 7. Conning Tower. 8. Bridge. 9. Navigating Bridge. 10. Main Rangefinder. 11. Twin Director Towers. 12. Control Tops. 13. Foretopmast. 14. Foremast (Tripod). 15. Searchlights. 16. Multi Pompoms. 17. Crane for Boats and Aircraft. 18. Boat Storage. 19. Twin Director Towers. 20. Mainmast. 21. Mainmast (Tripod). 22. Gaff. 23. After Rangefinder. 24. Multi Pompoms. 25. "X" Turret—4 14-inch guns. 26. Quarter Deck. 27. Ensign Staff. 28. Bow. 29. Anchor (1 in port side, 2 starboard). 30. Barbettes. 31. Armour Belt. 32. Lifeboat. 33. Keel. 34. Twin 5.25-inch gun turrets (dual purpose); total of four on either beam. 35. Walrus Amphibian Flying Boat. 36. Oarley Floats (many in various positions). 37. Boat Boom. 38. Quadruple Screws. 39 Balanced Rudder. 40. Stern.

## B.C. CHIEF EVENTS IN NAVAL HISTORY

| | |
|---|---|
| *c.*330 | Voyage of Pitheas of Marseilles and discovery of |
| 55 | Julius Cæsar's first landing in Britain. [Britain. |
| 54 | Julius Cæsar's second landing in Britain. |
| **A.D.** | |
| 871 | Alfred I., king, founder of the British Navy |
| 893-6 | Defeat of the Danes by Alfred. |
| 1008 | Ethelred builds a large fleet, disbanded the next |
| 1066 | The Norman Invasion. [year |
| 1217 | Battle of Sandwich. |
| 1340 | Battle of Sluys. |
| 1485 | Accession of Henry VII., British Navy again becomes a fighting force during his reign. |
| 1565 | Drake's first voyage to the Indies. |
| 1576 | Frobisher tries to find the North-West Passage |
| 1577-80 | Drake's voyage round the world. |
| 1587 | Drake's expedition to Cadiz. "Singeing the King of Spain's Beard." |
| 1588 | Defeat of the Spanish Armada. |
| 1591 | Loss of Grenville's *Revenge* at Flores. |
| 1652 | Blake defeats the Dutch in the Downs. |
| 1653 | Three days' battle between Blake and Tromp in the Channel. |
| 1656 | Blake captures part of the Spanish treasure fleet. |
| 1665 | Battle of Solebay. (Defeat of the Dutch.) |
| 1666 | Four days battle of the Downs. (Defeat of the |
| 1667 | Dutch fleet in the Thames [Dutch.) |
| 1672 | Dutch defeated in Southwold Bay |
| 1690 | Battle of Beachy Head. (French defeat British |
| 1692 | French defeated at La Hogue. [and Dutch.) |
| 1702 | British victory in Vigo Bay |
| 1704 | Capture of Gibraltar. |
| 1747 | Victory by Anson off Finisterre. |
| 1756 | Loss of Minorca. (Byng executed for this in the |
| 1759 | French defeated in Quiberon Bay. [next year.) |
| 1768 | Captain Cook's first voyage. |
| 1772 | Captain Cook's second voyage. |
| 1776 | Captain Cook's third voyage. |
| 1780 | Victory of Cape St. Vincent. |
| 1782 | Battle of the Saints. |
| 1797 | Battle of St. Vincent. Mutiny at Spithead and |
| | Battle of Camperdown. [The Nore. |
| 1801 | Battle of the Nile. Bombardment of Copenhagen. |
| 1805 | Battle of Trafalgar |
| 1807 | Bombardment of Copenhagen. |
| 1812 | War with the United States. (Many fine frigate actions, including *Shannon* and *Chesapeake*) |



## A.D. CHIEF EVENTS—*Continued*

| | |
|---|---|
| 1827 | Battle of Navarino. |
| 1853 | Battle of Sinope. (Russians defeat Turks.) |
| 1854 | British fleet under Napier in the Baltic. |
| 1857 | Chinese fleet destroyed; Canton captured. |
| 1862 | *Monitor* and *Merrimac* (*Virginia*) duel. |
| 1866 | Battle of Lissa. (Austrians defeat Italians.) |
| 1869 | Suez Canal opened. |
| 1882 | Bombardment of Alexandria. |
| 1894 | Battle of the Yalu. (Japanese defeat Chinese.) |
| 1898 | Britain obtains lease of Wei-hai-Wei. |
| 1904 | Aug. 10-14 Japanese defeat Russians. |
| | May 27-28 Japanese defeat Russians in battle |
| 1914-18 | Great War. [of Tshushima. |
| 1914 | Aug. Battle of Heligoland Bight. |
| | Nov. Battle of Coronel. |
| | Dec. Battle of the Falklands. |
| 1915 | Jan. Battle of the Dogger Bank. |
| | Feb.-Mar. Dardanelles action. |
| | May *Lusitania* torpedoed. |
| 1916 | May 31 Battle of Jutland. |
| 1918 | April 23 Blocking of Zeebrugge. |
| | May 9 Blocking of Ostend. |
| | Nov. 21 German fleet surrendered. |
| 1939 | Sept. 3 Britain declares war on Germany. |
| | Nov. 23 Armed liner *Rawalpindi* sunk by *Deutschland*. |
| | Dec. 13 Action between *Exeter*, *Ajax* and *Achilles* and the German pocket battleship *Admiral Graf Spee*. |
| | Dec. 17 *Graf Spee* scuttled. |
| 1940 | Feb. 16 *Cossack* saves 300 seamen from German cartel *Altmark*. |
| | April 9 Germany invaded Norway and Denmark. |
| | April 10 Destroyer attack on Narvik (2 British and 2 German lost). |
| 1940 | April 13 *Warspite* and destroyers sink 9 German destroyers at Narvik. |
| | May 10 Holland and Belgium invaded. |
| | May 31–June 3 Blocking of Zeebrugge. Boulogne and Dunkirk evacuated and harbours blocked. |
| | June 8 *Glorious* and two destroyers and two auxiliaries sunk in naval action in Norwegian waters. |
| | June 10 Italy declared war on the Allies. |

| A.D. | | |
|---|---|---|
| 1940 | June 16 | French collapse. |
| | July 3 | French warships in British waters seized and those at Oran attacked and disabled. |
| | July 19 | *Sydney* sinks *Bartolomeo Colleoni.* |
| | Aug. 15 | Greek minelayer *Helle* torpedoed by Italian submarine. |
| | Sept. 11 | [bourg. Naval and air bombardment of Cher- |
| | Sept. 15 | *Ajax* sinks Italian destroyers. |
| | Oct. 28 | Italy invades Greece. |
| | Nov. 5 | *Jervis Bay* sunk in protecting her convoy against surface raider. |
| | Nov. 11 | Successful air attack on Italian war- |
| 1941 | Feb. 9 | Genoa bombarded. [ships at Taranto. |
| | Mar. 4 | Raid, by British Navy, on Lofoten Islands. |
| | Mar. 28 | Battle of Cape Matapan, many Italian warships sunk. |
| | April 6 | Germany invaded Yugo-Slavia and Greece. |
| | April 21 | Tripoli bombarded. |
| | May 24 | *Hood* sunk in action. |
| | May 27 | *Bismarck* sunk. |
| | June 21 | Russia invaded. |
| | July 12 | Anglo-Russian Agreement signed. |
| | July 17 | Free French and British took over control of Syria. |
| | Aug. 14 | Atlantic Charter published. |
| | Sept. 8 | British "Hudson" aircraft captured a U boat. |
| | Oct. 30 | U.S. destroyer *Reuben James* sunk by U boat, before U.S. was at war. |
| | Dec. 7 | Japanese attacked Pearl Harbour, and H.M.S. *Peterel* at Shanghai before any declaration of war. Manila and Honolulu also attacked. |
| | Dec. 8 | Japanese landed in Malaya. |
| | Dec. 10 | H.M.S. *Prince of Wales* and *Repulse* sunk by airborne torpedo attack off Singapore. |
| | Dec. 11 | Germany and Italy declared war on U.S.A. |
| | Dec. 25 | Hong Kong surrendered through lack of water. |
| 1942 | Feb. 12 | *Scharnhorst, Gneisenau* and *Prinz Eugen* escaped up Channel. |
| | Feb. 15 | Singapore surrendered. |





| A.D. | | |
|---|---|---|
| 1942 | Feb. 27–Mar. 1 | Loss of five Allied cruisers and eight destroyers in Javanese waters. |
| | Mar. 28 | H.M.S. *Campbeltown* destroyed lock gates at St. Nazaire. |
| | April 18 | U.S. bombers attacked Tokyo. |
| | May 3–9 | Coral Sea battle, many Jap ships sunk. |
| | June 10 | U.S. heavy ships with the Home Fleet announced. |
| | July 8 | *Tirpitz* damaged by Russian submarines. |
| | Sept. 23 | Congress reported 3,220 ships building for U.S. Navy. |
| | Oct. 20 | H.M.S. *Anson* and *Howe* announced in commission. |
| | Nov. 8 | British and U.S. landings in N. Africa. |
| | Nov. 14 | Great naval action in Solomons. Japanese losses: 2 battleships, 8 cruisers, 6 destroyers, 8 transports, 4 auxiliaries. U.S. lost 2 cruisers. 7 destroyers. |
| | Nov. 27 | French fleet scuttled at Toulon. |
| | Nov. 30 | U.S. sank 6 Japanese warships, 2 transports, and a supply ship for the cost of one cruiser. Naval engagement North of Norway. German destroyer sunk. |
| | Dec. 31 | U.S. announced all *Washington* class battleships in service. |
| 1943 | Mar. 3 | Large Japanese convoy of transports and warships in Bismarck Sea destroyed by Allied aircraft. |

WAR LOSSES.

| Country | Battle-ships | Aircraft Carriers | Cruisers | Des-troyers | Sub-marines |
|---|---|---|---|---|---|
| Great Britain .. | 5 | 5 | 25 | 94 | 44 |
| France .. .. | 1 | – | 1 | 14 | 18 |
| Germany .. | 2 | – | 4? | 26? | ? |
| Greece .. .. | – | – | — | 4+11 T.B. | 2 |
| Italy .. .. | 1 | – | 11? | 29+17 T.B.? | ? |
| Japan .. .. | 2? | 6 | ? | ? | ? |
| Netherlands .. | – | – | 2 | 9 | 8 |
| Norway .. .. | – | – | — | 10 T.B. | — |
| Poland .. .. | – | – | — | 3 | 1 |
| Russia .. .. | – | – | 1? | 6? | 9? |
| United States .. | 1 | 4 | 8 | 23 | 5 |

Ships blown up on the stocks in France or other occupied countries are omitted in the above table and that on page 36.

## NAVAL ADMINISTRATION

When first put in commission in 1628, the Board of Admiralty performed the office of Lord High Admiral of the United Kingdom and in 1690 an Act was passed confirming these powers. Since 1709, except for 1827-8 when the Duke of Clarence was Lord High Admiral, the office has been in commission. Changes were made at various times, but at present the control of the navy is vested in a Board of eleven members, three political—the First Lord, the Parliamentary and Financial Secretary and the Civil Lord; seven naval—the First, Second, Third, Fourth and Fifth Sea Lords, a Deputy Chief of Naval Staff and an Assistant Chief of the Naval Staff—and the eleventh the Permanent Secretary. The First Lord of the Admiralty is responsible to the Government and is also a Cabinet member, and he generally has a Rear Admiral as secretary and naval adviser.

Head of the technical side and the navy generally is the First Sea Lord who is Chief of the Naval Staff, with, as assistants, the Deputy Chief and Assistant Chief.

The Second Sea Lord is concerned with Naval Personnel, the Third as Controller of the Navy is responsible for ships, armaments, equipment, etc. The Fourth Sea Lord as Chief of Supplies and Transport is concerned with stores, food, fuel and water, not only their provision but assuring that they are at the places required and that transport is available for them.

The Fifth Sea Lord is responsible for the Fleet Air Arm and the shore stations under Naval jurisdiction.

The Naval Staff divides into various bodies each concerned with Naval Intelligence, Plans, Local Defence, Trade, Operations, Training and Staff and Naval Air Arm.

The first-named has world-wide information on all naval matters and the co-relation of what may appear unconnected facts, thus formulating a comprehensive record of foreign naval activities and intelligence. Campaign planning, covering every eventuality is the concern of the second division and in any emergency this section can furnish a scheme for every requirement.

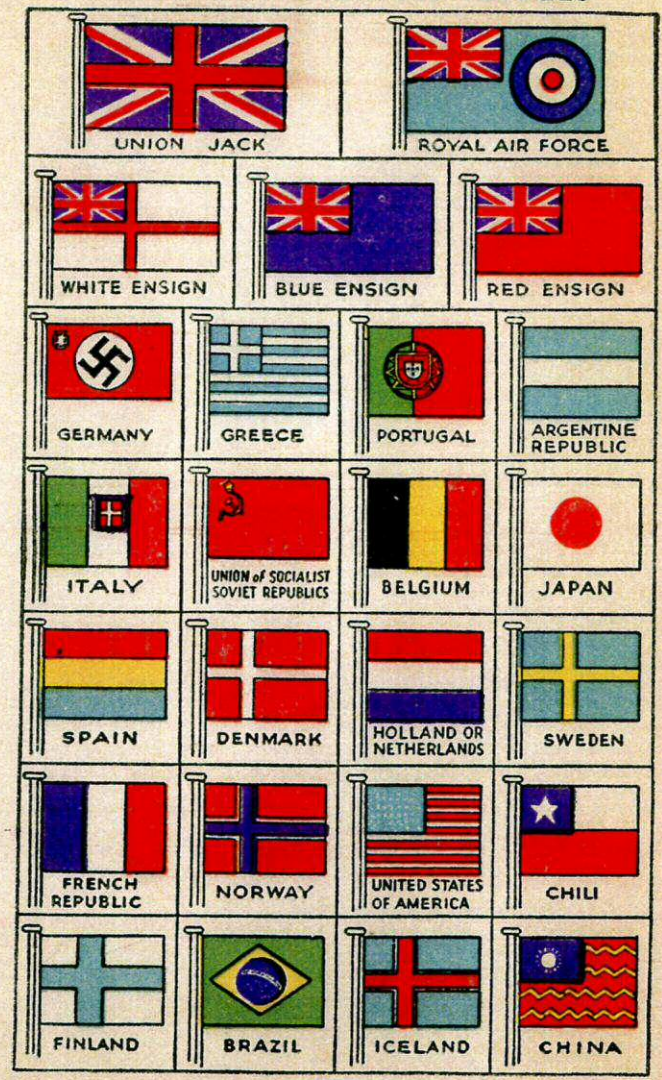
Protection of all harbours from enemy attack is the work of another section and convoys and general safety of merchant shipping have their own division.

Training of the naval personnel, their proper instruction and the allocation of duties occupies another division and the Air Division looks after all aerial matters.

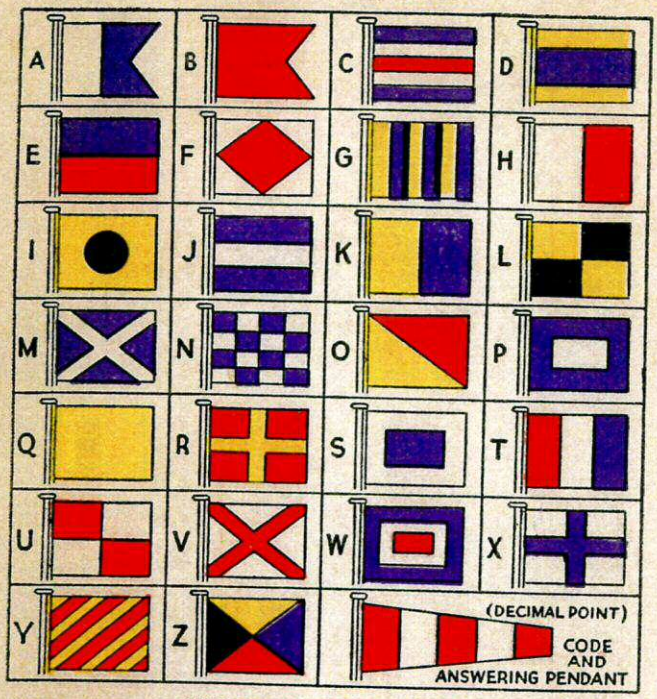
Last but by no means least is the Operations Division which controls the movements of all warships and their mobilisation when enemy warships are located.



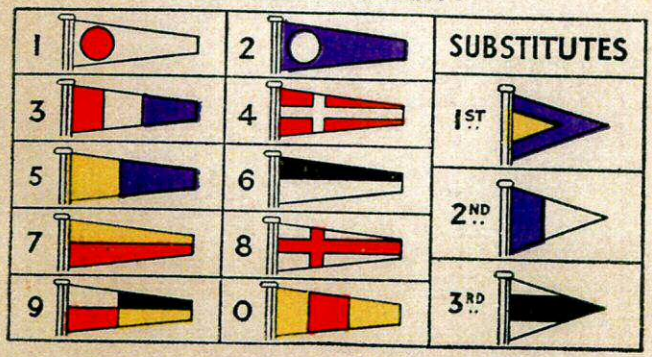
## FLAGS OF MERCHANT VESSELS



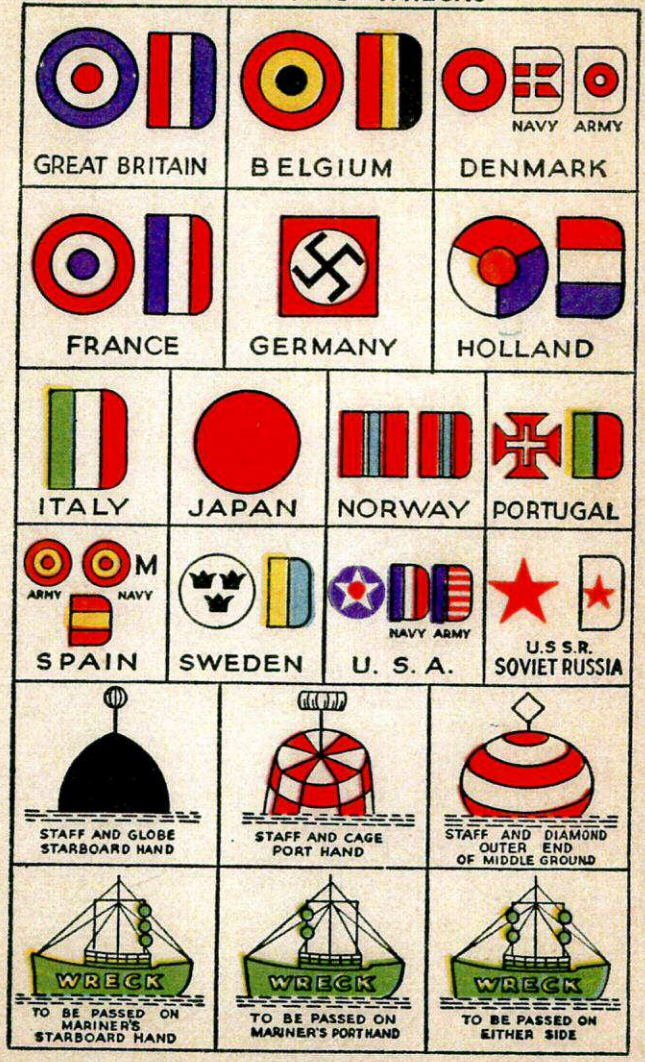
## SIGNAL FLAGS

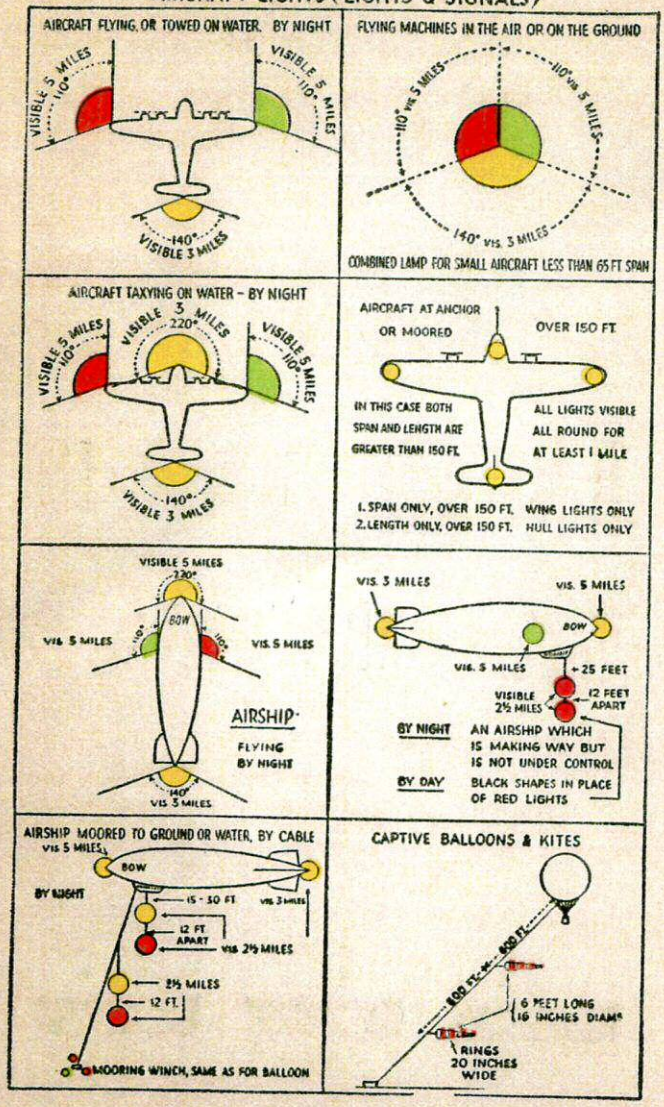



## NUMERAL PENDANTS




## AIRCRAFT, LOWER PLANE AND RUDDER MARKINGS BUOYS AND WRECKS






## THE NAVY'S DUTIES IN WAR-TIME.

War-time work of the Navy differs entirely from its peace-time activities and depends on the position of the enemy geographically, his naval power and the type of warfare waged by him. No sea is free from war in the present conflict though the main theatres are in the North Sea, Atlantic, Mediterranean and Pacific.

With the whole of the Northern European coastline in the enemy's hands and the use of the Irish bases denied to Britain, many advantages not granted to Germany in the last war enable that country to pursue a more vigorous offensive than formerly and present added difficulties to the Royal Navy.

The Navy in Home waters has to patrol the North Sea and the Western Atlantic, the convoys across the latter being of particular importance. Owing to attacks by enemy aircraft all the ships must have heavy anti-aircraft armament and the possibility of heavy enemy warships being met necessitates the presence of some of our battle fleet, the *Bismarck* incident proving evidence of this.

The danger from submarine attack enforces the provision of small, fast vessels of the destroyer and corvette type, their duties being also to some extent taken over by large patrolling aircraft.

The long coastline in enemy hands enables him to use coastal waters for the passage of warships and convoys, both of which are liable to attack by our naval units.

It will thus be seen that the whole of the Navy could be fully occupied in Home waters alone, but duties in other seas have caused some of the fleet to be kept away from home and this has been facilitated to some degree by the use of armed merchant cruisers for the patrol of the northern confines of the Atlantic, North Sea and Arctic Ocean.

In the Mediterranean our ships have been stationed both in the Western and Eastern areas to meet possible operations by the Italian fleet. The latter have had cause for regret that the British Navy has been of sufficient size to permit of decisive action against the Italians.

In the Pacific, British forces are operating with the Dutch and American Navies in the operations against the Japanese.

Both in the Home and Mediterranean fleets and the joint forces in the Pacific are, however, available to support landing forces should these prove practical and necessary.

Further afield ships must be so distributed that the career of any likely commerce raider is curtailed as soon as possible.

The foregoing only gives some of the principal occupations of naval units and serves to show the multifarious duties imposed upon what is actually a force much smaller than necessity demands.

## BRITISH NAVAL STATIONS AND BASES

In peace time the bulk of the Royal Navy is divided between the Home and Mediterranean Fleets with a cruiser squadron respectively in Chinese, East Indian and the West Indian waters. The Chinese station also has a destroyer flotilla and a submarine flotilla besides the many river gunboats operating in the Chinese rivers.

Australia has her own cruiser squadron and destroyer flotilla with ancillary units which include escort vessels, survey, ships, etc.

New Zealand maintains two cruisers and two escort vessels in her waters while Canada boasted seven destroyers when war began.

The Indian Navy, consisting primarily of escort vessels is manned largely by natives. South Africa was, in 1939, just emerging from a lengthy period of naval inactivity and had commissioned two mine-sweeping trawlers.

Nothing may be said of the war activities or strengths of each station, but frequent episodes have disclosed ships operating far from their own waters.

Principal naval bases at home are Portsmouth, Devonport and Chatham, with Rosyth and Scapa in Scotland.

In the Mediterranean are Gibraltar, Malta and the new base at Alexandria.

Singapore and Hong Kong, the respective bases of the East Indian and China Squadrons, were equipped to service any ship on the station, the former being able to accommodate battleships as well as cruisers and smaller vessels. Both are in Japanese hands, the equipment having been destroyed.

Australia maintains her ships and can build further units at Cockatoo Island, Sydney; while Canada has, at Esquimalt, a useful base on the Pacific coast. Halifax on the Atlantic coast, serves Canadian ships in Eastern Canadian waters.

Bermuda is used by the West Indies Squadron and Simonstown for those in South African waters.

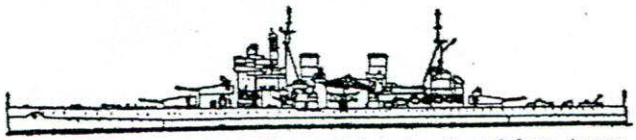
These are only the principal bases and many other less important ones are distributed in various parts of the world.



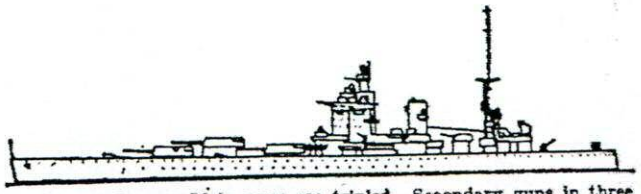
## WARSHIP ILLUSTRATIONS.

These drawings are intended to give an accurate representation of the more prominent types in the principal navies. It has been considered in the limited space available, that advantage of the full width of the page be utilised for each sketch, irrespective of type, and no common scale, therefore, has been adopted.

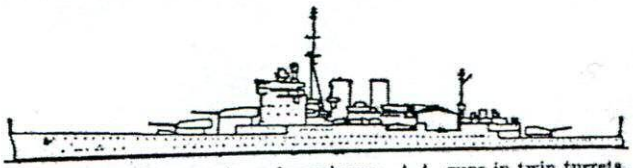
### GREAT BRITAIN—CAPITAL SHIPS.



KING GEORGE V. CLASS.—Bow and stern turrets each have 4 guns, the second forward turret having 2. A.A. (dual purpose) guns in twin turrets P. and S. (Port and Starboard). Catapult amidships.

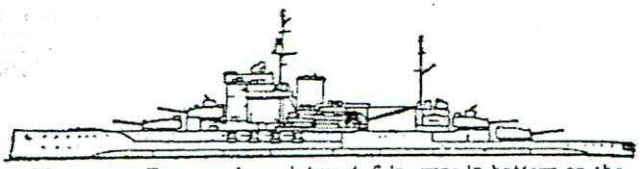


NELSON CLASS.—Main guns are tripled. Secondary guns in three twin turrets, P. and S. RODNEY has a catapult on the third turret.

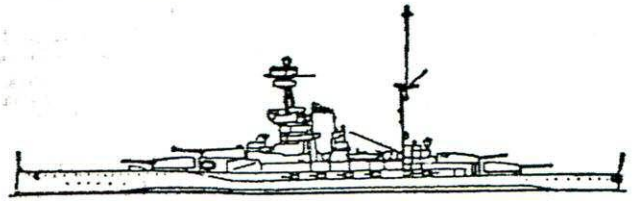


RENOWN.—Two guns in each gunhouse. A.A. guns in twin turrets, P. and S. Catapult amidships.

QUEEN ELIZABETH.—Two guns in each turret, A.A. guns in twin turrets, P. and S. VALIANT has pole mainmast. Catapult amidships.



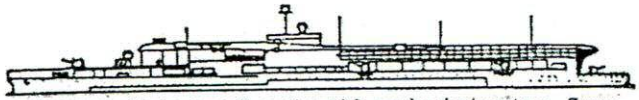
WARSPITE.—Two guns in each turret, 6-in. guns in battery on the main deck, P. and S. MALAYA has similar arrangement of armament. Catapult amidships in both.



RETENGE.—Guns as WARSPITE. Others of the class are similar in appearance.

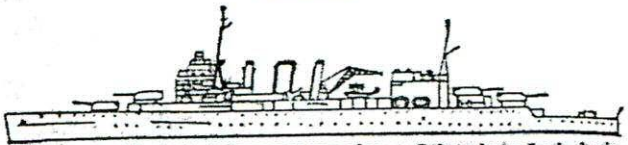
## BRITISH AIRCRAFT CARRIERS.

VICTORIOUS.—A.A. (dual purpose) in sponsons P. and S.



FURIOUS.—Early aircraft carrier with smoke ducts astern. Superstructure on starboard side amidships.

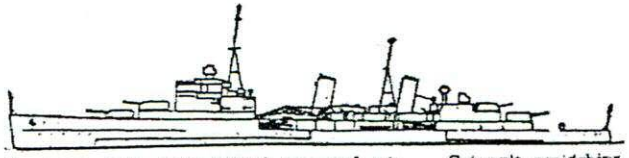
## CRUISERS.



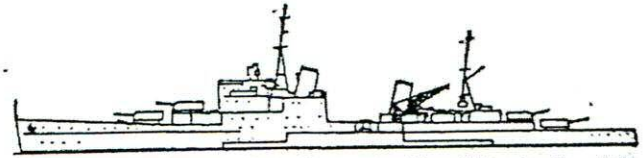
SUFFOLK.—Typical of CUMBERLAND also. Others have flush deck from bow to stem. LONDON class and NORFOLK are without hangar forward of mainmast.



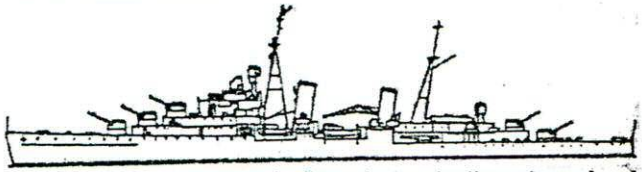




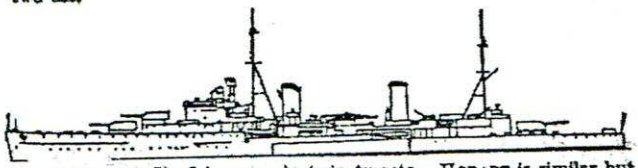
BELFAST.—6-in. guns tripled fore and aft. Catapult amidships. A.A. guns in pairs P. and S. abreast funnels.



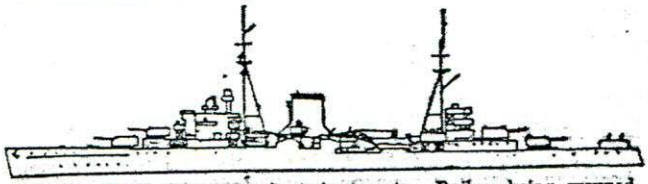
NEWCASTLE.—Guns similar to BELFAST Aircraft hangars P. and S. of fore-funnel. MAURITIUS class similar, but no slope to funnels.



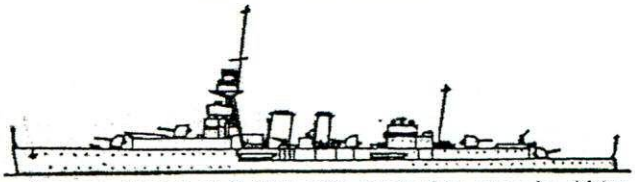
DIDO.—Ten 5.25-in. guns in five twin turrets, three forward and two aft.



ARETHUSA.—Six 6-in. guns in twin turrets. HOBART is similar but with a superfiring turret aft (as AJAX)

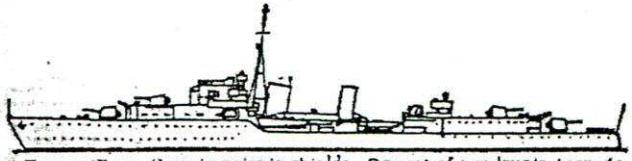


AJAX.—Eight 6-in. guns in twin turrets. Boilers being grouped together permits a single funnel and saving of deck space.



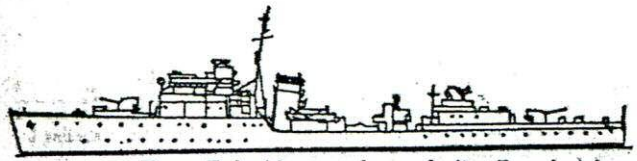
CARDIFF.—Typical of C Class with single 6-in. guns in shields. D Class have another gun between foremast and first funnel.

## BRITISH DESTROYERS.



TRIBAL Class. Guns in pairs in shields. One set of quadruple torpedo tubes amidships.

JERVIS.—Guns in pairs in shields. Two sets of quintuple torpedo tubes amidships. J, K, N destroyers are similar. Some have 4-in. AA in place of after TT.

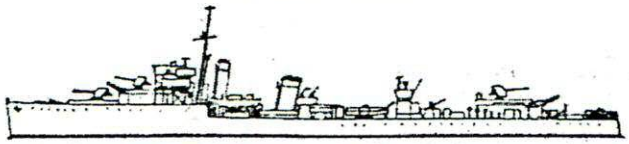


ATHERSTONE Class.—Twin 4-in. guns fore and aft. Torpedo tubes omitted. Used as convoy escorts.

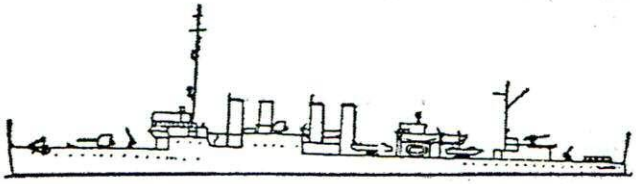
FURY. Single guns in shields. Typical of all destroyers of A-1 Classse. Tubes amidships, one sets of quadruple or quintuple mountings.



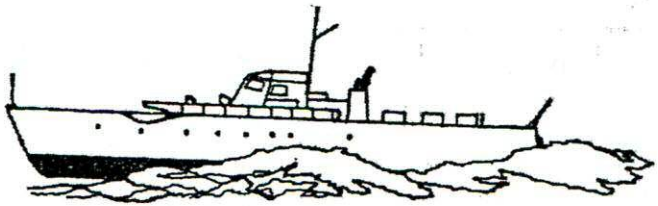




V and W Classes.—Single guns in shields. Triple tubes amidships. Typical of a very numerous type, dating from the last war. Funnels differ in some. Many now have guns arranged as ATHERSTONE.



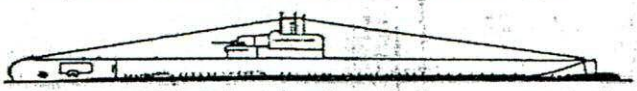
EX-U.S. Flush Deckers (H.M.S. BURNHAM Class).—LINCOLN and LUDLOW similar, but three funnels. Alterations may have been made in appearance when taken over for the Royal Navy, e.g., some TT removed.



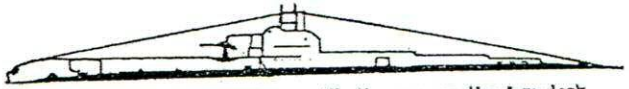
MOTOR TORPEDO BOATS.—Tubes each side of bridge. Depth charges aft. Speed nearing 50 knots.

## SUBMARINES.

T Class. Typical of ocean-going submarines. One 4-in-gun on conning-tower. Conning-tower shape differs in earlier types.



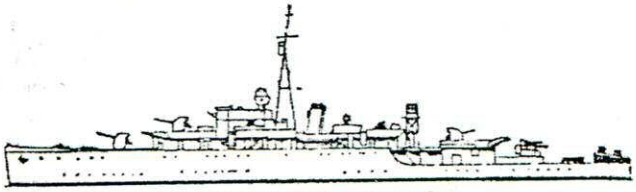
RORQUAL and Minelaying submarines with the gun on an extension of the conning-tower.



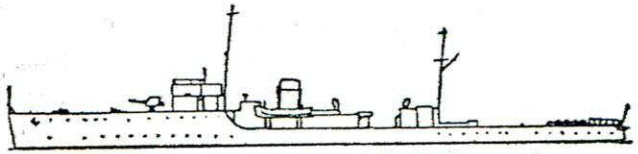
SEALION Class. Seagoing type with the gun on the fore-deck.

URSULA Class.—Coastal type. 3-in. gun in foredeck.

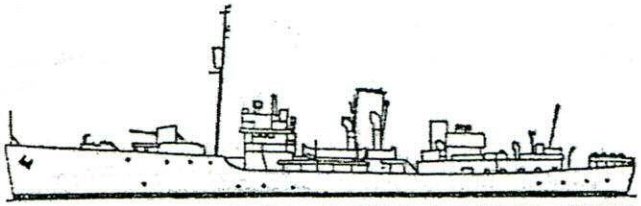
## BRITISH ESCORT AND PATROL VESSELS.



BLACK SWAN.—Typical of later escort vessels.



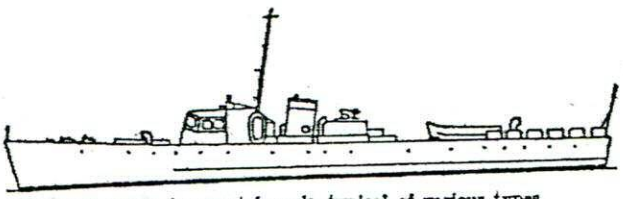
KINGFISHER Class. 4-in. gun forward, depth charges aft.



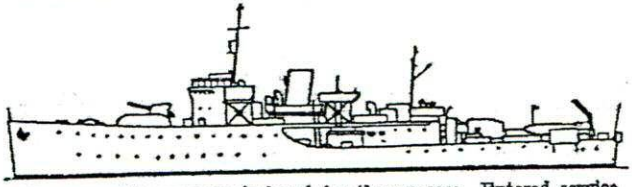
CORVETTE.—New war development which is of great value. General appearance as above, many mipor differences.





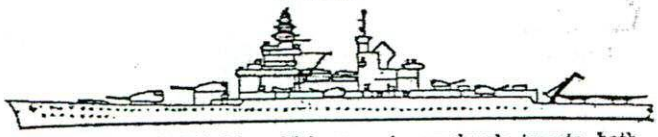


MOTOR LAUNCH for coastal work, typical of various types.

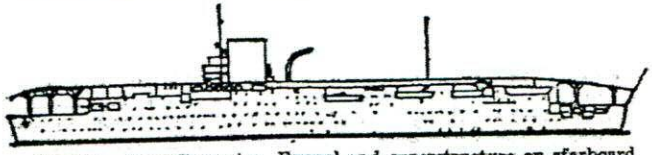


BANGOR.—Minesweeper designed for the purpose. Entered service 1940.

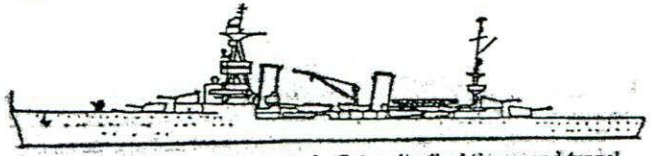
## FRANCE.



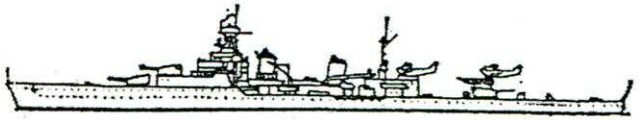
RICHELIEU—Battleship. Main guns in quadruple turrets, both forward. Catapult aft. JEAN BART same. STRASBOURG and DUNKERQUE, both scuttled at Toulon were of similar appearance.



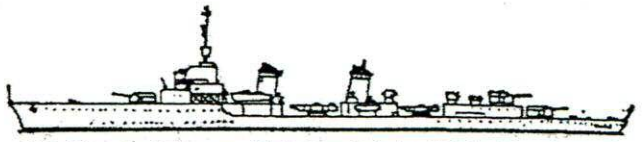
BEARN.—Aircraft carrier. Funnel and superstructure on starboard side.



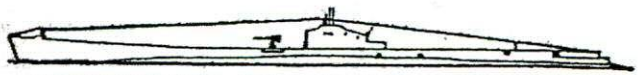
SUFFREN.—Cruiser. Guns paired. Catapult aft of the second funnel



La Galissonniere Class. Main guns tripled. Catapult on after turret.



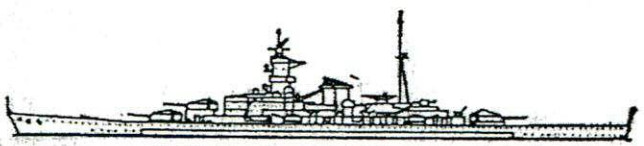
Le Hardi.—Destroyer. Twin gun turrets. Triple tubes forward, two sets of twin tubes P. and S. aft of second funnel.



Redoutable Class. Typical of most French submarines.

## GERMANY.

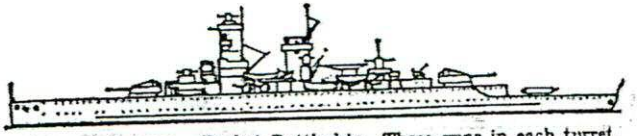
Tirpitz.—Battleship. Eight 15-in. guns in twin turrets. Exceptionally well protected ship.



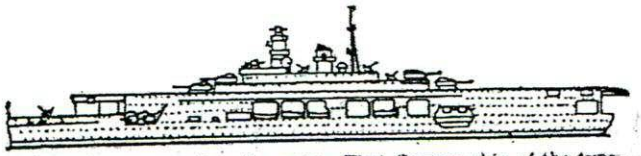
Gneisenau.—Battleship. Guns tripled forward and aft. Secondary and A.A. guns to P. and S. amidships.



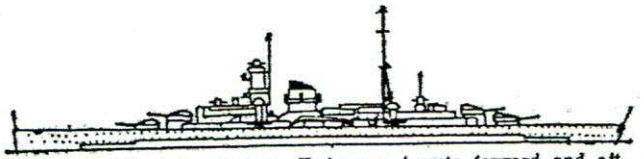




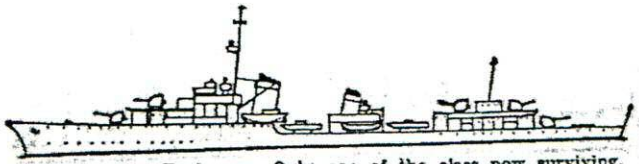
Admiral Scheer.—Pocket Battleship. Three guns in each turret. Torpedo tubes aft, P. and S. Lutzow similar, but with a heavy foremast in place of the tower foremast.



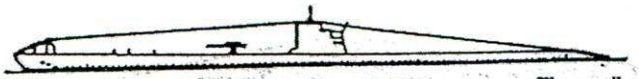
Graf Zeppelin.—Aircraft carrier. First German ship of the type. The superstructure, on the starboard side, may not be exactly as shown.



Admiral Hipper.—Cruiser. Twin gun turrets forward and aft. Prinz Eugen has bow like Tirpitz.

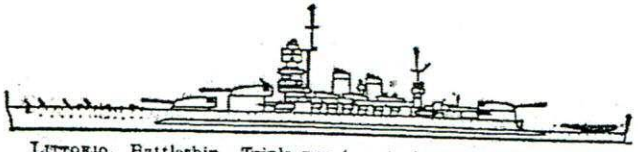


K. Galster.—Destroyer. Only one of the class now surviving. Beitzen Class are similar but with a straight bow.

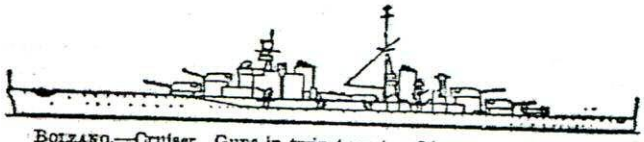


U37.—Most German submarines are of this appearance. The small vessels of the U1 Class are much shorter and without the gun. Newest types have the gun mounted similar to the British T. Class.

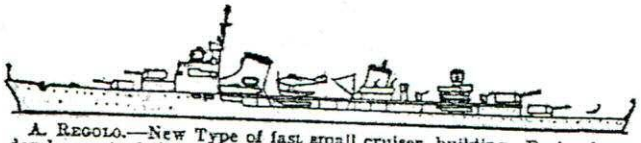
## ITALY.



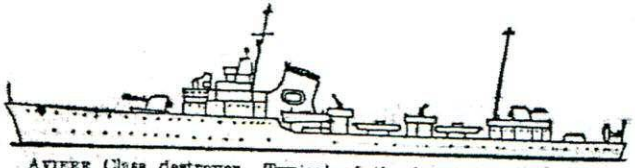
LITTORIO. Battleship. Triple gun turrets fore and aft. Secondary guns on either beam in turrets. A.A. guns in single turrets amidships, P. and S. Other Italian battleships have a similar profile.



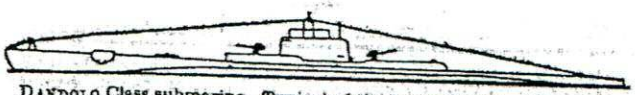
BOLZANO.—Cruiser. Guns in twin turrets. Of seven heavy cruisers, there may be no more than two left.



A. REGOLO.—New Type of fast small cruiser, building. Design is a development of the Russian TASHKENT, built in Italy.



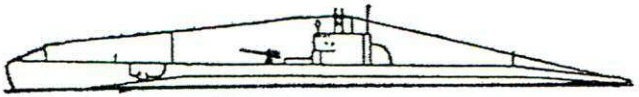
AVIERE Class destroyer. Typical of the latest types of Italian destroyer.



DANDOLO Class submarine. Typical of the larger Italian submarine.

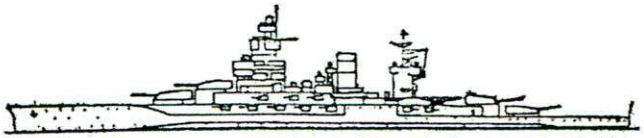




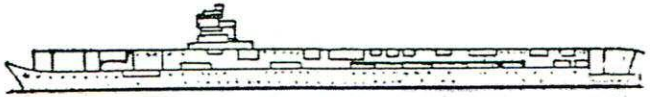


PERLA Class submarine. Typical of the Italian coastal type.

## JAPAN.



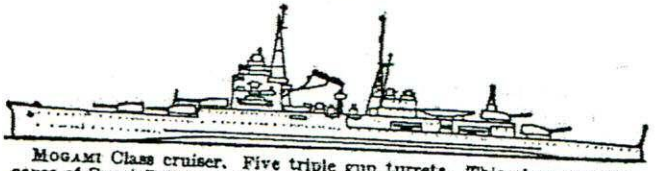
NAGATO.—Battleship. Twin turrets fore and aft. Other battleships are similar. Appearance of new ships not known, if any of these are completed.



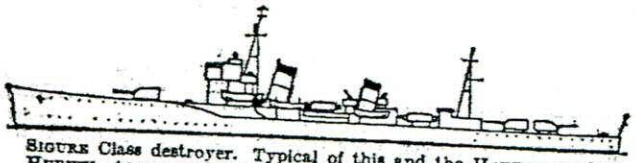
SHOKAKU.—Aircraft carrier. Typical of Japanese carriers, the superstructure being to starboard or port on different ships.

MIDUHO.—Typical seaplane carrier. Central and after projections are bridges extending full width of ship, former probably housing funnels.

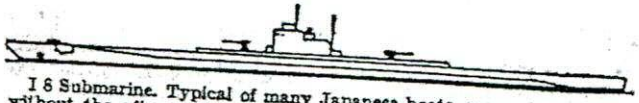
ATAGO Class cruiser. With ten 8-in. guns in five twin turrets, these are the heaviest armed of any of the 10,000-ton type.



MOGAMI Class cruiser. Five triple gun turrets. This class was the cause of Great Britain and the United States building the NEWCASTLE and BROOKLYN types respectively.

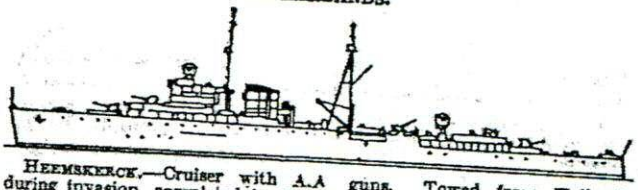


SIGURE Class destroyer. Typical of this and the HATUHARU class. HUBUKI, ASASIO and KAGERO Classes have the forward of the two after turrets raised to fire over the stern mounting.

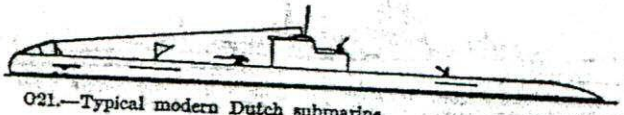


I 8 Submarine. Typical of many Japanese boats, some of which are without the after gun.

## NETHERLANDS.



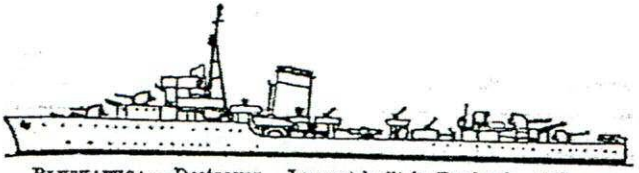
HEEMSKERCK.—Cruiser with A.A guns. Towed from Holland during invasion, completed in Great Britain



O21.—Typical modern Dutch submarine.

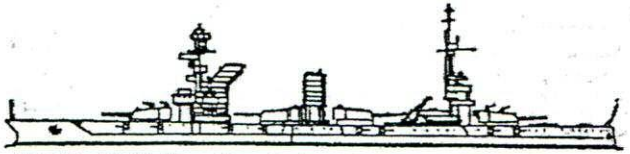


## POLAND.



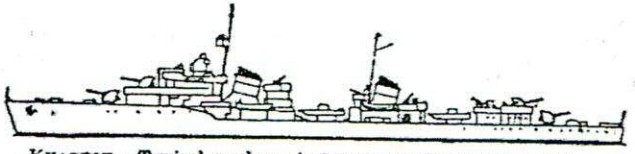
BLYSKAWICA.—Destroyer. Largest built in England. Others are PIORUN, as H.M.S. JERVIS, GARLAND similar to FURY and SLAZAK class, similar to Hunts.

## UNION OF SOVIET SOCIALIST REPUBLICS (RUSSIA).



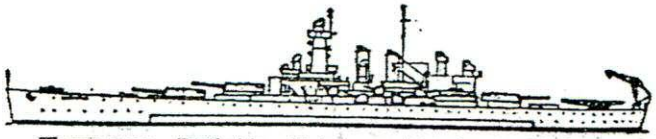
MARAT.—Battleship. One of six with three 12-inch guns in each turret. Germany claims to have sunk this ship.

KIROV.—Cruiser. One of six new vessels probably of Italian design. Three guns in each turret.

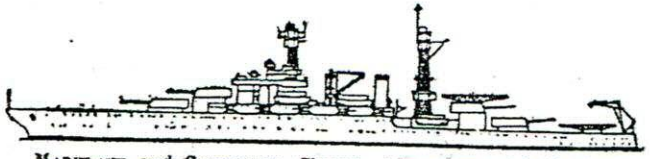


KHARKOV.—Typical modern destroyer—in Black Sea—of LENINGRAD type. STREMITELNI class are similar but have only one funnel.

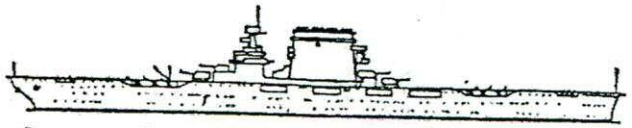
PRAVDA.—Submarine. Largest Russian type.



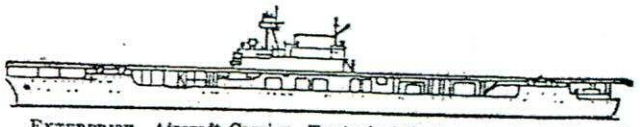
WASHINGTON.—Battleship. Main guns tripled. Extremely well armoured ship. All six are in service.



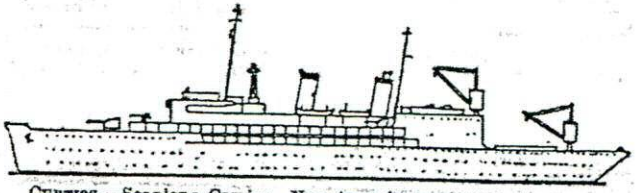
MARYLAND and CALIFORNIA Classes. Appearance of both classes is the same, but, whereas the former have 16-in. guns in twin turrets, the latter are equipped with 14-in. guns in triple turrets. These are the last to retain the latticework masts.



SARATOGA.—Aircraft Carrier. Largest aircraft carrier in the world and has her superstructure on the starboard side.



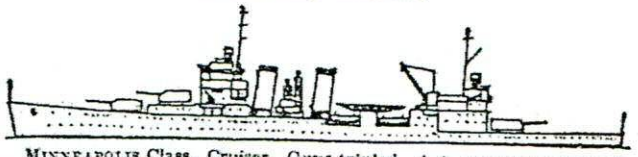
ENTERPRISE. Aircraft Carrier. Typical of the later units built and building. Superstructure again to starboard.



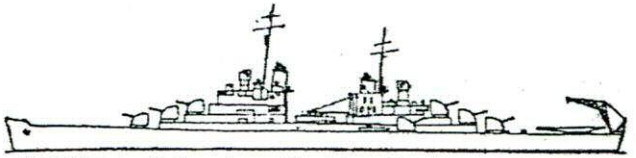
CURTISS.—Seaplane Carrier. New type in service.



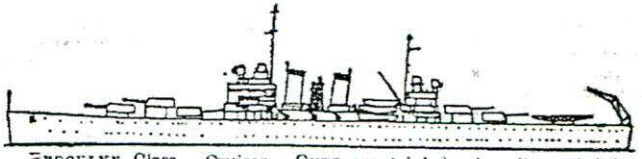




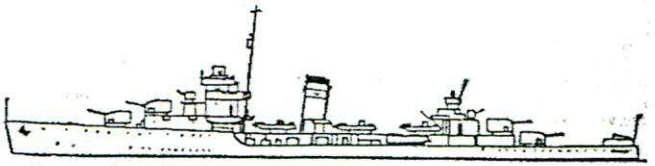
MINNEAPOLIS Class. Cruiser. Guns tripled. A.A. armament abreast funnels and catapults P. and S. aft of amidships. Hangar in the after superstructure.



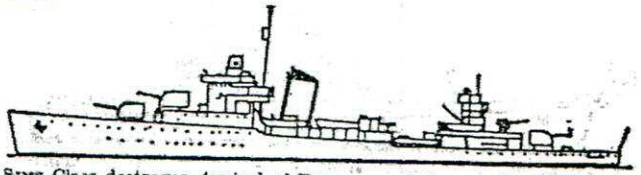
SAN DIEGO.—Fast cruiser with sixteen 5-inch guns. Note three superfiring turrets fore and aft. Speed said to approach 40 knots.



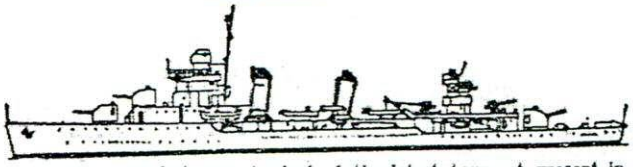
BROOKLYN Class. Cruiser. Guns are tripled, aircraft carried in a hangar astern, the stern being square. Typical of the types recently completed and at present under construction.



SOMERS Class. Destroyer leader. Guns in twin turrets and torpedo tubes tripled, giving the largest broadside of any destroyer for torpedo firing.

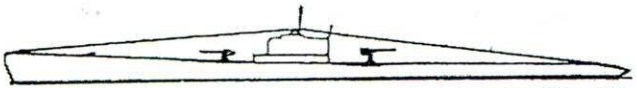


SIMS Class destroyer, typical of BENHAM and CRAVEN Classes also.

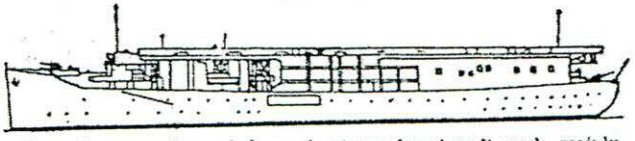


BENSON Class destroyer, typical of the latest types at present in service.

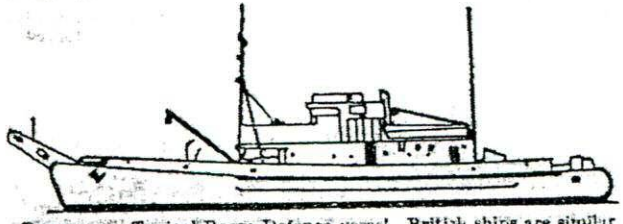
SARGO Class submarine. Typical of American boats of recent construction, i.e. PORPOISE and later types.



ARGONAUT.—Largest unit of the American submarine fleet and designed for minelaying.



LONG ISLAND.—Converted merchantman for aircraft work, mainly with convoys. A successful experiment performed in record time and with great possibilities. Many others have been similarly converted.



BOXWOOD.—Typical Boom Defence vessel. British ships are similar but funnel is larger.



## PREFACE TO TABULATED DATA

These following tables give a comprehensive list of combatant warships of the principal powers, belligerent and neutral, and those references most frequently required.

Space prevents all navies being presented in this way and a table has been included which gives the principal categories of warships possessed by all countries whether in the detailed list or not.

The following points should be remembered when consulting the tables.

War losses up to time of going to press have been deleted.

The name of the table is generally the class name or that of the first of the class to be completed. The date is the completion date of this ship and, therefore, the remainder of the class may be a year or frequently later entering service. The number column gives the total number of ships of the class, the names to these being given in a sub-note below the table, cross-referenced by the small letter following the number. This letter may also appear in one of the succeeding columns, this showing that one or more of the ships has a different characteristic from the table.

The tonnage column generally gives standard displacement, where other tonnage is given this is stated. Where slight differences of tonnage occur in the smaller ships, an average is given. For submarines, the first figure denotes surface and the second submerged displacements.

Speed for submarines are given first for surface and second for submerged running.

Under the heading "Armament" A.A. represents anti-aircraft and D.P. dual purpose (i.e., for use against aircraft or surface targets). T.T. represents torpedo tubes where no column is given and these are most frequently of 21-inch calibre.

To enable the above to be clearly understood the 'Leander" class (page 38) is here analysed :

LEANDER, four in class (*g*)—Orion, Ajax and Achilles —all of different displacement (*g* in Tons column) and *g* in aircraft column shows that Leander has 1 aircraft, the sub-note indicates the Orion and Ajax having two, but no indication after Achilles implies that she has one like the Leander.

Under the sub-note (*e*) for Newcastle class, the word "and" appears before Liverpool, indicating that the ships *before* are as the table, but those *after* have a qualification (in this case the Liverpool, is of different displacement), the word "and" acting as the line of demarcation between the two figures.

## NAVAL FORCES OF THE POWERS

KEY-Ships in service + Building.

| Country | Battle-ships | Aircraft Carriers | Cruisers | Des-troyers | Torpedo Boats *not* M.T.B. | Sub-marines |
|---|---|---|---|---|---|---|
| Gt. Britain (*a*) | 15+4 | 6+2 | 60+? | 220+? | — | 43 |
| Argentina .. | 2 | — | 3 | 15 | 6 | 3 |
| Brazil .. | 2 | — | 2 | 4+6 | — | 4 |
| Chile .. .. | 1 | — | 3 | 8 | — | 9 |
| Colombia .. | — | — | — | 2 | — | — |
| Denmark .. | — | — | — | — | 9 | 12 |
| Finland .. | — | — | — | — | — | 5 |
| France .. | 5+1*d* | — | 12+6*d* | 41+6*d* | 7+1? | 61+2 |
| Free France .. | 2 | — | — | 4 | 4 | 6 |
| Germany .. | 5 | 1+1 | 7+4 | 26?+? | 41? | ? |
| Greece .. | — | — | 1 | 6 | 3 | 5 |
| Italy .. .. | 5+2 | — | 15?+8? | 35? | 63? | ? |
| Japan .. | 10?+9? | 4? | 32?+5? | 108? | 12 | ? |
| Netherlands .. | — | — | 3 | 2 | 3 | 13 |
| Norway .. | — | — | — | 2 | 22 | 4 |
| Free Norway | — | — | 1*c* | 4*c* | 1 | 1+1*c* |
| Peru .. .. | — | — | 2 | 2 | — | 4 |
| Poland .. | — | — | 1 | 6 | — | 3+36 |
| Portugal .. | — | — | — | 5 | 1 | 3 |
| Roumania .. | — | — | — | 4? | 3 | 3 |
| Russia .. | 3 | 3 | 9 | 66 | 30 | 200? |
| Spain .. | — | — | 6 | 16+2 | 6 | 6+3 |
| Sweden .. | 3+2 | — | 2+2 | 9+4 | 8 | 25+3 |
| Thai (Siam) .. | — | — | — | 1 | 10 | 4 |
| Turkey .. | 1 | — | 2 | 8 | — | 13 |
| U.S.A. .. | 19+11 | 15+11 | 41+42 | ?+? | — | ?+? |
| Yugoslavia .. | — | — | — | 3 | 8 | 4 |

(*a*) No ships larger than destroyers ordered since 1939 included in British totals. (*d*) Demilitarised—at Alexandria, Martinique, etc. No account has been taken of Toulon scuttlings. Probably demilitarised ships will operate with Allied Navies. (*b*) Interned in Sweden. (*c*) Loaned by R.N



## GREAT BRITAIN

### CAPITAL SHIPS

| Name. | No. | Date | Tons | Horse Power | Knots | Men | Armament | Air-craft |
|---|---|---|---|---|---|---|---|---|
| Lion .. .. | 4 *a* | ?1943 | 40,000 | — | — | ? | 9 16-in. | — |
| King George V. | 4 *b* | 1940-2 | 35,000 | 152,000 | 30+ | 1,500 | 10 14-in.; 16 5·25-in. D.P. | — |
| Nelson .. .. | 2 *a* | 1927 | 33,950 | 45,000 | 23 | 1,361 | 9 16-in.; 12 6-in.; 6 4·7-in. A.A. 2 T.T. | 4 |
| Renown .. .. | 1 | 1916 | 32,000 | 120,000 | 29 | 1,205 | 6 15-in.; 20 4·5-in. A.A. | 1 *a* |
| Queen Elizabeth | 2 *d* | 1915 | 31,100 | 80,000 | 24 | 1,184 | 8 15-in.; 20 4·5-in. D.P. | 4 |
| Warspite .. .. | 1 | 1915 | 30,600 | 80,000 | 24 | 1,184 | 8 15-in.; 8 6-in.; 8 4-in. A.A. | 4 |
| Malaya .. .. | 1 | 1915 | 31,100 | 75,000 | 24 | 1,124 | 8 15-in.; 12 6-in.; 8 4-in. A.A. | 4 |
| Revenge .. .. | 4 *e* | 1916 | 29,150 | 40,000 | 22 | 1,146 | 8 15-in.; 12 6-in.; 8 4-in. A.A. | 1 |

(*a*) Temeraires and Two Unnamed. (*b*) Duke of York, Anson, Howe. (*c*) Rodney (2 Aircraft). (*d*) Valiant. (*e*) Resolution (1 Aircraft), Ramillies, Royal Sovereign.

### AIRCRAFT CARRIERS

| Name | No. | Date | Tons | Horses Power | Knots | Men | Armament | Air-craft |
|---|---|---|---|---|---|---|---|---|
| Implacable .. | 2 *a* | 1943 | 23,000 | 140,000 | 32 | 1,600 | ? | ? |
| Illustrious .. | 4 *b* | 1940 | 23,000 | 110,000 | 30+ | 1,600 | 16 4·5-in. D.P. | ? |
| Furious .. .. | 1 | 1917 *a* | 22,450 | 90,000 | 31 | 1,200 | 12 4·5-in. D.P. | ? |
| Unicorn *g* .. | 1 | 1941 | 14,500 | 40,000 | 22 | — | 8 4·5-in. D.P. | 33 |
| Albatross .. | 1 | 1928 | 4,800 | 12,000 | 21 | 450 | 4 4·7-in. A.A. | ? |
| Argus .. .. | 1 | 1918 | 14,000 | 20,000 | 20 | 373 | 18 M.G. (May be re-armed). | 9 *d* |
| Pegasus .. | 1 | 1914 | 6,900 | 3,000 | 11 | 139 | 10 M.G. | — *f* |

(*a*) Indefatigable. (*b*) Formidable, Indomitable, Victorious. (*c*) Reconstructed 1925. (*d*) Albatross carries Seaplanes. (*e*) Argus carried Queen Bee Radio Controlled Aircraft and was used as Anti-Aircraft Target Service Ship. (*f*) Pegasus used for experimental purposes. (*g*) Aircraft Supply and Repair Ship.

## BRITISH CRUISERS

| Name | No. | Date | Tons | Horse Power | Knots | Men | Armament | Tubes | Air-craft |
|---|---|---|---|---|---|---|---|---|---|
| Norfolk .. | 1 | 1930 | 9,925 | 80,000 | 32·25 | 650 | 8 8-in.; 8 4-in. A.A. | 8 | 1 |
| London .. .. | 4*a* | 1929 | 9,850 | 80,000 | 32·25 | 650 | 8 8-in.; 8 4-in. A.A. | 8 | 1 |
| Kent .. .. | 5*b* | 1928 | 10,000 | 80,000 | 31·5 | 679 | 8 8-in.; 8 4-in. A.A. | — | 3 |
| Mauritius .. | 11*c* | 1940 | 8,000 | 72,500 | 33 | — | 12 6-in.; 8 4-in. A.A. | 16 | 3 |
| Dido .. .. | 7*d* | 1940 | 5,450 | 62,000 | 33 | — | 10 5·25-in. | 6 | 1 |
| Belfast .. .. | 1 | 1939 | 10,000 | 80,000 | 32·5 | — | 12 6-in.; 12 4-in. A.A. | 6 | 4 |
| Newcastle .. | 5*e* | 1937 | 9,100*e* | 75,000 | 32 | 700 | 12 6-in.; 8 4-in. A.A. | 6 | 3 |
| Aretheusa .. | 3*f* | 1935 | 5,220*f* | 64,000 | 32·25 | 450 | 6 6-in.; 8 4-in. A.A. | 6 | 1 |
| Hobart .. .. | 1 | 1935 | 7,105 | 72,000 | 32·5 | 550 | 8 6-in.; 8 4-in. A.A. | 8 | 1 |
| Leander .. | 4*g* | 1933 | 7,270*g* | 72,000 | 32·5 | 550 | 8 6-in.; 8 4-in. A.A. | 8 | 1*g* |
| Emerald .. | 2*h* | 1926 | 7,550 | 80,000 | 33 | 572 | 7 6-in.; 5 4-in. A.A. | 16 | 1 |
| Hawkins .. | 3*f* | 1919 | 9,800 | 55,000*f* | 29·5*f* | 712 | 7 7·5-in.; 4 4-in. A.A. | 4 | — |
| Danae .. .. | 7*k* | 1918 | 4,850 | 40,000 | 29 | 450 | 6 6-in.; 3 4-in. A.A. | 12 | — |
| Ceres .. .. | 4*m* | 1917 | 4,290*m* | 40,000 | 29 | 400 | 5 6-in.; 2 3-in. A.A. | 8 | — |
| Caledon .. .. | 2*n* | 1917 | 4,180 | 40,000 | 29 | 400 | 5 6-in.; 2 3-in. A.A. | 8 | — |
| Carlisle .. | 1*p* | 1917 | 4,200*q* | 40,000 | 29 | 400 | 8 4-in. A.A. | — | — |
| Adelaide .. | 1 | 1922 | 5,100 | 25,000 | 25·5 | 470 | 8 6-in.; 3 4-in. A.A. | — | — |

(*a*) Devonshire, Canberra, Sussex. (*b*) Berwick, Cumberland, Australia, Suffolk. (*c*) Kenya, Nigeria, Ceylon, Gambia, Jamaica, Uganda, 4 Unnamed. (*d*) Euryalus, Phoebe, Sirius, Charybdis, Cleopatra, Scylla. (*e*) Sheffield, Birmingham, Glasgow, and Liverpool (9,400 tons). (*f*) Penelope, Aurora (5,270 tons). (*g*) Orion (7,215 tons), Ajax (6,985 tons), each with 2 Aircraft, Achilles (7,030 tons). (*h*) Enterprise. (*j*) Frobisher (65,000 h.p., 30¼ knots). Vindictive may now be similar. (*k*) Dragon, Dauntless, Diomede, Despatch, Delhi, Durban. (*m*) Cardiff and Capetown, Colombo (4,200 tons). These last two may now be Anti-Aircraft ships as Carlisle. (*n*) Caradoc. (*p*) Anti-Aircraft ship.



## BRITISH DESTROYERS AND FLOTILLA LEADERS

(L = Leader. E = Escort Vessel) In many a 4-in. A.A. gun replaces part of the TT armament.

| Name. | No. | Date | Tons | Horse Power | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|---|
| Atherstone .. .. | 70*a* | 1940 | 904 | 19,000 | 27·5 | — | 4 4-in. A.A. | 0 |
| Lightning .. .. | 13*b* | 1940 | 1,920*b* | 48,000 | 36·5 | — | 6 4·7-in. | 8 |
| Javelin .. .. .. | 42*a* | 1939 | 1,690*c* | 40,000 | 36 | 183 | 6 4·7-in.; 1-4 in. A.A. | 5 |
| Ashanti .. .. .. | 21*d* | 1938 | 1,870 | 44,000 | 36·5 | 190*d* | 8 4·7-in. | 4 |
| Intrepid .. .. .. | 5*a* | 1937 | 1,370 | 34,000 | 36 | 145 | 4 4·7-in. | 10 |
| Hero .. .. .. | 9*f* | 1936 | 1,340 | 34,000 | 36 | 145 | 4 4·7-in. | 8 |
| Inglefield (L) .. .. | 1 | 1937 | 1,530 | 38,000 | 36·5 | 175 | 5 4·7-in. | 10 |
| Faulknor (L) .. .. | 1 | 1935 | 1,460 | 38,000 | 36·7 | 175 | 5 4·7-in. | 8 |
| Duncan (L) .. .. | 1 | 1933 | 1,400 | 36,000 | 35·7 | 175 | 4 4·7-in. | 8 |
| Eclipse .. .. .. | 13*g* | 1931 | 1,375 | 36,000 | 36 | 145 | 4 4·7-in. | 8 |
| Beagle .. .. .. | 11*h* | 1930 | 1,360 | 34,000 | 35 | 145 | 4 4·7-in. | 8 |
| Codrington (L) .. .. | 1 | 1930 | 1,540 | 39,000 | 35 | 185 | 5 4·7-in. | 8 |
| Amazon .. .. .. | 7*j* | 1926 | 1,350*j* | 39,500*j* | 37 | 138 | 4 4·7-in. | 6 |
| Vansittart .. .. | 13*k* | 1919 | 1,120*k* | 27,000 | 34 | 134 | 4 4·7-in. | 6 |
| Keppel (L) .. .. | 1 | 1924 | 1,480 | 40,000 | 36 | 183 | 5 4·7-in. | 6 |
| Campbell (L) .. .. | 6*n* | 1918 | 1,530 | 40,000 | 36·5 | 183 | 5 4·7-in. | 6 |
| Watchman .. .. | 15*p* | 1918 | 1,100 | 27,000 | 34 | 134 | 4 4-in. | 6 |
| Vanoc .. .. .. | 4*q* | 1917 | 1,090 | 27,000 | 34 | 134 | 4 4-in. | 5 |
| Scimitar .. .. .. | 7*r* | 1918 | 905 | 27,000 | 31 | 98 | 3 4-in. | 4 |
| Skate .. .. .. | 1 | 1917 | 900 | 27,000 | 31 | 98 | 3 4-in. | 4 |
| Wallace (E) .. .. | 1 | 1919 | 1,250 | 20,000 | 28 | — | 4 4-in. A.A. | 0 |
| Wolsey (E) .. .. | 4*s* | 1918 | 920 | 18,000 | 28 | — | 4 4-in. A.A. | 0 |
| Vega (E) .. .. .. | 9*t* | 1918 | 900 | 18,000 | 28 | — | 4 4-in. A.A. | 0 |
| Burnham (Ex. U.S.) .. | 42*u* | 1919 | 1,100 | 27,000 | 35 | — | 4 4-in. ? modified | 12*t* |
| Lincoln (Ex. U.S.) .. | 3*v* | 1918 | 1,020 | 18,000 | 30 | — | 4 4-in. ? modified | 12*t* |

(*a*) Albrighton, Aldenham, Avon Vale, Badsworth, Beaufort, Belvoir, Bicester, Blankney, Bleasdale, Blencathra, Bramham, Brecon, Brocklesby, Calpe, Catterick, Cattistock, Chiddingford, Cleveland, Cotswold, Cottesmore, Cowdray, Croome, Derwent, Dulverton, Easton, Eglinton, Eggesford, Eridge, Esedale, Fernie, Garth, Goathland, Haldon, Hambledon, Hatherlrigh, Haydon, Holcombe, Holderness, Hursley, Hurworth, Lamerton, Lauderdale, Ledbury, Liddesdale, Limbourne, Melbreak, Mendip, Meynell, Middleton, Modbury, Oakley, Puckeridge, Pytchley, Quantock, Quorn, Rockwood, Southdown, Talybont, Tanatside, Tetcott, Tynedale, Wensleydale, Whaddon, Wheatland, Wilton, Zetland. (*b*) Laforey (L), Milne (L) (1,935 tons), Lance, Legion, Lookout, Loyal, Marksman, Musketeer, Myrmidon, Matchless, Meteor, Marne, (*c*) Jervis (L), Napier (L) (1,695 tons), Janus, Kelvin, Khartoum, Kimberley, Kingston, N'Pissa, Nizam, Noble, Nonpareil, Norman, Norseman, Obdurate, Obedient, Offa, Onslaught, Onslow, Opportune, Oribi, Orwell, Parkenham, Paladin, Panther, Partridge, Pathfinder, Penn, Petard, Porcupine, Quadrant, Quail, Quality, Quiberon, Quickmatch, Quilliam, Racehorse, Raider, Rapid, Redoubt, Relentless, Rotherham. (*d*) Eskimo, Maori, Nubian, Punjabi, Arunta, Warramunga, Iroquois, Athabascan, Eleven Unnamed, and Tartar (L) (219 compt.). (*e*) Icarus, Ilex, Impulsive, Isis. (*f*) Hotspur, Havelock, Harvester, Hesperus, Highlander, Hurricane, Gallant, Griffin. (*g*) Echo, Escapade, Express, Fortune, Foxhound, Forester, Fury, Fame, Decoy, Assiniboine (L), St. Laurent, Restigouche. (*h*) Boadicea, Boreas, Brilliant, Bulldog, Active, Antelope, Anthony, Arrow, Saguenay, Skeena. (*j*) Ambuscade (1,170 tons, 33,000 H.P.). (*k*) Venomous, Verity, Volunteer, Wanderer, Whitehall, Whitshed, Witherington, Wivern, Wolverine, Worcester, and Wishart, Witch (1,140 tons). (*n*) Douglas (L), Mackay (L), Malcolm (L), Montrose (L), Stuart (L). (*p*) Walker, Westcott, Walpole, Warwick, Winchelsea, Vanity, Verdun, Vidette, Vesper, Vivacious, Vanquisher, Voyager, Vendetta. (*q*) Vimy, Velox, Versatile. (*r*) Scout, Sabre, Saladin, Sardonyx, Shikari, Tenedos. (*s*) Woolston, Viceroy, Viscount. (*t*) Valorous, Vivien, Winchester, Vanessa, Wolfhound, Westminster, Windsor, Wrestler. (*u*) Beverley, Bradford, Brighton, Broadway, Burwell, Buxton, Cameron, Chesterfield, Churchill, Clare, Caldwell, Castleton, Chelsea, Charlestown, Georgetown, Hamilton, Lancaster, Leamington, Leeds, Lewes, Montgomery, Newport, Newark, Newmarket, Ramsey, Reading, Roxborough, Richmond, Ripley, Rockingham, St. Albans, St. Mary's, Salisbury, Sherwood, Wells, Annapolis, Columbia, Niagara, St. Clair, St. Croix, St. Francis. (*v*) Ludlow, Mansfield.

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## BRITISH MOTOR TORPEDO BOATS

| Nos. | Date | Tons | Knots | Armament |
|---|---|---|---|---|
| 22, 23, 24, 25 .. .. | 1939 | 32 | 40+ | 2 21-in. Torpedo tubes |
| 102, 103 .. .. .. | 1937 | 28 | 43 | ,, |
| 101 .. .. .. | 1937 | 22 | 40 | ,, |
| 1-12, 14-19, 100 .. .. | 1936 | 18 | 35 | 2 18-in. Torpedoes : 8 Lewis guns |

Motor Torpedo Boats of new types have been added, as have Motor Launches and Motor Gunboats.

## SUBMARINES

O = Ocean-going ; C = Coastal ; M = Minelaying ; S = Sea-going.

| Name. | No. | Type | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|---|
| Thunderbolt .. .. | 11*a* | O | 1939 | 1,090/1,575 | 15·25/9 | 53 | 1 4-in. | 10 |
| Porpoise .. .. | 2*b* | M | 1933 | 1,500/2,053 | 15/8·75 | 55 | 1 4-in. | 6 |
| Severn .. .. .. | 2*c* | O | 1935 | 1,850/2,723 | 22·25/10 | 60 | 1 4-in. | 6 |
| Regent .. .. .. | 6*d* | O | 1930 | 1,475/2,030 | 17·5/9 | 50 | 1 4-in. | 8 |
| Oberon .. .. .. | 1 | O | 1926 | 1,311/1,831 | 15/9 | 54 | 1 4-in. | 8 |
| Otway .. .. .. | 1 | O | 1927 | 1,349/1,872 | 15·5/9 | 54 | 1 4-in. | 8 |
| L23 .. .. .. | 3*e* | S | 1919 | 760/1,080 | 17·5/10·5 | 39 | 1 4-in. | 4 |
| Seaton .. .. .. | 3*f* | S | 1934 | 670/960 | 13·75/10 | 40 | 1 3-in. | 6 |
| Sturgeon .. .. | 1 | S | 1932 | 640/927 | 13·75/10 | 40 | 1 3-in. | 6 |
| Ursula .. .. .. | 4*g* | C | 1938 | 540/730 | 11·25/10 | 27 | 1 3-in. | 6 |
| H28 .. .. .. | 7*h* | C | 1918 | 410/500 | 13/10·5 | 22 | — | 4 |
| P511 (ex U.S. R3) .. | 1 | C | 1919 | 530/680 | 13·5/10 | 27 | 1 3-in. | 4 |

(*a*) Tigris, Torbay, Truant, Trident, Taku, Tribune, Tuna, Thrasher, Trusty, Turbulent. (*b*) Rorqual. (*c*) Clyde. (*d*) Rover, Parthian, Pandora, Proteus, Otus. (*e*) L26, L27. (*f*) Sunfish, Seawolf, (*j*) Unity, Upright, Una. (*k*) H32, H33, H34, H43, H44, H50.

Names announced early in 1942 were Tactician, Trespasser, Truculent, Safari, Seadog, Shakespeare, Splendid, Sportsman, Ullswater, Unbending, Unison, United, Unrivalled, Unruffled, Unruly, Unseen. These are probably war versions of Thunderbolt, Sealion and Ursula types respectively.

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## BRITISH MISCELLANEOUS VESSELS

C = Corvette; E = Escort; P = Patrol; M = Minesweepers; RG = River Gunboat; Mon. = Monitor; ML = Minelayer.

| Name. | Type | No. | Date | Tons | Knots | Men | Armament |
|---|---|---|---|---|---|---|---|
| Black Swan .. .. | E | 3*a* | 1940 | 1,250 | 19 | — | 6 4-in. A.A. |
| Egret .. .. .. | E | 2*b* | 1938 | 1,200 | 19 | 188 | 8 4-in. A.A. |
| Enchantress .. .. | E | 1 | 1935 | 1,085 | 18 | 125 | 4 4·7-in. |
| Stork .. .. .. | E | 1 | 1938 | 1,190 | 18 | 125 | 6 4-in. A.A. |
| Aberdeen .. .. | E | 2*c* | 1936 | 990 | 16·5 | 100 | 4 4-in. A.A. |
| Warrego .. .. | E | 2*d* | 1940 | 1,060 | 16·5 | 100 | 3 4-in A.A. |
| Deptford .. .. | E | 5*e* | 1934 | 990 | 16·5 | 100 | 2 4·7-in.; 1 3-in. A.A. |
| Hindustan .. .. | E | 1 | 1930 | 1,190 | 16·5 | 119 | 2 4-in. |
| Bridgewater .. .. | E | 12*f* | 1929 | 1,060 av. | 16·5 | 100 | 2 4-in. A.A. |
| Lupin .. .. .. | E | 3*g* | 1916 | 1,175 | 16·5 | 98 | 1 4-in. |
| Guillemot .. .. | P | 2*h* | 1940 | 580 | — | — | 1 4-in. A.A. |
| Kingfisher .. .. | P | 6*j* | 1935 | 510 | 20 | 60 | 1 4-in. A.A. |
| PC74 .. .. .. | P | 1 | 1918 | 610 | 20 | 56 | 1 4-in. |
| Bangor .. .. .. | M | 20*k* | No particulars released. | | | | |
| Halcyon .. .. | M | 17*m* | 1934 | 835 | 17 | 80 | 2 4-in. A.A. |
| Aberdare .. .. | M | 20*n* | 1917 | 710 | 16 | 73 | 1 4-in. |
| Dragonfly .. .. | RG | 3*q* | 1939 | 585 | 17 | 74 | 2 4-in.; 1 3·7-in. Howitzer |
| Scorpion .. .. .. | RG | 1 | 1938 | 700 | 17 | 93 | 2 4-in.; 1 3·7-in. Howitzer |
| Lulworth (ex U.S.) .. | E | 7*p* | 1929 | 1980 | 16 | — | 2 6-in.; 1 3-in. A.A. |
| Aphis .. .. .. | RG | 7*r* | 1915 | 625 | 14 | 54 | 2 3-in. A.A. |
| Seamew .. .. .. | RG | 2*s* | 1927 | 262 | 14 | 55 | 2 3-in. A.A. |
| Erebus .. .. .. | Mon. | 1 | 1916 | 7,200 | 12 | 315 | 2 15-in. |
| Marshal Soult .. .. | Mon. | 1 | 1915 | 6,400 | 6·7 | 280 | 2 15-in. |
| Adventure .. .. | ML | 1 | 1927 | 6,740 | 28 | 400 | 4 4·7-in. A.A.; 340 Mines |
| Abdiel .. .. .. | ML | 2*t* | 1940-1 | 2,650 | 40 | — | 6 4·7-in. A.A.; Mines |
| Flower .. .. .. | C | 173+*u* | 1940-2 | ? | ? | 58 | 1 4-in. A.A. |

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## British Miscellaneous Vessels—*Continued*

(*a*) Erne, Flamingo. (*b*) Pelican. (*c*) Fleetwood. (*d*) Swan. (*e*) Leith, Londonderry, Lowestoft, Wellington. (*f*) Sandwich, Hastings, Shoreham, Rochester, Fowey, Ilfeford, Falmouth, Milford, Weston, Folkestone, Scarborough. (*g*) Foxglove, Rosemary. (*h*) Shearwater. (*j*) Kittiwake, Mallard, Puffin, Shieldrake, Widgeon. (*k*) Blackpool, Bridlington, Bridport, Blyth, Beaumaris, Boston, Cromarty, Dunbar, Ilfracombe, Llandudno, Peterhead, Polruan, Rye, Rhyl, Romney, Rothesay, Sidmouth, Stornoway, Tenby. (*m*) Harrier, Hussar, Herne, Hazard, Gossamer, Gleaner, Niger, Salamander, Speedwell, Speedy, Sharpshooter, Seagull, Jason, Britomart, Franklin, Scott. (*n*) Abingdon, Albury, Alresford, Baoshot, Derby, Eloin, Farnham, Fermoy, Harrow, Lydd, Panobourne, Ross, Saltash, Saltburn, Selkirk, Stoke, Sutton, Tedworth, Widnes. (*p*) Fishguard, Sennen, Landguard, Gorleston, Banff, Totland. (*q*) Grasshopper, Locust. (*r*) Cockchafer, Cricket, Gnat, Mantis, Scarab, Tarantula. (*s*) Tern. (*t*) Manxman. (*u*) Abelia, Acanthus, Alisma, Amaranthus, Anchusa, Anemone, Arabis, Armeria, Asphodel, Aster, Aubretia, Azalea, Balsam, Begonia, Bellwort, Bergamot, Bluebell, Borage, Bryony, Burdock, Buttercup, Calendula, Camellia, Campion, Candytuft, Carnation, Celandine, Chrysanthemum, Clarkia, Clematis, Clover, Coltsfoot, Columbine, Convolvulus, Coreopsis, Cowslip, Crocus, Cyclamen, Dahlia, Delphinium, Dianella, Dianthus, Eolantine, Erica, Eyebright, Freesia, Fritillary, Genista, Gentian, Geranium, Gloxinia, Harebell, Heartsease, Heather, Hemlock, Hibiscus, Honeysuckle, Hyacinth, Hydrangea, Ivy, Jasmine, Jonquil, Kingcup, Lavender, Lily, Ling, Loosestrife, Lotus, Mallow, Marguerite, Marjoram, Meadowsweet, Mignonette, Monkshood, Myosotis, Narcissus, Nasturtium, Nigella, Orchis, Oxlip, Pennywort, Pentstemon, Peony, Periwinkle, Petunia, Phlox, Pimpernel, Pink, Polyanthus, Poppy, Potentilla, Primrose, Primula, Rhododendron, Rock Rose, Rose, Saxifrage, Snowdrop, Snowflake, Spiraea, Starwort, Stonecrop, Sunflower, Sweetbriar, Thyme, Tulip, Verbena, Veronica, Vervain, Vetch, Violet, Wallflower, Woodruff. Over 61 Canadian and also Indian Vessels. In March, 1943, the First Lord announced that a larger type of Corvette known as the Frigate, was in service, one being named Rother. No particulars have been divulged.

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In addition there are a number of Survey vessels which can be converted into Minesweeper or Escort vessels, depot ships, and an undetermined number of auxiliaries which include Trawlers, Drifters, Tenders, Tugs, etc. Many of the larger and faster liners have been converted into Armed Merchant Cruisers and have proved efficient in the services to which they have been allotted.

## BRITISH DOMINIONS, ETC

Australia, Canada, India and New Zealand possess their own warships. Each of these furnish the greater part of the complement, the remainder being supplied by the Royal Navy. The principal vessels belonging to these navies have been detailed in the foregoing British Navy tables and these ships are serving far from their home waters.

## DENMARK

The Danish Navy includes 2 coast defence ships, 7 torpedo boats, and 12 small submarines. Possibly most of these are now being employed as units of the Germany Navy—even if only for preliminary training duties. Ten torpedo boats have been taken over by Germany, possibly for coastal work or training duties.

## FRANCE

Since the Franco-German armistice, the French Navy has been split into a number of parts, some remaining faithful to France, some—as part of the Free French Forces—have been operating with the British Navy while other vessels are demilitarised in ports under British control. Various units are in the French African ports, some in a damaged condition. On the evacuation of the Northern French yards, a number of vessels were blown up on the stocks. These last named are omitted from the following tables. Many French warships were scuttled at Toulon but, owing to difficulty in ascertaining the names of all concerned, none have been deleted.



### BATTLESHIPS

| Name | No. | Date | Tons | Knots | Men | Armament | Aircraft |
|---|---|---|---|---|---|---|---|
| Richelieu | 2*a* | 1940 | 35,000 | 30·5 | 1670 | 8 15-in.; 15 6-in. | 4 |
| Dunkerque | 2*b* | 1937 | 26,500 | 29·5 | 1431 | 8 13-in.; 16 5·1 in. D.P. | 4 |
| Provence | 1 | 1915 | 22,189 | 20 | 1190 | 10 13·4-in.; 14 5·5-in.; 8 3-in. A.A. | — |
| Lorraine | 1 | 1916 | 22,189 | 21·5 | 1133 | 8 13·4-in.; 14 5·5-in.; 8 3·9-in. A.A. | 4 |
| Courbet | 2*c* | 1913 | 22,189 | 20 | 1108 | 12 12-in.; 22 5·5-in.; 7 3-in. A.A.; 4 T.T. | |

### AIRCRAFT CARRIERS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bearn | 1 | 1927 | 22,146 | 21·5 | 875 | 8 6·1-in.; 6 3·9-in. A.A.; 4 T.T. | 40 |
| Com. Teste | 1*d* | 1931 | 10,000 | 20·5 | 686 | 12 3·9-in. A.A. | 26*d* |

### FRENCH CRUISERS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Algerie | 1 | 1934 | 10,000 | 32 | 629 | 8 8-in.; 12 3·9-in. A.A.; 6 T.T. | 3 |
| Suffren | 1 | 1930 | 9,938 | 31·5 | 605 | 8 8-in.; 8 3-in. A.A.; 6 T.T. | 2 |
| Colbert | 3*e* | 1931 | 9,938 | 32·5 | 605 | 8 8-in.; 8 3·5-in. A.A.; 6 T.T. | 3 |
| Duquesne | 2*f* | 1928 | 10,000 | 33 | 605 | 8 8-in.; 8 3-in. A.A.; 6 T.T. | 2 |
| Gloire | 6*g* | 1935 | 7,600 | 31 | 540 | 9 6-in.; 8 3·5-in. A.A.; 4 T.T. | 4 |
| E. Bertin | 1*h* | 1934 | 5,886 | 34 | 567 | 9 6-in.; 4 3·5-in. A.A.; 6 T.T. | 2 |
| Jeanne D'Arc | 1 | 1931 | 6,496 | 25 | 505 | 8 6·1 in.; 4 3-in. A.A.; 2 T.T. | 2 |
| Primauguet | 3*f* | 1926 | 7,249 | 33 | 577 | 8 6·1-in.; 4 3-in. A.A.; 12 T.T. | 1 |

(*a*) Jean Bart. (*b*) Strasbourg. (*c*) Paris. (*d*) Seaplane Carrier. (*e*) Duplelx, Foch. (*f*) Tourville. (*g*) La Galissonniere, Jean de Vienne, Marseillaise, Montcalm, Georges Leygues. (*h*) Also reported to carry 200 mines. (*j*) Duguay-Trouin, Lamotte Picquet.

### DESTROYERS AND TORPEDO BOATS (marked T)

| Name | No. | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|
| Le Hardi | 8*a* | 1940 | 1772 | 37 | 175 | 6 5·1-in. | 7 |
| Volta, Mogador | 2 | 1938 | 2884 | 38 | 238 | 8 5·5-in. | 10 |
| Le Fantasque | 5*b* | 1934 | 2569 | 37 | 220 | 5 5·5-in. | 9 |
| Aigle | 10*c* | 1932 | 2441 | 36 | 220 | 5 5·5-in. | 7 or 6 |
| Guepard | 5*d* | 1929 | 2436 | 36 | 209 | 5 5·5-in. | 6 |
| Tigre | 4*e* | 1926 | 2126 | 35·5 | 204 | 5 5·1-in. | 6 |
| L'Alcyon | 11*f* | 1927 | 1378 | 32·5 | 142 | 4 5·1-in. | 6 |
| Simoun | 8*g* | 1926 | 1319 | 33 | 138 | 4 5·1-in. | 6 |
| Baliste (T) | 11*h* | 1936 | 610 | 34·5 | 92 | 2 3·9-in. | 2 |
| VTB 8 (T) | 1*k* | 1930 | 19 | 46 | — | 2 Torpedoes | — |
| VTB 11-40 (T) | 30*k* | Bldg. | 28 | 45 | — | — | 2 |

(*a*) L'Adroit, Mameluck, Lansquenet, Casque, Foudroyant, Bison, Sirocco. (*b*) Le Malin, Le Terrible, Le Triumphant, L'Indomptable. (*c*) Albatros, Cassard, Epervier, Kerfaut, Kersaint, Milan, Tartu, Vauquelin, Vautour. (*d*) Lion, Valmy, Vauban, Verdun. (*e*) Leopard, Lynx, Panthere. (*f*) Basque, Bordelais, Boulonnais, Brestois, Forbin, Fougueux, Frondeur, La Palme, Le Fortune, Le Mars. (*g*) Mistral, Tempete, Tornade, Tramontane, Trombe, Typhon, Ouragon. (*j*) Bombarde, Bugliek, La Bayonnaise, Le Cordeliere, La Flore, La Melpomene, La Pomone, La Poursuivante, L'Incomprise, L'Iphigenie. (*k*) M.T.B.8 and M.T.B.11-40 are Motor Torpedo Boats.

## FRENCH SUBMARINES

| Name | No. | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|
| Redoutable | 17*a* | 1930 | 1380/2080 | 17/10 | 67 | 1 3·9-in. A.A. | 11 |
| Aurore | 6*b* | 1940 | 893/1170 | 17/9 | — | 1 3·9-in. | 9 |
| Saphir | 10*c* | 1929 | 669/925 | 12/9 | 40 | 1 3-in. A.A.; 32 Mines | 5 |
| Requin | 6*d* | 1926 | 974/1441 | 16/10 | 51 | 1 3·9-in. | 10 |
| Diane | 11*e* | 1931 | 571/809 | 14/9 | 48 | 1 3-in. A.A. | 8 |
| Minerve | 4*f* | 1935 | 597/825 | 14/9 | 48 | 1 3-in. A.A. | 9 |
| Pallas | 2*g* | 1939 | 662/858 | 14/9 | 48 | 1 3-in. A.A. | 9 |
| Sirene | 9*h* | 1927 | 548/764 | 14/7·5 | 40 | 1 3-in. A.A. | 7 |

(*a*) Vengeur, Pascal, Pasteur, H. Poincare, Fresnel, Archimede, Acheron, Argo, Protee, Proase, L'Espoir, Le Glorieux, Le Centaure, Le Conquerante, Le Tonnant, Casabianca. (*b*) Phenix, L'Africaine, La Favorite, Andromaque, Armide. (*c*) Turquoise, Nautilus, Rubis, Diamant, Perle, Emeraude, Agate, Corail, Escarboucle. (*d*) Caiman, Dauphin, Espadon, Marsouin, Phoque. (*e*) Arethuse, Meduse, Antiope, Amazone, Atalante, Orphee, Orion, Ondine, La Vestal, La Sultane. (*f*) Junon, Venus, Iris. (*g*) Cerbs, (*h*) Naiade, Galatee, Ariane, Danae, Eurydice, Circe, Calypso, Thetis.

## MISCELLANEOUS

| Name | No. | Date | Tons | Knots | Men | Armament | Type |
|---|---|---|---|---|---|---|---|
| Castor | 1 | 1917 | 3150 | 14·5 | 167 | 4 3·9-in.; 368 Mines | Minelayer |
| Pollux | 1 | 1916 | 2461 | 14 | 162 | 4 3·9 in.; 236 Mines | ,, |
| D'Iberville | 6*a* | 1932 | 1969 | 15·5 | 136 | 3 5·5-in.; 50 Mines | Sloop |
| Elan | 25*b* | 1940 | 630 | 20 | — | 2 3·9-in. | Minesweeper |

(*a*) Dumont D'Urville, Savoronan de Brazza, Amiral Charner, Beautemps Beaupre, La Grandiere. (*b*) Chamois, Chevreuil, La Surprise, Gazelle, Annamite, La Curieuse, La Moqueuse, Com. Bory, Com. Delage, L'Inpetueuse, La Boudeuse, Com. Dubog, La Capricieuse, Com. Domine, Com. Riviere, La Gracieuse, La Batailleuse, Amiral Senes, Ensrione Ballande, Matelot Leblanc, Ragot de la Touche, La Furieuse, La Joyeuse, La Trompeuse.



# GERMANY

## BATTLESHIPS (B.) AIRCRAFT CARRIERS (A.C.) CRUISERS (C.)

| Name | | No. | Date | Tons | Knots | Men | Armament | Aircraft |
|---|---|---|---|---|---|---|---|---|
| Tirpitz | B. | 3*a* | 1940 | 735,000 | 30 | — | 8 15-in.; 12 5·9-in.; 16 4·1-in. A.A. | 4 |
| Scharnhorst | B. | 2*b* | 1938 | 26,000 | 27 | 1461 | 9 11-in.; 12 5·9-in.; 14 4·1-in. A.A. | 4 |
| Adm. Scheer | B. | 2*c* | 1933 | 10,000 | 26 | 926 | 6 11-in.; 8 5·9-in.; 6 4·1-in. A.A. | 2 |
| Graf Zeppelin | A.C. | 2*d* | 1940 | 19,250 | 32 | — | 16 5·9-in.; 10 4·1-in. A.A. | 40 |
| Adm. Hipper | C. | 4*e* | 1939 | 10,000 | 32 | 830 | 8 8-in.; 12 4·1-in. A.A.; 12 T.T. | 4 |
| "M" | C. | 4*f* | Bldg. | 8,000 | 32 | — | 12 5·9-in.; 4 4·1-in. A.A.; 8 T.T. | 2 |
| Nurnberg | C. | 1 | 1935 | 6,000 | 32 | 656 | 9 5·9-in.; 8 3·5-in. A.A.; 12 T.T. | 2 |
| Leipzig | C. | 1*g* | 1931 | 6,000 | 32 | 615 | 9 6·9-in.; 8 3·5-in. A.A.; 12 T.T. | 2 |
| Emden | C. | 1 | 1925 | 5,400 | 29 | 534 | 8 5·9-in.; 3 3·5-in. A.A.; 4 T.T. | — |

(*a*) Deutschland, one other. (*b*) Gneisenau. (*c*) Lutzow (8 T.T. in this class). (*d*) Peter Strasser (*e*) Prinz Eugen, Seydlitz, ex-Lutzow. (*f*) 3 Unnamed (N, O, P). (*g*) This ship may have been sunk.



## DESTROYERS, TORPEDO BOATS (T), ESCORT VESSELS (E).

| Name | No. | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|
| Z23–Z39 | 17 | 1942 | 1870 | — | — | 5 5-in.; ? | 8? |
| Karl Galster | 1 | 1939 | 1811 | 36 | — | 5 5-in. | 8 |
| R. Beitzen | 8*a* | 1938 | 1625 | 36 | 283 | 5 5-in. | 8 |
| T1–T30 (T) | 30 | 1940 | 600 | 36 | — | 1 4·1-in. | 6 |
| Iltis (T) | 4*b* | 1928 | 800 | 34 | 123 | 3 4·1-in. *c* | 6 |
| Mowe (T) | 3*c* | 1926 | 800 | 33 | 121 | 3 4·1-in. | 6 |
| F1 (E) | 9*d* | 1935 | 600 | 28 | 124 | 2 4·1-in. | — |

(*a*) P. Jacobi, T. Riedel, H. Schoemann, H. Lody, F. Ihn, E. Steinbrinck, F. Eckoldt. (*b*) Wolf, Jaguar, Tiger (*c*) Falke, Kondor. (*d*) F2, F4, F5, Hai, F7, F8, F9, F10. Ten Danish Torpedo Boats were taken over in 1941, all of under 300 tons.

## GERMAN SUBMARINES

Few particulars have been divulged of the number of German submarines which have been destroyed, but U12-16, U18, 19, U25, U26, U27, U28, U31, U32, U35, U36, U38-U44, U55, U64, U73, U95, U99, U100, U103-U111, U131, U433, U434, U501, U556, U570, U574, are known to have been lost.

The following table gives particulars of the types known to have been built.

| No. | No. | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|
| U77, U78 .. .. | 2 | 1940 | 1060/ | 18·5/8 | — | 1 4·1-in.; Mines | 2 |
| U37, .. .. .. | 14*a* | 1938 | 740/ | 18·5/8 | 40 | 1 4·1-in.; Mines | 6 |
| U45–U55 .. .. .. | 31*b* | 1938 | 517/ | 16·5/8 | 35 | 1 3·5-in. | 5 |
| U29, U30, U33, U34 .. | 4 | 1936 | 500/ | 16·5/8 | 35 | 1 3·5-in. | 5 |
| U1–U11 .. .. .. | 25*c* | 1935 | 250/330 | 13/7 | 23 | 1 1-pdr.; A.A. | 3 |

(*a*) U65–U68, U79–U82, U88–U92. (*b*) U69–U72, U74–U76, U83–U87, U93, U94, U96–U98. (*c*) U17, U20–U24, U56–U63.

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## MISCELLANEOUS

| Name | No. | Date | Tons | Knots | Men | Armament | Type |
|---|---|---|---|---|---|---|---|
| Schlesien | 2*a* | 1908 | 13,040 | 18 | 718 | 4 11-in., 10 5·9-in.; 4 3·5-in. A.A. | Training. |
| Brummer .. | 1 | 1936 | 2,410 | 20 | 214 | 6 3·5-in. A.A. | Gunnery Training |
| S38–S57 .. | 20 | 1939 | 86 | 36 | — | 2 47-mm.; 2 T.T. | Motor Torpedo Boats |
| S6–S37 .. | 32 | 1933 | 62 | 33 | 17 | 2 1-pdr. A.A.; 2 T.T. | „ „ „ |
| M1–M36 .. | 36 | 1937 | 600 | 17 | — | 2 4·1-in. | Minesweepers |
| M61 class .. | 16*b* | 1916 | 525 | 16 | 50 | 1 4·1-in in most. | „ and Tenders |

(*a*) Schleswig-Holstein. (*b*) M72, 75, 84, 85, 89, 98, 102, 104, 110, 111, 117, 122, 126, 145, 157, Taku, Sundevall.

The Oilers, Altmark, Dittmarschen, Ermland, Franken, Westerwald, 10,000 tons gross, have a speed of 19 knots and carry 8 5.9-in. guns.

N

## ITALY

### BATTLESHIPS

| Name | No. | Date | Tons | Knots | Men | Armament | Aircraft |
|---|---|---|---|---|---|---|---|
| Littorio .. .. | 4*a* | 1940 | 35,000 | 30 | 1600 | 9 15-in.; 12 6-in.; 12 3·5-in. A.A. | 3 |
| G. Cesare .. .. | 1 | 1915 | 23,622 | 27 | 1198 | 10 12·6-in.; 12 4·7-in.; 8 3·9-in. A.A. | 4 |
| A. Doria .. .. | 2*b* | 1915 | 23,622 | 27 | 1198 | 10 12·6-in.; 12 5·3-in.; 10 3·5-in. A.A. | 4 |

### CRUISERS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Bolzano .. .. | 1 | 1933 | 10,000 | 36 | 723 | 8 8-in.; 12 3·9-in. A.A.; 8 T.T. | 2 |
| Trento .. .. | 2*c* | 1929 | 10,000 | 35 | 723 | 8 8-in.; 12 3·9-in. A.A.; 8 T.T. | 2 |
| Amm. C. Ciano .. | 2*d* | Bldg. | 8,000 | 35 | 600 | 10 6-in.; 8 T.T. | 4 |
| A. Regolo .. .. | 12*e* | 1942 | 3,367 | 41 | — | 6 5·3-in.; 8 T.T.; Mines | 1 |
| G. Garibaldi .. | 2*f* | 1937 | 7,874 | 35 | 600 | 10 6-in.; 8 3·9-in. A.A.; 6 T.T. | 4 |
| Eugenio di Savoia | 12*g* | 1936 | 7,283 | 36·5 | 551 | 8 6-in.; 6 3·9-in. A.A.; 6 T.T. | 3 |
| M. Attendolo .. | 2*h* | 1935 | 6,941 | 37 | 522 | 8 6-in.; 6 3·9-in. A.A.; 4 T.T. | 3 |
| L. Cadorna .. | 1 | 1933 | 5,008 | 37 | 500 | 8 6-in.; 6 3·9-in. A.A.; 4 T.T. | 2 |
| Giovanni Delle Bande Nere .. .. | 1 | 1931 | 5,069 | 37 | 500 | 8 6-in.; 6 3·9-in. A.A.; 4 T.T. | 2 |
| Bari .. .. | 1 | 1915 | 3,248 | 27 | 398 | 8 5·9-in.; 3 3-in. A.A.; 120 Mines | 1 |
| Taranto .. .. | 1 | 1912 | 3,184 | 21 | 445 | 7 5·9-in.; 2 3-in. A.A.; 120 Mines | 1 |

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(*a*) Vittorio Veneto, Roma, Impero. (*b*) C. Duilio. (*c*) Trieste. (*d*) Venezia. (*e*) S. Africano, C. Mario, C. Tiberio, P. Emilio, C. Silla, O. Augusto, Pompeo Magno, U. Traiano, V. Agrippa, C. Druso, G. Germanico. (*f*) Luigi di Savoia Duca degli Abruzzi. (*g*) Emanuele Filiberto Duca D'Aosta (one of these may have been sunk). (*h*) R. Montecuccoli.

D

## ITALIAN DESTROYERS AND TORPEDO BOATS (marked T)

| Name | No. | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|
| Aviere .. .. | 11*a* | 1938 | 1620 | 39 | 165 | 4 4·7-in. | 6 |
| A. Oriani .. .. | 2*b* | 1937 | 1729 | 39 | 157 | 4 4·7-in. | 6 |
| Grecale .. .. | 2*c* | 1934 | 1449 | 38 | 153 | 4 4·7-in. | 6 |
| Folgore .. .. | 2*d* | 1932 | 1220 | 38 | 150 | 4 4·7-in. | 6 |
| Dardo .. .. | 4*e* | 1932 | 1206 | 38 | 150 | 4 4·7-in. | 6 |
| L. Malocello .. | 8*f* | 1929 | 1628 | 38 | 185 | 6 4·7-in. | 4 |
| Borea .. .. | 2*g* | 1928 | 1073 | 36 | 142 | 4 4·7-in. | 6 |
| Q. Sella .. .. | 2*f* | 1926 | 935 | 35 | 120 | 4 4·7-in. | 4 |
| A. Riboty .. .. | 2*k* | 1915 | 1383 | 35 | 145 | 8 4-in. | 4 |
| Partenope (T) .. | 18*m* | 1938 | 679 | 34 | 94 | 3 3·9-in. | 4 |
| Orsa (T) .. .. | 4*n* | 1938 | 855 | 28 | — | 2 3·9-in. | 4 |
| Albatros (T) .. | 1 | 1935 | 340 | 24·5 | — | 2 3·9-in. | 2 |
| Climene (T) .. | 12*p* | 1936 | 642 | 34 | 94 | 3 3·9-in. | 4 |
| Curtatone (T) .. | 3*q* | 1923 | 966 | 32 | 105 | 4 4-in.; 2 3-in. A.A. | 6 |
| San Martino (T) .. | 2*r* | 1921 | 862 | 32 | 105 | 4 4-in.; 2 3-in. A.A. | 4 |
| Gen. A. Papa (T) .. | 6*s* | 1922 | 635 | 33 | 105 | 3 4-in.; 2 3-in. A.A. | 4 |
| E. Giovannini (T).. | 1 | 1921 | 182 | 23 | — | 2 4-in. | 2 |
| E. Cosenz (T) .. | 6*t* | 1918 | 635 | 32 | 100 | 4 4-in.; 2 3-in. A.A. | 4 |
| G. Sirtori (T) .. | 2*u* | 1917 | 669 | 30 | 100 | 6 4-in. | 4 |
| G. Abba (T) .. | 7*v* | 1915 | 615 | 32 | 94 | 5 4-in. | 4 |
| Audace (T) .. | 1 | 1915 | 629 | 31 | 113 | 7 4-in. | 4 |
| MAS451 (MTB) .. | 53*w* | 1936 | 20 | 47 | — | — | 2 |
| S. Turr (MTB) .. | 1 | 1935 | 59 | 30 | — | — | 4 |
| MAS438–441 (MTB) | 4 | 1935 | 35·5 | 36 | — | — | — |
| MAS423 (MTB) .. | 9*x* | 1923 | 14 | 40 | — | — | 2 |
| MAS204 (MTB) .. | 5*y* | 1919 | 12 | 26 | — | — | 2 |

### Italian Destroyers—*Continued*

(*a*) Ascari, Camicia Nera, Corazziere, Geniere, Alpino, Fuciliere, Bersagliere, Granatiere, Carabiniere, Lanciere. (*b*) V. Alfieri. (*c*) Scirocco. (*d*) Lampo, (*e*) Strale, Freccia, Saetta. (*f*) U. Vivaldi, A. Usodimare, L. Pancaldo, A. da Noli, E. Pessagno, N. da Recco, N. Zeno, A. Picaretta. (one of these has been lost.). (*g*) Turbine. (*j*) F. Crispi. (*k*) C. Mirabello. (*m*) Airone, Aretusa, Calipso, Calliope, Circe, Clio, Libra, Lince, Lira, Lupo, Pallade, Pleiadi, Polluce, 4 Unnamed. (*n*) Orione, Procione. (*p*) Centauro, Castore, Cigno, Canopo, Cassiopea, Sirio, Perseo, Sagittario, Antares, Aldebaran, Andromeda (1 lost). (*q*) Calatafimi, Castelfidardo, Monzambano (1 lost). (*r*) Solferino. (*s*) Generale A. Cantore, Gen. A. Cascino, Gen. A. Chinotto, Gen. C. Montanari, Gen. M. Prestinari. (*t*) G. Medici, G. la Farina, A. Bassini, G. Carini. (*u*) 452, 501–551. (*v*) F. Cairoli, R. Pilo, A. Mosto, S. Schiaffino, G. Dezza, G. Missori. (*w*) 452, G. la Masa. (*x*) F. Stocco. (*y*) 206, 210, 213, 216.



## SUBMARINES

Many of these have been lost. O = Ocean-going. C = Coastal. M = Minelaying.

| Name | No. | Type | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|---|
| Am. Saint Bon .. | 8*a* | O | 1941/2 | 1461/— | 18/— | — | 2 3·9-in. | 14 |
| A. A. Bagnolini .. | 2*b* | O | 1940 | 1031/— | 18/— | — | 2 3·9-in. | 8 |
| G. Marconi .. | 5*c* | O | 1940 | 1036/— | 18/— | — | 2 3·9-in. | 8 |
| Com. Cappellina .. | 8*d* | O | 1940 | 951/1270 | 17/— | — | 2 3·9-in. | 8 |
| Dandolo .. .. | 6*e* | O | 1938 | 941/1260 | 17/9 | — | 2 3·9-in. | 8 |
| Guglielmotti .. | 2*f* | O | 1939 | 896/1247 | 17/9 | — | 1 3·9-in. | 8 |
| Foca .. .. .. | 3*g* | M | 1938 | 1109/1533 | 16/8 | — | 1 3·9-in.; Mines | 6 |
| E. Tazzoli .. .. | 2*h* | O | 1936 | 1332/1965 | 17/8·7 | 66 | 2 4·7-in. | 8 |
| Otaria .. .. | 1 | O | 1935 | 863/1167 | 17/8·5 | 48 | 2 3·9-in. | 8 |
| P. Micca .. .. | 1 | M | 1935 | 1371/1833 | 15·5/8·5 | 66 | 2 4·7-in.; 40 Mines | 6 |
| E. Fieramosca .. | 1 | O | 1930 | 1340/1788 | 19/10 | 64 | 1 4·7-in.; 1 Seaplane | 8 |

## Italian Submarines—*Continued*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Balilla .. .. | 4*m* | O | 1928 | 1368/1874 | 17·5/9·5 | 64 | 1 4·7-in. | 6 |
| Argo .. .. | 2*n* | C | 1937 | 689/857 | 14/8 | — | 1 3·9-in. | 6 |
| Perla .. .. | 19*p* | C | 1937 | 620/853 | 14/8·5 | 41 | 1 3·9-in. | 6 |
| Sirena .. .. | 8*q* | C | 1933 | 590/787 | 14/8·5 | 41 | 1 3·9-in. | 6 |
| Fisalia .. .. | 6*r* | C | 1931 | 599/778 | 14/8·5 | 41 | 1 4-in. | 6 |
| R. Settimo .. .. | 2*s* | C | 1931 | 798/1134 | 17·5/9 | 48 | 1 4-in. | 6 |
| Squalo .. .. | 4*t* | C | 1930 | 810/1077 | 16·5/9 | 48 | 1 4-in. | 8 |
| F. Corridoni .. | 2*u* | M | 1930 | 803/1051 | 14/8 | 47 | 1 4-in. ; 24 Mines | 4 |
| S. Santarosa .. | 4*v* | C | 1930 | 815/1078 | 17·5/9 | 48 | 1 4-in. | 8 |
| V. Pisani .. .. | 4*w* | C | 1929 | 791/1040 | 17·5/9 | 46 | 1 4-in. | 6 |
| G. Mameli .. .. | 3*x* | C | 1928 | 770/994 | 17/9 | 46 | 1 4-in. | 6 |
| H1, 2, 4, 6, 8 .. | 5 | C | 1916 | 336/434 | 13/11 | 22 | — | 4 |
| X2, X3 .. .. | 2 | C | 1916 | 389/453 | 10/6 | — | 18 Mines | 2 |

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(*a*) Ammiraglio Cagni, 6 Unnamed. (*b*) R. Giuliani. (*c*) L. da Vinci, L. Torelli. A, Malaspina, M. F. Baracca. (*d*) Comandante Faa Di Bruno, 6 Unnamed. (*e*) Mocenigo, Barbarigo, Morosini, Provana, Veniero. (*f*) Brin. (*g*) Atropo, Zoea. (*h*) G. Finzi. (*m*) A. Sciesa, E. Toti, D. Millelire. (*n*) Velella. (*p*) Adua, Alagi, Ambra, Aradam, Ascianghi, Axum, Beilul, Corallo, Dagahur, Dessie, Diaspro, Malachite, Onice, Scire, Tembien, Turchese, Uarsciek. (*q*) Nereide, Galatea, Ondina, Topazio, Zaffiro, Ametista, Smeraldo. (*r*) Jalea, Jantina, Medusa, Salpa, Serpente. (*s*) L. Settembrini. (*t*) Delfino, Narvalo, Trichceo. (*u*) M. Bragadino. (*v*) C. Menotti, F. Bandiera, L. Manara. (*w*) G. Bausan, M. Colonna, Am. des Geneys. (*x*) T. Spikri, G. da Procida.

## MISCELLANEOUS

| Name | No. | Date | Tons | Knots | Armament | Type |
|---|---|---|---|---|---|---|
| Eritrea .. .. | 1 | 1937 | 2172 | 20 | 4 4·7-in. | Sloop |
| Unnamed .. .. | 1 | Bldg. | 1568 | 28 | 2 3·5-in. | ,, |
| G. Miraglia .. | 1 | 1923 | 4880 | 21 | 4 4-in. A.A. ; 20 Aircraft | Seaplane Carrier |

# JAPAN

## BATTLESHIPS (*Some probably lost*).

| Name | No. | Date | Tons | Knots | Men | Armament | Aircraft |
|---|---|---|---|---|---|---|---|
| Aki .. .. | 5*a* | Bldg. | 40,000+ | 30 | — | 9 16-in. | — |
| Nagato .. | 2*b* | 1920 | 32,720 | 23 | 1332 | 8 16-in. ; 20 5·5-in. ; 8 5-in. A.A. ; 4 T.T. | 3 |
| Ise .. .. | 2*c* | 1917 | 29,990 | 23 | 1360 | 12 14-in. ; 18 5·5-in. ; 8 5-in. A.A. ; 4 T.T. | 3 |
| Huso .. | 2*d* | 1915 | 29,330 | 22·5 | 1272 | 12 14-in. ; 16 6-in. ; 8 5-in. A.A. ; 2 T.T. | 3 |
| Kongo .. | 4*e* | 1913 | 29,330 | 26 | 980 | 8 14-in. ; 16 6-in. ; 8 5-in. A.A. ; 4 T.T. | 3 |
| Titibu .. | 4*f* | Bldg. | 12,000? | 30 | — | 6 12-in. ; 12 5-in. A.A. | — |

(*a*) Satuma, Kii, Owari, Tosa. (*b*) Mutu. (*c*) Hyuga. (*d*) Yamasiro. (*e*) Haruna, Hiei, Kirisima. (*f*) Takamatu, 2 Unnamed.

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## AIRCRAFT CARRIERS

| Name | No. | Date | Tons | Knots | Armament | Aircraft |
|---|---|---|---|---|---|---|
| Syokaku .. .. | 2*a* | 1941 | 20,000 | 30 | 12 5-in. A.A. | 60 |
| Ryuzyo (? Sunk) .. | 1 | 1933 | 7,100 | 25 | 12 5-in. A.A. | 24 |
| Hosyo .. .. | 1 | 1922 | 7,470 | 25 | 4 5·5-in. ; 2 3-in. A.A. | 26 |
| Titose .. .. | 3*ce* | 1938 | 9,000 | 20 | 6 5-in. A.A. | 20*e* |
| Kaga (Maru) .. | 4*de* | 1938 | 6,807gr. | 17 | 2 3-in. | 12*e* |
| Kamoi .. .. | 1*e* | 1923 | 17,000 | 15 | 2 5·5-in. ; 2 3-in. A.A. | 16*e* |
| Notoro .. .. | 1*e* | 1921 | 14,050 | 12 | 7 4·7-in. ; 2 3-in. A.A. | 16*e* |

(*a*) Zuikaku. (*c*) Tiyoda, Miduho, Nissin. (*d*) Kamikawa (Maru), Kinugasa (Maru), Kinagawa (Maru). (*e*) Seaplane Carriers.

## JAPANESE CRUISERS (*Many have been sunk*).

| Name. | No. | Date | Tons | Knots | Men | Armament | Tubes | Air-craft |
|---|---|---|---|---|---|---|---|---|
| Atago .. .. | 4*a* | 1932 | 9,850 | 33 | 692 | 10 8-in ; 4 4·7-in A.A. | 8 | 4 |
| Nati .. .. | 4*b* | 1928 | 10,000 | 33 | 692 | 10 8-in ; 6 4·7-in. A.A. | 8 | 4 |
| Kako .. .. | 2*c* | 1926 | 7,100 | 33 | 604 | 6 8-in. ; 4 4·7-in. A.A. | 12 | 2 |
| Tugaru ? .. .. | 5*d* | Bldg. | 9,000 | 34 | — | 12 6·1-in. | | |
| Tone .. .. | 2*e* | 1938 | 8,500 | 33 | 850 | 12 6·1-in. ; 8 5-in. A.A. | 12? | 4 |
| Mogami .. .. | 3*f* | 1935 | 8,500 | 33 | 850 | 15 6·1-in ; 8 5-in. A.A. | 12 | 4 |
| Zintu .. .. | 3*g* | 1925 | 5,195 | 33 | 450 | 7 5·5-in ; 2 3-in. A.A. | 8 | 1 |
| Natori .. .. | 6*h* | 1922 | 5,170 | 33 | 438 | 7 5·5-in ; 2 3-in. A.A. | 8 | 1 |
| Kuma .. .. | 5*f* | 1920 | 5,100 | 33 | 439 | 7 5·5-in ; 2 3-in. A.A. ; 80 Mines | 8 | 1 |
| Yubari .. .. | 1 | 1924 | 2,890 | 33 | 328 | 6 5·5-in ; 1 3-in. A.A. ; 34 Mines | 4 | 0 |
| Tenryu .. .. | 2*k* | 1919 | 3,230 | 31 | 332 | 4 5·5-in. ; 1 3-in. A.A. | 6 | 0 |

(*a*) Takao, Tyokai, Maya. (*b*) Asigara, Haguro, Myoko. (*c*) Hurutaka, Kinugasa, Aoba (2 sunk). (*d*) Names uncertain. (*e*) Tikuma. (*f*) Kumano, Suzuya. (*g*) Naka, Sendai. (*h*) Abukuma, Isuzu, Nagara, Kinu, Yura. (*j*) Kiso, Kitakami, Oi, Tama. (*k*) Tatuta.

## JAPANESE DESTROYERS AND TORPEDO BOATS (marked T). (*Many sunk*).

| Name | No. | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|
| Kagero .. .. | ?24*a* | 1939 | 2000 | 36 | — | 6 5-in. | 8 |
| Asasio .. .. | 10*b* | 1937 | 1500 | 34 | 190 | 6 5-in. | 8 |
| Sigure .. .. | 10*c* | 1936 | 1368 | 34 | 180 | 5 5-in. | 8 |
| Hatuharu .. .. | 6*d* | 1933 | 1368 | 34 | 180 | 5 5-in. | 8 |
| Hubuki .. .. | 23*e* | 1928 | 1700 | 34 | 197 | 6 5-in. | 9 |
| Mutuki .. .. | 12*f* | 1926 | 1315 | 34 | 150 | 4 4·7-in. | 6 |
| Kamikaze .. .. | 9*g* | 1922 | 1270 | 34 | 148 | 4 4·7-in. | 6 |
| Akikaze .. .. | 13*h* | 1921 | 1215 | 34 | 148 | 4 4·7-in. | 6 |
| Wakatake .. .. | 6*j* | 1922 | 820 | 31·5 | 110 | 3 4·7-in. | 4 |
| Kuri .. .. | 3*k* | 1920 | 770 | 31·5 | 110 | 3 4·7-in. | 4 |
| Otori (T) .. .. | 8*m* | 1936 | 595 | 28 | — | 3 4·7-in. | 3 |
| Tidori (T) .. .. | 4*n* | 1933 | 527 | 26 | — | 3 4·7-in. | 2 |

(*a*) Amatukaze, Arasi, Hatukaze, Hayasio, Isokaze, Kurosio, Kurukaze, Natusio, Oyasio, Siranui, Tanikaze, Tokitukaze, Urakaze, Yukikaze, Nowake. (*b*) Arare, Arasio, Asagumo, Kasumi, Minegumo, Mitisio, Natugumo, Osio, Yamagumo. (*c*) Harusame, Kawakaze, Murasame, Samidare, Siraturu, Suzukaze, Umikaze, Yamakaze, Yudati. (*d*) Ariake, Hatusimo, Nenohi, Wakaba, Yugure. (*e*) Akatuki, Akebono, Amagari, Asagari, Ayanami, Hatuyuri, Hibiki, Ikaduti, Inaduma, Isonami, Murakumo, Oboro, Sagari, Sazanami, Sikinami, Sinonome, Sirakumo, Sirayuki, Uranami, Usio, Usugumo, Yugiri. (*f*) Humituki, Kikutuki, Kisaragi, Mikaduki, Minatuki, Motiduki, Nagatuki, Satuki, Uduki, Yayoi, Yuduki. (*g*) Asakaze, Asanagi, Harukaze, Hatakaze, Hayate, Matukaze, Oite, Yunagi. (*h*) Hakaze, Hokaze, Minekaze, Namikaze, Nokaze, Numakaze, Okikaze, Sawakaze, Siokaze, Tatikaze, Yakaze, Yukaze. (*j*) Asagao, Huyo, Karukaya, Kuretake, Sanaye. (*k*) Hasu, Tuga (*m*) Hato, Hayabusa, Hiyodori, Kari, Kasasagi, Kizi, Sagi. (*n*) Hatukari, Manaduru, Tomoduru.

## JAPANESE SUBMARINES (*Many have been sunk*).

O = Ocean-going. S = Sea-going. C = Coastal. M = Minelaying.

| No. | Type | No. | Date | Tons | Knots | Armament | Tubes |
|---|---|---|---|---|---|---|---|
| I16–20 .. .. | O | 5 | 1940 | 2180/— | 20/— | 1 5·5-in. | 8 |
| I7–15 .. .. | O | 9 | 1936 | 1950/2600 | 17/9 | 2 5·5-in. | 6 |
| I5 .. .. | O | 1 | 1932 | 1955/2500 | 17/9 | 1 5-in. | 6 |
| I1–4 .. .. | O | 4 | 1926 | 1955/2480 | 17/9 | 2 5·5-in. | 6 |
| I21–33 .. .. | S | 13 | 1941 | 1500/— | 20/9 | 1 4·7-in. | 6 |
| I68–75 .. .. | S | 8 | 1935 | 1400/— | 20/9 | 1 4-in. or 4·7-in. | 6 |
| I65–66 .. .. | S | 2 | 1932 | 1638/2100 | 19/9 | 1 4-in. | 6 |
| I53–64 .. .. | S | 12 | 1926 | 1635/2100 | 19/9 | 1 4·7-in. | 8 |
| I52 .. .. | S | 1 | 1925 | 1390/2000 | 19/9 | 1 4·7-in. | 8 |
| RO33–34 .. | C | 2 | 1935 | 700/— | 16/9 | 1 3-in. A.A. | 4 |
| RO60–68 .. | C | 9 | 1923 | 908/1300 | 16/10 | 1 3-in. | 6 |
| RO30–32 .. | C | 3 | 1923 | 655/1000 | 13/10 | 1 4·7-in. | 4 |
| RO57–59 (2 training) | C | 3 | 1920 | 889/1082 | 17/9 | 1 3-in. A.A. | 4 |
| I121–124 .. | M | 4 | 1927 | 1142/1470 | 14/9·5 | 1 5·5-in.; 42 Mines | 4 |

3 Seagoing Training Ships, 35 Minelayers, 3 Old Coast Defence Ships, 14 Submarine Chasers, 18 Minesweepers, 12 River Gunboats.



## NETHERLANDS (HOLLAND)

| NAME | No. | Date | Tons | Knots | Men | Armament | Type |
|---|---|---|---|---|---|---|---|
| HEEMSKERCK .. | 1 | 1940 | 3,350 | 33 | 309 | 8 4-in. A.A. | Cruiser |
| TROMP .. .. | 1 | 1938 | 3,350 | 33 | 309 | 6 6·9-in.; 6 T.T. | ,, |
| SUMATRA .. .. | 1 | 1925 | 6,670 | 31 | 700 | 10 6·9-in.; 12 Mines; 2 Aircraft | ,, |
| TJERK HIDDES .. | 2*a* | 1940 | 1,690 | 36 | 183 | 6 4·7-in.; 1-4 in., A.A.; 5 T.T. | Destroyer |
| O21, 023, 024 .. | 4*b* | 1940 | 888/1,380 | 19·5/9 | 38 | 1 3·5-in.; 8 T.T. | Submarine |
| O19 .. .. | 1 | 1939 | 967/1,468 | 20/9 | 38 | 1 3·5-in.; 8 T.T.; 40 Mines | ,, |
| O14, 015 .. .. | 2 | 1931 | 546/704 | 15/8 | 31 | 5 T.T. | ,, |
| K14, 15 .. .. | 2 | 1933 | 771/1,008 | 17/9 | 38 | 1 3·5-in.; 8 T.T. | ,, |
| O9-10 .. .. | 2 | 1926 | 483/647 | 12/8 | 29 | 1 3·5-in.; 5 T.T. | ,, |
| K11, 12 .. .. | 2 | 1925 | 611/815 | 15/8 | 31 | 1 3·5-in; 6 T.T. | ,, |
| VAN KINSBERGEN | 1 | 1939 | 1,760 | 25·5 | 190 | 4 4·7-in. | Training |
| FLORES .. .. | 2*c* | 1925 | 1,457 | 15 | 132 | 3 5·9 in.; 1-3 in. A.A. | Sloop |

(*a*) J. VAN GALEN. (*b*) DOLFIJN, probably similar. (*c*) SOEMBA. Also a number of Minelayers, Minesweepers, etc. Most of the above are with the British Navy.



## POLAND.

| NAME | No. | Date | Tons | Knots | Men | Armament | Type |
|---|---|---|---|---|---|---|---|
| BLYSKAWICA .. | 1 | 1937 | 2,144 | 39 | 180 | 7 4·7-in.; 6 T.T. | Destroyer. |
| PIORUN .. .. | 1 | 1941 | 1,690 | 36 | 183 | 6 4·7 in.; 1-4 in. A.A.; 5 T.T. | ,, |
| GARLAND .. | 1 | 1936 | 1,335 | 36 | 145 | 3 4·7-in.; 4 T.T. | ,, |
| BLAZAK .. .. | 2*a* | 1942 | No particulars available. | | | | |
| BURZA .. .. | 1 | 1930 | 1,540 | 33 | — | 4 5·1-in.; 6 T.T. | ,, |
| SOKOL .. .. | 2*b* | 1941 | No particulars available. | | | | Submarine. |
| WILK .. .. | 3*c* | — | 980/1,250 | 14/9 | — | 1 3·9-in.; 6 T.T. | ,, |

(*a*) KRAKOWIAK, (*b*) DJIK, (*c*) RYS, ZBIK (and SEP, a larger type)—all three interned in Sweden.

## RUSSIA (Union of Socialist Soviet Republics)

| Name. | No. | Date | Tons | Knots | Men | Armament | Type |
|---|---|---|---|---|---|---|---|
| Tretii International | 1 | Bldg. | 35,000 | 30 | — | 9 16-in.; 12 6-in.; 4 Aircraft | Battleship |
| Marat .. .. | 3*a* | 1914 | 23,606 | 23 | 1125 | 12 12-in.; 16 4·7-in.; 10 3-in.; 4 T.T. | ,, |
| Voroshilov .. | 2*b* | Bldg. | 12,000 | 30 | — | 12 4-in. A.A.; 40 Planes | Airc'ft Carrier |
| Stalin .. .. | 1 | 1939 | 9,000 | 30 | — | ? 22 Planes | ,, ,, |
| Kirov .. .. | 6*c* | 1937 | 8,800 | 34 | 624 | 9 7·1-in.; 6 4-in. A.A.; 6 T.T. | Cruiser |
| Krasni Kavkaz .. | 1 | 1934 | 8,030 | 30 | 624 | 4 7.1-in.; 8 4-in. A.A.; 12 T.T. | ,, |
| Krasni Krim .. | 2*c* | 1924 | 6,600 | 29·5 | 624 | 15 5·1-in.; 8 4-in. A.A.; 12 T.T. | ,, |
| Stremitelni .. | 38+ | 1939 | 1,800 | 37 | — | 4 5·1-in.; 2 3-in. A.A.; 6 T.T. | Destroyer |
| Tashkent .. .. | 1 | 1939 | 2,800 | 39 | — | 6 5·1-in.; 9 T.T. | ,, |
| Leningrad .. .. | 21 | 1936 | 2,900 | 36 | — | 5 5·1-in.; 2 3-in. A.A.; 6 T.T. | ,, |
| Shaumyan .. .. | 14 | 1918 | 1,300 av. | 30 | 161 | 4 3·9-in.; 9 or 12 T.T. | ,, |
| Kalinin .. .. | 1 | 1915 | 1,354 | 28 | 167 | 5 3·9-in.; 6 T.T. | ,, |

(*a*) Parizkaya-Kommuna, Oktiobrskaya-Revolutia. (*b*) Krasnoye Znamya. (*c*) Maksim Gorki, Kubyshev, Ordjonikidze, Molotov, Voroshilov. (*d*) Chervonaya Ukraina. In addition about 30 Torpedo Boats and 200 Submarines varying between 1,200 tons and 200 tons surface displacement.

## UNITED STATES

### CAPITAL SHIPS, AIRCRAFT CARRIERS (A) AND AIRCRAFT TENDERS (T).

| Name | No. | Date | Tons | Horse-Power | Knots | Men | Armament | Aircraft |
|---|---|---|---|---|---|---|---|---|
| Montana .. .. | 5*a* | ? | 58,000 | — | — | — | — | — |
| Iowa .. .. | 6*b* | 1943 | 45,000 | — | 30+ | — | 9 16-in.; 20 5-in. D.P. | 4 |
| Washington .. | 6*c* | 1941 | 35,000 | 115,000 | 28 | 1,500 | 9 16-in.; 20 5-in. D.P. | 3 |
| Maryland .. .. | 3*d* | 1921 | 31,500 | 36,000 | 21 | 1,407 | 8 16-in.; 12 5-in.; 8 5-in. A.A. | 3 |
| California .. | 2*e* | 1921 | 32,600 | 30,000 | 21 | 1,480 | 12 14-in.; 12 5-in.; 8 5-in. A.A. | 3 |
| New Mexico .. | 3*f* | 1917 | 33,400 | 40,000 | 21·5 | 1,323 | 12 14-in.; 12 5-in.; 8 5-in. A.A. | 3 |
| Pennsylvania .. | 1 | 1916 | 33,100 | 32,000 | 21 | 1,358 | 12 14-in.; 12 5-in.; 8 5-in. A.A. | 3 |
| Nevada .. .. | 1 | 1916 | 29,000 | 25,000 | 20·5 | 1,301 | 10 14-in.; 12 5-in.; 8 5-in. A.A. | 3 |
| Texas .. .. | 2*g* | 1914 | 27,000 | 28,100 | 21 | 1,314 | 10 14-in.; 16 5-in.; 8 3-in. A.A. | 3 |
| Arkansas .. .. | 1 | 1912 | 26,100 | 28,000 | 20·5 | 1,330 | 12 12-in.; 16 5-in.; 8 3-in. A.A. | 3 |
| Essex (A) .. .. | 11*h* | 1944† | 25,000 | — | 35 | 2,000+ | 8 5-in. D.P. | 80+ |
| Enterprise (A) .. | 1 | 1938 | 19,900 | 120,000 | 34 | 2,072 | 8 5-in. D.P. | 81 |
| Ranger (A) .. | 1 | 1934 | 14,500 | 53,500 | 29·25 | 1,788 | 8 5-in. A.A. | 72 |
| Saratoga (A) .. | 1 | 1927 | 33,000 | 180,000 | 33·25 | 2,122 | 12 5-in. A.A. | 81 |
| Long Island (A) | 12*j* | 1941 | 7,886*gr* | — | 16 | — | — | 30 |
| Curtiss (T) .. | 6*m* | 1941 | 8,625 | — | — | — | 4 5-in. D.P. | 24 |
| Barnegat (T) .. | 16*n* | 1942 | 1,695 | — | 20 | — | 2 5-in. | — |
| Wright (T) .. | 1 | 1921 | 8,675 | 6,000 | 15 | 311 | 2 5-in.; 2 3-in. A.A. | 12 |
| Tangier (T) .. | 3*p* | 1940 | 7,773 | 8,500 | 16·5 | — | 4 5-in. | — |

(*a*) Louisiana, Maine, New Hampshire, Ohio. (*b*) New Jersey, Missouri, Wisconsin, Illinois, Kentucky. (*c*) Alabama, Indiana, Massachusetts, North Carolina, South Dakota. (*d*) Colorado, West Virginia. (*e*) Tennessee. (*f*) Idaho, Mississippi. (*g*) New York. (7 more Battleships projected.) (*h*) Bunker Hill, Lexington, Hancock, Wasp, Randolph, Ticonderoga, Franklin, Yorktown, Intrepid, Kearsarge. (*j*) Altamaha, Barnes, Block Island, Bogue, Card, Charger, Copahee, Croatan, Glacier, Hamlin, Nassau. (*m*) Albemarle, Currituck, Norton Sound, Puget Sound, Pine Island. (*n*) Biscayne, Cabco, Mackinac, Humboldt, Matagorda, Chincoteague, Absecon, Coos Bay, Monjack, Half Moon, Oyster Bay, San Pablo, Rockaway, Unimak, Yakutat. (*p*) Pocomoke, Chandeleur.

## UNITED STATES CRUISERS

| Name. | No. | Date | Tons | Horse-Power | Knots | Men | Armament | Aircraft |
|---|---|---|---|---|---|---|---|---|
| Alaska .. .. | 6*a* | 1944 | 27,000 | — | 35 | — | †6 14-in.; 16 5-in. | 4 |
| Baltimore .. | 8*b* | 1943 | 13,000 | — | — | — | 9 8-in. | — |
| Wichita .. .. | 1 | 1939 | 10,000 | 100,000 | 32·5 | 700 | 9 8-in.; 8 5-in. A.A. | 4 |
| Minneapolis .. | 4*c* | 1934 | 9,950 | 107,000 | 32·7 | 700 | 9 8-in.; 8 5-in. A.A. | 4 |
| Portland.. .. | 2*d* | 1933 | 9,600 | 107,000 | 32·7 | 700 | 9 8-in.; 8 5-in. A.A. | 4 |
| Chester .. .. | 4*a* | 1930 | 9,050 | 107,000 | 32·7 | 700 | 9 8-in.; 4 5-in. A.A. | 4 |
| Pensacola .. | 2*f* | 1930 | 9,100 | 107,000 | 32·7 | 700 | 10 8-in.; 4 5-in. A.A. | 4 |
| Cleveland .. | 32*g* | 1942 | 10,000 | — | 33+ | 888 | 12 6-in. (†8 6-in. for Carriers). | 4 |
| San Diego .. | 6*h* | 1942 | 6,000 | 75,000 | 35+ | — | 12 5-in.; 6 T.T. | 2 |
| Brooklyn .. | 9*j* | 1938 | 9,700 | 100,000 | 32·5 | 868 | 15 6-in.; 8 5-in. A.A. | 4 |
| Omaha .. .. | 5*k* | 1923 | 7,050 | 90,000 | 35 | 458 | 12 6-in.; 4 3-in. A.A.; 6 T.T. | 4 |
| Raleigh .. .. | 5*m* | 1923 | 7,050 | 90,000 | 35 | 458 | 10 6-in.; 4 3-in. A.A.; 6 T.T. | 4 |

(*a*) Guam, Hawaii, Philippines, Puerto Rico, Samoa. Last four may be altered to aircraft carriers. (*b*) Albany, Boston, Columbus, Des Moines, Canberra, Rochester, Quincy, (*c*) New Orleans, San Francisco, Tuscaloosa, (*d*) Indianapolis. (*e*) Augusta, Louisville. (*f*) Salt Lake City. (*g*) Amsterdam, Biloxi, Birmingham, Buffalo, Cheyenne, Columbia, Dayton, Denver, Duluth, Fargo, Vincennes, Galveston, Huntingdon, Little Rock, Manchester, Miami, Mobile, Montpelier, Newark, New Haven, Oklahoma City, Pasadena, Providence, Santa Fe, Springfield, Tallahassee, Topeka, Houston, Astoria, Wilmington, Youngstown. (*h*) Oakland, Reno, San Juan, Spokane, Tucson. (*j*) Boise, Helena, Honolulu, Nashville, Philadelphia, Phoenix, St. Louis, Savannah. (*k*) Concord, Memphis, Milwaukee, Trenton. (*m*) Cincinnati, Detroit, Marblehead, Richmond. Twenty-six more of Cleveland type projected. Some of Cleveland type being altered to aircraft carriers. Four of these are Independence, Princeton, Belleau Wood, Cowpens, San Jacinto and Langley, previous names being Amsterdam, Tallahassee, New Haven, Huntington, Dayton and Wilmington.



## UNITED STATES DESTROYERS

Owing to limitations of space it has not been found practicable to include the names of all the U.S. Destroyers, and it is hoped that the number given will prove sufficient, this number being painted on the bows and either quarter of each ship. The name of the class ship is, however, given to enable easy reference.

| Name. | No. | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|
| Watson .. .. | (482) | 2*a* | 1942-3 | 2,100 | — | — | 8 5-in. | — |
| Fletcher .. | (445) | 122*b* | 1942-3 | 2,100 | — | — | 8 5-in. | — |
| Bristol .. .. | (453) | 75*c* | 1942-3 | 1,700 | — | — | 4 5-in. | 10 |
| Benson .. .. | (421) | 21*d* | 1940 | 1,630 | 37 | 200 | 5 5-in. D.P. | 10 |
| Hughes .. .. | (410) | 8*e* | 1939 | 1,570 | 37 | 200 | 5 5-in. D.P. | 8 |
| Ellet .. .. | (398) | 11*f* | 1938 | 1,500 | 36·5 | 200 | 4 5-in. D.P. | 16 |
| Fanning .. | (385) | 2*g* | 1937 | 1,500 | 36·5 | 172 | 5 5-in. D.P. | 12 |
| Craven .. .. | (382) | 10*h* | 1937 | 1,500 | 36·5 | 200 | 4 5-in. D.P. | 16 |
| Somers .. .. | (381) | 5*j* | 1937 | 1,850 | 37·5 | 230 | 8 5-in. D.P. | 12 |
| Mahan .. .. | (364) | 13*k* | 1936 | 1,500 | 36·5 | 172 | 5 5-in. D.P. | 12 |
| Selfridge .. | (357) | 7*m* | 1936 | 1,805 | 37 | 230 | 8 5-in. D.P. | 8 |
| Farragut .. | (348) | 8*n* | 1934 | 1,375 | 36·5 | 162 | 5 5-in. D.P. | 8 |
| Schey .. .. | (103) | 64*p* | 1918 | 1,090*p* | 35 | 122 | 4 4-in.; 1 3-in. A.A. | 12 |
| Allen .. .. | (66) | 1 | 1917 | 920 | 29·5 | 122 | 4 4-in.; 2 3-in. A.A. | 12 |

The following vessels are divided between the first three types given above (482, 445, 453), but exact allocation to type has not been ascertained: 483–522, 526–541, 544–547, 550–648. (*a*) 452. (*b*) 446–451, 465–481. (*c*) 454–464. (*d*) 422–444. (*e*) 411–420. (*f*) 399–408. (*g*) 384. (*h*) 380, 386–393. (*j*) 383, 394–396. (*k*) 365–371, 373, 374, 376–379. (*m*) 358–363. (*n*) 349–355. (*p*) Between 106 and 160, and, of 1,190 tons between 187 and 341 and below are flush deckers, fifty of which are in the Royal Navy. Eighty more projected, type unknown. Also a large number of Motor Torpedo Boats, mostly similar to corresponding British types—some have been transferred to the Royal Navy. Many of these are being rearmed with 6 3-in. A.A. and only 6 tubes.

## UNITED STATES SUBMARINES

U.S. Submarines have their number painted on bows and conning towers, and, in this case again, these only have been given owing to limitations of space.

| Name. | No. | Type | Date | Tons | Knots | Men | Armament | Tubes |
|---|---|---|---|---|---|---|---|---|
| Gato .. .. | (212) | 73*a* | O | 1941+ | 1,525/- | — | — | —— | 10† |
| Mackerel .. | (204) | 2*b* | C | 1941 | 800/- | 14/11 | 40 | 1 3-in. | 6 |
| Tambor .. .. | (198) | 12*c* | O | 1940 | 1,475/- | 20/9 | 55 | 1 3-in. | 8 |
| Sargo .. .. | (188) | 9*d* | O | 1939 | 1,475/- | 20/9 | 55 | 1 3-in. | 8 |
| Salmon .. .. | (182) | 6*e* | O | 1938 | 1,450/2,198 | 20/9 | 55 | 1 3-in. | 8 |
| Pickerel .. | (177) | 5*f* | O | 1936 | 1,330/1,998 | 20/9 | 50 | 1 3-in. | 6 |
| Porpoise .. | (172) | 4*g* | O | 1935 | 1,315/1,968 | 20/9 | 50 | 1 3-in. | 6 |
| Cachalot .. | (170) | 2*h* | O | 1933 | 1,110/1,650 | 17/8 | 45 | 1 3-in. | 6 |
| Dolphin .. | (169) | 1 | O | 1932 | 1,540/2,215 | 17/8 | 63 | 1 4-in. | 6 |
| Narwhal .. | (167) | 2*f* | O | 1930 | 2,730/3,960 | 17/8·5 | 88 | 2 6-in. | 6 |
| Barracuda .. | (163) | 3*k* | O | 1924 | 2,000/2,506 | 18/11 | 80 | 1 5-in. *k* | 6 |
| S48 .. .. | (159) | 1 | S | 1922 | 1,000/1,458 | 14·5/11 | 38 | 1 4-in. | 5 |
| S42–47 .. | (153-158) | 6 | S | 1924 | 850/1,126 | 14·5/11 | 38 | 1 4-in. | 4 |
| S1 .. .. | (105) | 24*m* | S | 1920 | 800/1,062 | 14·5/11 | 38 | 1 4-in. | 4 |
| S11 .. .. | (116) | 7*n* | S | 1923 | 790/1,092 | 15/10·5 | 38 | 1 4-in. | 5 |
| R1 .. .. | (78) | 19*p* | S | 1918 | 530/680 | 13·5/10·5 | 31 | 1 3-in. | 4 |
| O2 .. .. | (63) | 7*q* | S | 1918 | 480/624 | 14·5/11 | 30 | 1 3-in. | 4 |

(*a*) 213–284. (*b*) 205. (*c*) 199–203, 206–211. (*d*) 189–194, 196, 197. (*e*) 183–187. (*f*) 178–181. (*g*) 173, 175. (*h*) 171. (*j*) 168. (*k*) 164 (1 3-in. gun), 165. (*m*) 123 (S18), 125–146 (S20–S41 inclusive). (*n*) 117–122 (S12–S17 inclusive). (*p*) 79–84 (R2–R7), 86–97 (R9–R20 inclusive). (*q*) 64 (O3), 65 (O4), 67–69 (O6–O8), 71 (O10).

123 more submarines have also been ordered.

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## UNITED STATES MISCELLANEOUS VESSELS

| Name. | No. | Date | Tons | Knots | Men | Armament | Type |
|---|---|---|---|---|---|---|---|
| Terror .. | 3*a* | Bldg. | 6,000 | 25 | — | 8 5-in. | Minelayer |
| Aroostook .. | 1 | 1917 | 4,200 | 20 | 350 | 1 5-in ; 2 3-in. A.A. ; 300 Mines | ,, |
| DM 15-22 .. | 8 | 1918 | 1,160 | 35 | 122 | 4 4-in ; 1 3-in. A.A. ; 80 Mines | ,, |
| DMS .. | 16 | 1919 | 1,190 | 35 | 122 | 4 4-in ; 1 3-in. A.A. | Minesweepers |
| Raven .. | 43 | 1940 | 700 | 18 | — | —— | ,, |
| Owl .. .. | 21 | 1918 | 840 | 14 | 72 | 2 3-in. A.A. | ,, |
| Erie .. | 2*b* | 1936 | 2,000 | 20 | 201 | 4 6-in ; 1 Seaplane | Patrol |
| Tulsa .. | 1 | 1923 | 1,270 | 12 | 162 | 3 4-in. | ,, |
| Sacramento | 1 | 1914 | 1,140 | 12·5 | 162 | 3 4-in. | ,, |
| PC 449-577 .. | ?*d* | 1942 | 600 | 22 | — | — | Submarine Chasers |
| Bullfinch | 15 | 1941 | 229+ | — | — | — | Minesweepers |
| Conqueror | 300 | 1942 | — | — | — | — | Coastal Minesweeper |
| Boxwood | 32 | 1942 | 700 | — | — | — | Boom Defence Vessels |

(*a*) Catskill, Ozark. (*b*) Charleston. (*d*) Over 600 being built.
Many others of all types constantly being added.

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## COAST GUARD

The Coast Guard, operating under the U.S. Treasury independently of the Navy in peace time.

| Name | No. | Date | Tons | Knots | Armament |
|---|---|---|---|---|---|
| Campbell .. .. .. | 6*a* | 1937 | 2,216 | 20 | 2 5-in. |
| Algonquin .. .. .. | 6*b* | 1935 | 1,005 | 13·5 | 2 3-in. |
| Northland .. .. .. | 1 | 1928 | 2,065 | 11 | 2 4-in. |
| Tampa .. .. .. .. | 4*c* | 1921 | 1,780 | 15 | 2 5-in. ; 1 3-in. A.A. |

(*a*) Ingham, Duane, Taney, Spencer, Bibb. (*b*) Comanche, Escanaba, Mohawk, Onondaga, Tanoma. (*c*) Haida, Mojave, Modoc. Also thirty-two 125-feet and seventeen 165-feet Patrol Boats each with one 3-inch gun.

## THE DEVELOPMENT OF THE CAPITAL SHIP

ALTHOUGH the British Navy can be said to have been created originally by King Alfred, it subsequently became practically non-existent until Henry VII. revived it and from the latter's reign it has continued as a fighting force.

The end of the eighteenth and the beginning of the nineteenth centuries saw the culmination of the old navy as a fighting force in victories which adequately crowned the later days of the sailing warship era—an era which had existed since the earliest days but which was shortly to be completely revolutionised.

Steam was introduced into the wooden walls during the succeeding half-century, and in 1860 was built the first iron warship from which can be traced directly the delineation of the modern battleship and cruiser.

This ship, the *Warrior*, and her sister *Black Prince*, were the first ironclads constructed and really converted the wooden wall into an ironclad for the design was to a great extent on the lines of previous vessels.

Each displaced 9,210 tons, could steam at 14 knots, and carried forty-eight 64-pounders, muzzle-loading guns firing round shot weighing 64 pounds. Half the armament was mounted on each beam and thus the arrangement adopted for some centuries was followed. Most of these guns were behind a 4½-inch iron belt which protected 212 feet of the 380 feet length of the ships. Cost averaged less than £360,000 per ship, and seven hundred officers and men were carried.

Eight successors were built with guns arranged similarly on the broadside, but the armour in some of these extended for the full length of the ship.

These constituted the whole broadside iron battleships for the British Navy, though they were joined by other vessels which were converted while building, the hulls being of wood but with an iron belt added.

The penetrative power of the shell was now of such value that thicker armour was required, consequently the weight available was insufficient to protect the whole waterline and the guns. The compromise of a localised armour belt was therefore tried, this being around guns which were arranged centrally, thus bringing into the navy the central battery ship which persisted—as regards the mounting of the secondary armament—until the *Royal Sovereigns* of 1916.

First of the central battery ships was the *Bellerophon* of 1866, displacing 7,500 tons and equipped with ten





12-ton and five 6½-ton guns. Speed was 14 knots and the armour on the central battery was 6 inches thick. This ship was the first to have a double hull and a balanced rudder. Fourteen successors were built, the last being completed in 1880. This was the *Alexandra*, which had two 25-ton and ten 18-ton guns and a belt 12 inches thick.

In 1862, during the American Civil War, the *Monitor*, a specially built vessel with less than a foot of freeboard and carrying two 11-inch smooth-bore guns in a single revolving turret, fought the *Virginia*, a converted wooden ship originally named *Merrimac* and having a heavy broadside armament. Both vessels carried armour of sufficient thickness to resist their opponent's shot. The result of the action was inconclusive, but it had a profound effect on warship design, the British public clamouring for ships with guns mounted on the turret principle. The *Monarch* was built, but Captain Coles, inventor of the turret system, emphasised that she did not express his intentions and the *Captain* was constructed to his designs. Her tonnage was 6,900, and she was equipped with four 12-inch muzzle-loading rifled guns. In order to allow as great an arc of training as possible for each of the two turrets, the masts were of tripod design, dispensing with ropes, though the ship, like all others of her time, could be propelled by sails in order to conserve coal.

On completion she was found to have a freeboard of only six feet or two less than designed. Her builders, Lairds of Birkenhead, were dissatisfied with her and asked the Admiralty to test her severely.

This they did and little fault could be found with her but, in September, 1870, while passing through the Bay of Biscay in heavy weather, she heeled to such an extent that she was eventually swamped with the loss of nearly all her complement.

This, however, did not deter designers, for they realised that the turret system was the ideal method of carrying guns on shipboard, allowing, as it did, the whole armament to be used on either beam and not having most probably only half the guns in action as had been the case with both the broadside and central battery layouts.

Therefore the turret ship was developed and we find it continuing as the basis of battleship design until the present time.

Many were built, but probably the most interesting was the *Inflexible* completed in 1881 and equipped with

four 16-inch 80-ton guns in two turrets, one on either beam, but so arranged that all guns could, in theory, fire ahead and, on a limited arc, all four on either broadside. In practice it was found that the gun nearer the centre-line in each turret could not be fired directly ahead or astern without causing considerable damage from blast while, in broadside firing, the gun turret on the farther side of the ship from the target caused strains on the hull when fired across the beam.

Thickness of armour reached its culminating point in this ship, there being two strakes each of 12-inch thick iron separated by a teak backing 17-25 inches thick around the central battery which enclosed the turrets. The ship was "soft ended," the term given to vessels carrying no armour at bow or stern.

The next modification in design was the incorporation of a central battery enclosing the secondary guns between the bow and stern turrets.

Most of the pre-dreadnought battleships of the last war were of this design, having four 12-inch guns in two barbettes at bow and stern with, amidships, a central battery equipped with six 6-inch guns on either beam.

These were the immediate predecessors of the *King Edward VII.* class of eight ships which had four 9.2-inch guns, one at each corner of the battery, in lieu of two of the 6-inch weapons.

The mixing of the two calibres of big gun was unsatisfactory for, the shell splashes being of similar size, it was very difficult to distinguish which guns were making the better firing and only two further vessels were built with mixed armament—*Lord Nelson* and *Agamemnon*—each with four 12-inch and ten 9.2-inch guns, the 6-inch weapons being entirely omitted.

The difficulty of spotting when mixed armaments were carried opened the way for the all-big-gun ship or battleship carrying only one calibre of gun but with a total of more than the four that had been the basis of battleship design previously.

The first vessel of the new type was the *Dreadnought*, built in great secrecy and completed in 1906, in the record time of slightly over twelve months. She was equipped with ten 12-inch guns in twin barbettes, six able to fire ahead or astern and eight on either broadside. Another revolution was the installation of turbines, these not having been the means of propulsion previously in any larger warship than a small cruiser.





No other vessels of the type were commenced until her performance at sea had been observed and analysed when three others were laid down. Altogether nine more, all carrying the same armament, were constructed to be followed by a further twelve each armed with ten 13.5-inch guns, the last of the type being the *Iron Dukes* completed in 1914 at the time of the outbreak of war between this country and Germany. Thus these were the backbone of our fleet during the first two years of war and were joined in 1915-7 by ten ships each equipped with eight 15-inch guns, a weapon upon which great reliance was placed and which remained the principal gun of the navy for more than another twenty years. These ships were the *Queen Elizabeths* and *Royal Sovereigns*, which are still important units of the fleet in this Second Great War.

Reverting back to 1906, we find that three heavy cruisers were laid down, the *Invincibles*, ships possibly even more revolutionary than the *Dreadnought*. In these Lord Fisher, then First Sea Lord, correctly visualised the battleship of the future, for they carried all big guns—eight 12-inch—and had only slightly thinner armour than contemporary battleships yet could travel at the then high speed of 25 knots. Three others of similar design followed them and these were in turn succeeded by the famous *Lion* class in which tonnage rose to 26,350, speed to 30 knots, and the armament consisted of eight 13.5-inch guns. This class bore the brunt of the enemy's fire in actions against the German battle-cruisers and fully justified their inception.

Late in 1914 the *Queen Elizabeth* was completed and was heralded as the ideal warship. On a displacement of 27,500 tons she was equipped with eight 15-inch guns in four turrets, two forward and two aft with the inner barbette raised above and able to fire over the outer pairs. Her armour on the belt was 13 inches of Krupp cemented steel and her engines were of sufficient power to give her a speed of 25 knots or four knots in excess of previous battleships. She was our first battleship to be driven entirely by oil fuel.

Four successors, *Barham, Malaya, Valiant and Warspite* followed her and earned undying fame in the Jutland action.

In 1916-7 the five *Royal Sovereign* class—the others were *Ramillies, Resolution, Revenge* and *Royal Oak*—also joined the fleet. Slightly smaller than their predecessors, they carried similar armament and armour, but

only had a speed of 22 knots. The *Ramillies* was the first battleship to be fitted with bulges.

At the same time the new battle-cruisers *Renown* and *Repulse* were completed, ships commenced after war began and built in less than two years. These were designed for 31.5 knots speed and had six 15-inch guns as the main armament. Their armour proved insufficient and they were sent back for additional protection to be worked in.

These were the last capital ships to be added during the Great War and all twelve formed the major part of our battle fleet at the recommencement of hostilities in 1939.

In the interim all have been modified to bring them into line with the latest theories and experiments, the *Royal Sovereigns* being the only class to practically retain their original appearance.

The *Queen Elizabeths* had been reconstructed in the '20s, having had bulges added, the fore-funnel trunked into the second to enable clearer visibility during action and additional protection worked in.

Later they were taken in hand for further alterations, the *Malaya* having accommodation for four aircraft installed. In 1937 the *Warspite* came out looking an altogether different ship with the same main armament but the secondary guns reduced by four to a total of eight. She is now better protected, carries four aircraft and has a much heavier anti-aircraft armament.

At the commencement of hostilities the *Valiant* and *Queen Elizabeth* were in hand for similar modifications.

The *Repulse* had already been modernised, but her sister *Renown* was practically rebuilt between 1936 and 1939, re-entering the navy as our most up-to-date capital ship.

In 1920 the *Hood* was completed, the world's largest warship. Her displacement was 42,100 tons, her speed 31 knots and she carried eight 15-inch and twelve 5.5-inch guns. Protection was exceptionally well distributed and she worthily upheld her distinction of being one of the finest warships afloat until her loss in May, 1941.

After the Washington Treaty had been the means of stopping a number of giants Great Britain had already laid down, two others to conform with Treaty standards were commenced the same year, 1922. These, *Nelson* and *Rodney*, carry nine 16-inch guns in three triple turrets—the first time the triple turret had been used in the British Navy. All are mounted on the forecastle and





give the ships an ungainly appearance. Protection is exceptionally strong though their speed of 23 knots is insufficient for modern requirements.

Following the completion of these ships a holiday in capital ship building endured until the *King George V* class were commenced in January, 1937. None of the class, the other ships of which are *Prince of Wales* (lost), *Duke of York*, *Anson* and *Howe*, were completed until after the Second Great War had been in progress for a year or more. All follow the battle-cruiser principle in that they have a high speed and are the natural development of the *Invincibles* of 1907. The first British warships to have quadruple turrets, they have one forward and one aft and a twin turret behind the forecastle one and able to fire over it.

Four ships of the *Lion* class have been laid down since, but little of their design has been divulged except that they will be of about 40,000 tons displacement, have 16-inch guns and be 781 feet long. The second unit of the class is named *Temeraire*, but the names of the remaining pair have not been released.

## THE DEVELOPMENT OF THE AIRCRAFT-CARRIER

The successful operation of aircraft on land during the first decade of the present century caused the naval authorities to examine the use of the craft from their own particular standpoint and the possibility of their employment not only as an adjunct to, but also as an integral part of, the modern warship.

In 1912 one of the pre-dreadnoughts had a runway fitted on her forecastle but it was only after considerable use of her aircraft by hoisting them outboard to fly off from the surface of the sea that the experiment of launching from this runway was attempted. Success attended the efforts of these pioneers, and one of the oldest cruisers was converted to carry a small number of seaplanes. This ship was sunk soon after the war began.

Subsequently the *Ark Royal*, originally building as a tanker, was purchased and fitted for the purpose of maintaining seaplanes. She still remains in the navy on experimental duty though she has now been renamed *Pegasus*.

Many cross-channel steamers—ideal because of their relatively high speed—were purchased and converted

but our first large carrier was the *Furious*, an ex-large light cruiser, which had her fore gun-turret removed and replaced by a flying-off platform. After a short term at sea she was again altered, the after gun being taken out and replaced by a flying-on deck.

A liner, also building, was taken in hand and converted into the *Argus* with a deck extending from bow to stern and without any projections to hinder the operation of aircraft, the smoke being expelled from ducts on either quarter below the flight deck level.

A Chilian battleship under construction in this country was next to be converted, completing in 1924 as the *Eagle*, with a superstructure and funnels on the starboard side amidships.

The previous year the *Hermes*, first aircraft-carrier to be so designed, was commissioned, her funnel and superstructure being also to starboard.

In 1925 the *Furious* was again altered, this time with a flying-on deck extending from the bridge to the stern, the smoke ducts being again below this level.

Within the next few years her semi-sisters *Courageous* and *Glorious* were converted similarly but with the huge funnel and superstructure on the starboard side.

In 1938 the new carrier *Ark Royal* entered the navy, a ship of 22,600 tons displacement, and with a flush deck from stem to stern and with her superstructure and funnel again to starboard amidships. She was succeeded by six similar vessels, the first three of which entered service in 1940-1 and have since been in action. Three others were due for completion in 1942.

Aircraft are utilised also in other vessels for convoy duties.

## THE DEVELOPMENT OF THE CRUISER

The common root of both the modern capital ship and the cruiser is the *Warrior* of 1860 and the two types developed side by side, the cruiser type perpetuating the frigate of the sailing ship era.

Armoured cruisers—or cruisers with an armoured belt—developed successively on similar lines to the battleship but on a smaller scale until the early years of the present century, when the type died out, the final ships being the *Minotaurs* of 14,600 tons and carrying four 9·2-inch and ten 7.5-inch guns and with a speed of 23 knots.

Thus the type had become too large and expensive to be built in any numbers—a failing which is common





to almost all types and which is the main criterion for radical departures in design.

Protected cruisers, or cruisers without an armoured belt but generally with an armoured deck above the engines, also developed and these in turn were eclipsed by the genuine light cruisers which were being built before the First Great War period.

In 1914 some light cruisers, the *Arethusas* and *Caroline*s, of a small but speedy type, were entering service, the speed being 29 knots and the armament including a mixed battery of 6-inch and 4-inch guns all of which were behind light shields as was the general practice with light armaments.

Successive types changed over to the all 6-inch gun armament of the "C" and "D" classes, which are the oldest in service at the present time.

The post-war period brought about a diminution in building and the Washington Treaty clauses set up the maximum as 10,000 tons with guns not larger than 8-inch calibre. These restrictions caused all the major navies to lay down ships of the type and the maximum figures became also the minimum, Great Britain building thirteen of the type, the five *Kents* being the first. Later two smaller but almost as powerful ships, *Exeter* and *York* were constructed, after which the country concentrated on the 6-inch gun type—again after the ruling of a disarmament conference.

First came the five *Leanders* followed by the smaller *Arethusas* and then the *Hobarts* which were really modified *Leanders*.

By this time, 1935, it was realised that our cruiser position was serious, there being only twenty-seven post-war design vessels if those building were also included. Political interests had caused us to agree to a maximum of fifty of the type as against the minimum of seventy recommended by the Admiralty and Japan proposed to lay down some particularly fast and heavily armed 6-inch gun cruisers. In reply the United States commenced a number of vessels and thus Great Britain was obliged to seriously set about redeeming the position.

In such circumstances were the *Newcastles* built, our first cruisers to carry guns in triple turrets and one of the most successful types produced. In all ten of the type were built, to be followed by the *Kenyas*, of similar design, but thirteen of which were building when the Second Great War broke out.

Again the type were becoming large and individually

expensive and recourse was made to a smaller example, the ten *Didos*, each with ten 5.25-inch guns and powered for a designed speed of 33 knots. These ships have three twin turrets forward, on three different levels so that No. 3 can fire over Nos. 2 and 1, and two turrets aft. All these were under construction when war began and should now be in service if the normal period of building were followed.

## THE DEVELOPMENT OF THE DESTROYER

The advent of the torpedo during the American War of Secession during which six ships were destroyed by this agency and the invention in 1864 of the mobile Whitehead torpedo by an officer in the Austrian Navy, paved the way for an entirely new type of warship which was to have so great an influence that its numbers would be greater than those of any other type.

In 1873 Thornycrofts of Chiswick built the *Rasp* of 16 tons and less than 18 knots for Norway and fitted her to tow a torpedo, the first boat in the world to be specially designed for torpedo work.

Four years later the same firm constructed H.M.S. *Lightning* equipped her with a spar torpedo but tubes were not fitted till 1879. The displacement was 27 tons and the speed 18 knots. In the same year Russia built a hundred similar vessels to designs by Yarrow.

The new type was adopted by all navies and many hundreds were built, France particularly favouring them and stationing them along the Channel ports as a potential menace to this country.

Britain built an antidote in the torpedo catcher—or as it was subsequently called, the torpedo gunboat—but this fell short of the necessary requirements and soon gave place to yet another design of warship.

This was a glorified torpedo boat carrying tubes but with an armament sufficient to engage any foreign torpedo boat and with several knots speed in excess of these vessels. First known as the torpedo boat destroyer or T.B.D., they have now become more familiar by the less wieldy and more practical term of "destroyer."

H.M.S. *Havock*, built in 1893, was our first of the type and on a displacement of 240 tons she carried one 12-pounder and three 6-pounder guns, three torpedo tubes and had engines capable of giving her a speed of over 26 knots.

Our first four classes, totalling in all 110 vessels, were of similar design and were followed by the "E" or





"River" class in which speed was sacrificed to better sea-keeping qualities.

The big *Tribals* of 1,000 tons average displacement and with increased armament followed, and these were succeeded by classes upon which the brunt of the Great War's earlier actions and patrols fell.

During the four years of war several hundreds of the type were constructed, culminating in the very fine and satisfactory ships of the "V" and "W" classes which had superimposed guns forward and aft—that is, the inner gun was higher than, and could fire over, the outer one.

Some larger vessels known as "flotilla leaders" were also added to the navy, these leading the divisions of destroyers and, through their increased size, able to accommodate the extra personnel necessary for the leader.

In the post-war years two experimental ships, *Amazon* and *Ambuscade*, were built to test the various requirements of future destroyers and on these were based most of the vessels of the "A" to "I" classes, all carrying four 4.7-inch guns and, until the *Glowworm*, "H" and "I" classes, two quadruple torpedo tubes, the later ones having quintuple mounts.

The "J" and "K" classes which were laid down shortly after the new *Tribal* class, carry six 4.7-inch guns and have ten tubes and have been succeeded by the similar "N" class and the even larger "L" and "M" types, eight of each and which displace only slightly less than 2,000 tons. The *Tribals* which immediately preceded these are the first British destroyers to have their guns in twin mounts, a total of eight 4.7-inch weapons being carried. The torpedo armament shows a reduction on the general practice for only one quadruple mount is fitted, thus showing that they are intended for small cruiser duties rather than the more usual destroyer tactics in which the torpedo would play a more prominent part. All have performed yeoman service and have fully justified their inception which originated in the fact that Germany had laid down a number of heavy examples of the type.

In 1939 there were under construction twenty vessels of the "Hunt" class in which the displacement was reduced to 904 tons and no torpedo tubes were fitted. These were intended for escort work and considerable numbers of the type have been added since.

The urgent need of destroyers in the Royal Navy has been clearly expressed by the addition of fifty ships of

the obsolete, though still useful, ships of the U.S. "flush decker" type and, though these only help to mitigate the shortage, they have been and are rendering useful service. Some have been lost and one was used for blocking purposes at St. Nazaire in March, 1942.

Destroyers are the most potent enemy of the submarine and Britain can never have too many of the type while submarines are possessed by foreign nations.

## THE DEVELOPMENT OF THE SUBMARINE

Although submarines had already been built for some foreign navies, though not in this country, Great Britain did not possess any until the five *Hollands* were ordered from Vickers, to designs by Holland, an American who had already constructed some for the United States. The British vessels were repeats, had a submerged displacement of 120 tons and entered the navy in 1902. The "A," "B" and "C" classes which succeeded them were improvements, but the "D1" was the first one in which the Admiralty influenced the design. Seven other improvements followed, these being the first to be driven by oil engines, petrol being the propulsive fuel for the earlier vessels. One of these was the first to carry a gun.

The next, "E" class, consisted in all of 56 units, most of which were built under the war programmes and upon these the major work of the last war fell. The earliest "H" class were built in the United States and Canada, and, with the later vessels of the type constructed in this country, furnished the navy with some of the most successful of the type.

The "L" class, entering the navy towards the end of the last war, were improvements of the "E's" and were much liked in the service.

Part of the need for the larger and faster submarines was met by the construction of the seven "J" class which were of 19 knots speed and which were the predecessors of the "K" class of 1,800 tons and a surface speed of 24 knots from steam turbines. These were built to fulfil the need for submarines able to work with the fleet and thus were required to have a slightly greater speed than the fleet itself.

Three of these were converted to "M" class while building, diesel propulsion being reverted to and the exceptional armament of a 12-inch gun carried. One of these, "M2," was later converted into a seaplane carrier experimentally and was lost while on this service.





The "X1" of 2,650 tons was our first post-war submarine, carried four 5.2-inch guns and was the largest constructed for the navy. Her value will be appreciated when it is realised that she was scrapped within ten years.

Post-war design then reverted to more normal displacements, and the "O," "P" and "R" classes, totaling nineteen ships and averaging 1,400 tons, were built.

The small "S" class, 640/675 tons followed, and have showed their value by their work—and losses—in this war.

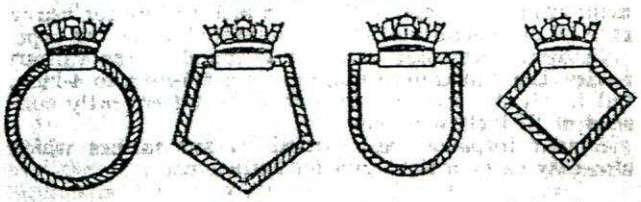
Next came the three fleet submarines of the *Thames* class of 1,850 tons and capable of over 21 knots—the first time this speed has been exceeded by a diesel-engined submarine.

Accompanying them were the first of the six mine-laying submarines of the *Porpoise* class.

Again a smaller type was built, this time the three *Ursula* class of 540 tons, and these were followed by the *Torbays*, ocean-going vessels of 1,090 tons which were coming into service when the present hostilities commenced.

Much work has fallen to the submarine service and they have not only proved extremely efficient but the heavy losses they have sustained indicate the perilous duties upon which they have been engaged.

## SHIP'S BADGES



Capital Ship. | Cruiser; Aircraft Carrier. | Destroyer; Submarine. | all other types.

Since 1918, ships have had official badges which are displayed sometimes on the front of the bridge and on the brass tompions at the gun muzzles, and always on the bow of the ship's boats. Each type of ship has a distinguishing shape around the crest as indicated above.

## ARMAMENT

The main feature of any combatant warship is the armament and its strength is determined firstly by the size of the vessel, and secondly by the duties that vessel is required to fulfil.

The battleship, in which the principal feature is power to hit and to endure punishment, has the biggest guns and thickest armour, both of which are more important than speed.

In the battle cruiser speed has taken a premier place and, until the latest ships, either armament or armour —or both—has been sacrificed to some extent to enable the heavier machinery necessary to obtain higher speeds to be installed. The last instance of this in the Royal Navy was the *Hood* with protection only slightly less than contemporary battleships but with armament fully equal to them.

Since her completion, naval construction has advanced so much that the latest vessels of any navy have not only as heavy an armament and very heavy protection, but also a speed equal to that of the *Hood*.

The aircraft carrier is essentially a lightly protected vessel owing to the great length necessary for landing aircraft and she is intended to remain remote from any danger and only carries armament sufficient to ward off potential enemy bombers and light craft.

Lighter armament and thinner armour are installed in cruisers for their main purposes are scouting, commerce destruction, and other duties requiring speed, the main armament being either of 8-inch calibre for heavy cruisers or generally 6-inch for lighter ships of the type.

In destroyers some variation is found in the various navies, the gun calibre ranging from 5·5-inch to 4-inch, but in all the torpedo armament most frequently consists of 21-inch weapons.

Similar torpedoes are carried by submarines which also may carry a light gun for surface use.

**Guns.**—The bore of a gun, or calibre, is generally given in inches and the length in calibres so that the 16-inch guns carried by the *Nelson* being of 45 calibres are approximately 60 feet long. The following table gives the principal sizes of British and foreign weapons with weights of gun and shell. The figures refer to the weapons of the country given in the last column.





| Calibre (inches) | Length (calibres) | Weight (tons) | Weight of Shell (lbs.) | |
|---|---|---|---|---|
| 16 | 45 | 103·5 | 2461 | Gt. Britain |
| 15 | 42 | 97·15 | 1920 | Gt. Britain |
| 14 | — | — | 1560 | Gt. Britain |
| 13 | 52 | — | 1190 | France |
| 12 | 50 | 56·1 | 870 | U.S.A. |
| 11 | — | — | 670 | Germany |
| 8 | 50 | 16·5 | 256 | Gt. Britain |
| 7·5 | 50 | 15·8 | 200 | Gt. Britain |
| 7·1 | 55 | — | — | Russia |
| 6·1 | — | — | — | France |
| 6 | 50 | 8·5 | 100 | Gt. Britain |
| 5·9 | 50 | 5·5 | 101 | Germany |
| 5·5 | 50 | 8 | 88 | France |
| 5·25 | — | — | — | Gt. Britain |
| 5 | 51 | 5·0 | 50 | U.S.A. |
| 4·7 | 45 | 3·05 | 50 | Gt. Britain |
| 4·5 | — | — | — | Gt. Britain |
| 4 | 40 | 1·25 | 31 | Gt. Britain |
| 3 | 45 | 1·0 | 16 | Gt. Britain |
| 2·24 | 40 | ·35 | 6 | Gt. Britain |
| 1·85 | 50 | ·3 | 3·3 | Gt. Britain |

The above may be taken as approximate for all navies though the British 16-inch and 14-inch have heavier shells than those of other navies.

Big guns are fitted to elevate up to 30 degrees above the horizontal in older types, but more than that in modern vessels—such figures are seldom divulged.

Smaller guns have increased elevation—the 8-inch guns of the "Kent" class can elevate to at least 65 degrees while smaller weapons are frequently so mounted that they can be used against aircraft.

In addition to their main armament, the capital ships carry medium calibre guns for use against destroyers and they are supplied also with a relatively heavy anti-aircraft battery as are most warships of all types.

**Gun Mountings.**—Mountings have been, and still are, of paramount importance, the section on development showing the various forms used.

Present-day practice is almost universally in the revolving gunhouse principle, the whole structure—which for big guns extends almost to the bottom of the ship—revolving and able to be trained in any direction from remote points as well as in the turret itself.

Most of the present-day vessels have the guns in gun-houses covering the whole and are frequently gas-proof as well as armoured, but destroyers and earlier cruisers have the guns in shields which protect the sides, front and top but have open backs.

**Multiple Mountings.**—Big guns are in sets of four, three or two guns while the smaller weapons are either single, paired or tripled, but the British multi pom-pom, a 2-pounder weapon for use against aircraft, are in either four or eight-gun mountings and able to fire at an extremely rapid rate. Four-barrelled machine guns are similarly mounted.

**Torpedoes.**—Capital ships, aircraft carriers and the larger cruisers are no longer fitted with torpedo tubes. The few ships still so equipped are having them removed as the opportunity arises. Many are of the fixed type, under water, and the ship must be turned to train them on any target. The smaller cruisers have either a triple or quadruple 21-inch mounting on either beam on deck and able to be trained on the target.

Destroyers are similarly equipped, but with the tubes on the centre line and able to fire on either beam. Five tubes on one mounting were first installed in British destroyers in 1937.

Submarines in the Royal Navy have fixed tubes forward—generally a bank of six—while some have them astern and abeam in addition.

**Gunnery Control.**—All guns are capable of individual control should this be necessary, but practice has proved that Director Control is much more efficient.

Briefly the procedure is for the Control Officer and his assistants in the control at the mast head to communicate to the control room, situated low down in the ship and in one of the best protected positions, the course and speed of the target. The necessary ranges, elevation and direction are then given to the turrets and, when all guns are reported loaded and trained they are fired by the director layer as soon as he has ascertained that the figures given are correct.

Rangefinders are installed in different vantage points and frequently on the turrets themselves.

Armoured conning towers afford protection to the personnel concerned in the general control of the ship.





**Depth Charges.**—Carried by the smaller vessels engaged in anti-submarine duties. Depth charges are set to explode at varying depths and are dropped over the stern or fired by mortars to give a diamond pattern around the supposed position of the submarine.

## ARMOUR

As has already been stated only the heaviest ships can carry protective armour of sufficient thickness to keep out heavy shells and the extent of this is limited even in these vessels to a thick belt, or strake of armour along the waterline and covering the most important parts such as boilers, engines and ammunition rooms. The gun turrets and gun houses also have thick protection as have the main control stations.

The advance in aerial warfare has made necessary the provision of protective decks also, not only to resist bombs but plunging fire from long-range guns.

Lighter vessels have much thinner armour until in the destroyer and other similar craft no provision can be made owing to the weight involved.

Generally belt armour can be detected by the absence of port holes for these would nullify any such protection.

## PROPULSION

Although at the beginning of the century warship propulsion was almost universally by means of triple expansion engines, the success of the turbine has resulted in nearly all types being so propelled with the exception of a few diesel engine-driven vessels.

Submarines are propelled by diesel engines on the surface and by electric motors when submerged—the latter because no air is consumed in their use.

A turbine consists of a revolving drum upon which are arranged radially thousands of blades. Steam is led into the turbine casing and directed on these vanes which cause the drum to revolve at high speed—often 3000 revolutions per minute. Gear wheels reduce the speed to that required by the propellors, which may be about 200 r.p.m.—this latter varying with the type and speed of the ship. Great economy in fuel can be made as the turbine runs at a fairly constant speed, the main alterations being made in the gear box.

**Fuel.**—Owing to the ease in manipulation, in storage and in economy in use, oil fuel has superseded coal in nearly all warships and has thus removed that bugbear of discomfort—coaling ship.

## A GLOSSARY OF SHIP'S PARTS AND SEA TERMS

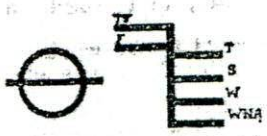
ABAFT. On the after side or stern of the ship.
ABEAM. At right angles to the ship's length.
AHEAD. Before the ship.
ANCHORS. On large warships three anchors are stowed in the bows, British ships having one on either bow known as bower anchors, and another on the starboard bow termed the sheet anchor.
ATHWARTSHIPS. Across a ship, at right angles to the keel.
AWASH. On the water level.
AWEIGH or UNDER WEIGH. When the anchor is off the ground but not necessarily stowed.
BEAM. The greatest width of a ship.
BILGE. Where the bottom of the ship bends round into the ship's side.
BILGE-KEEL. A keel on both bilges fitted to counteract the roll of a ship.
BOX THE COMPASS. To name the points of the compass in order.
BOW. The forward end of a ship.
BREAKWATER. An obstruction across the forecastle deck to break the force of water when running into a head sea.
BULKHEAD. A vertical partition, armoured or otherwise. By the closing of watertight doors in the bulkheads, a ship can be divided into a number of separate enclosed parts, thus increasing her safety should she be holed.
COMPLEMENT. The officers and crew of a ship.
CROW'S NEST. Platform on the mast, providing shelter for a look-out man—fitted on British flotilla leaders.
DECKS. The deck in ascending order are as follows: The *Lower* deck is the lowest continuous deck in a ship, the next above being the *Main* deck, the *Orlop* or *Lower Orlop* being part decks below the lower deck. The *Upper* deck is the highest continuous deck in a ship, and generally the *Quarter* deck is that part of this astern of the after superstructure. A higher deck forward is termed the *Forecastle* deck, while the *Shelter* deck is the next deck higher in the superstructure.

H.M.S. *Victorious* is exceptional and her many decks are named, in descending order, Flight, Upper Gallery, Upper Hangar, Lower Gallery, Lower Hangar, Upper, Main, Lower and Platform.





DERRICK. A boom attached to the main mast for the manipulation of ship's boats, etc.
DRAUGHT. Depth at which a vessel floats in water.
FLARE. The overhang of the top decks compared with the water line—most noticeable in aircraft carriers.
FORE AND AFT LINE. Parallel with the keel.
FORECASTLE. Crew accommodation forward.
FREEBOARD. The height of the side above the water line.
HAWSE PIPE. The tube in the hull side through which the anchor chain passes and in which the anchor is housed in modern vessels. This tube enters the hull through the hawse hole.
HORSE-POWER. *Indicated*—the total power generated by the engines; *Shaft*—the power transmitted to the main shaft or shafts.
KEEL. The centre girder along the bottom of a ship upon which the hull is constructed.
LEESIDE. Side of a ship away from the wind.
LENGTH o.a. (overall length)—the extreme length including bowsprit (if any); w.l. (waterline)—the length of the ship in the water at the waterline; p.p. (between perpendiculars)—is measured from the foreside of the stem to the after side of the stern post.
LIST. The angle at which a ship may lean to one side.
LOAD LINE or PLIMSOLL MARK. A pre-determined draught of a vessel, below which the ship may not submerge. This line varies with the waters and areas through which a ship passes. (From the diagram TF, tropical fresh water; F, fresh water; T, tropical; S, (and horizontal line through circle), the summer salt water-load line; W, that for winter; and WNA, winter loading for vessels less than 330 feet long crossing the North Atlantic.)




MASTS. In warships pole masts now are used only for flag signals and as supports for the wireless aerials and direction finders. Frequently the lower parts are strengthened by the addition of struts to make a tripod or similar multi-legged structure, thus ensuring greater rigidity and less danger of the mast going overboard in action. The turret structure, as in the latest battleships, has replaced the foremast in heavy vessels.

From bow to stern, the first mast is the Foremast, the second the Mainmast and the third (if any), the Mizzenmast.

PORT. The left side of a ship looking forward.

QUARTER. The aft end of the ship, either side immediately forward of the stern.

RAKE. The inclination of masts and funnels from the perpendicular.

STARBOARD. The right side of a ship looking forward.

SHEER. Slope up from the horizontal.

STEM. The extreme front of a ship.

STERN. The extreme after end of a ship.

TONNAGE. *Displacement.* The actual weight in tons of a ship (equivalent to the weight of water it displaces).

*Gross.* A measurement of cubic capacity, 100 cubic feet of permanently enclosed space equalling 1 gross ton (standard measurement for merchant ships).

*Nett* (or *Registered*) gross tonnage less deductions for any non-earning space, giving the total earning capacity of a ship.

*Deadweight.* Actual weight in tons of cargo, fuel and ballast when loaded to the load line.

*Standard,* a displacement tonnage for warships, fixed by international agreement, being that of a warship ready for sea but without fuel and feed water.

TRAWLER BOW. Type of bow fitted to British warships to give better sea-keeping qualities, and based on trawler construction.

WEATHERSIDE. Side of a ship exposed to the wind.

YARDS. Across the masts for supporting flag hoists, etc.

## VISIBILITY SCALE

| No. | Description | Distance of Vision |
|---|---|---|
| 0 | Dense Fog | Objects not visible at 50 yd. |
| 1 | Thick Fog | " " 300 " |
| 2 | Fog | " " 600 " |
| 3 | Moderate Fog | " " ½ ml. |
| 4 | Mist or Thin Fog | " " 1 " |
| 5 | Poor Visibility | " " 2 " |
| 6 | Moderate Visibility | " " 5 " |
| 7 | Good Visibility | " " 10 " |
| 8 | Very Good Visibility | " " 30 " |
| 9 | Exceptional Visibility | Objects visible at more than 30 ml. |



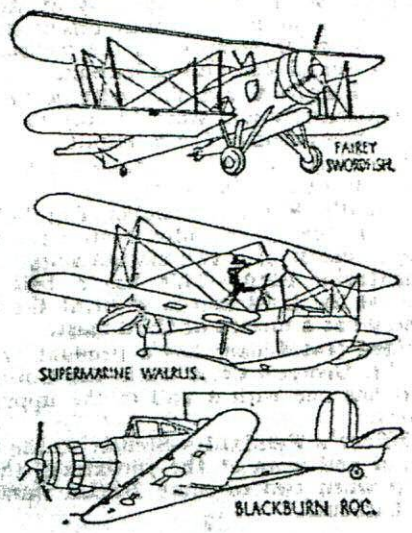
## FLEET AIR ARM AIRCRAFT

In addition to the aircraft carriers, most of the capital ships and cruisers are fitted to carry and fly off aircraft. In the latter case the 'planes must make their own landing, either in the water to be picked up by the ship's derrick, or an aircraft carrier, or an adjacent aerodrome, and they are therefore of the amphibian type. The Supermarine "Walrus" has been developed for this purpose and is a biplane flying boat with retractable wheels and is used for reconnaissance work and spotting.

The flying deck of an aircraft carrier permits the use of faster machines which require a length of deck on which to land. The Blackburn "Roc" and "Skua" and Fairey "Fulmar" are two-seater machines of high speed used for fighter duties with the fleet and are operated only from carriers.

Torpedo bombing duties are undertaken by the Fairey "Albacore" and "Swordfish" which carry a torpedo between the landing wheels or floats. In the latter case they are carried by fleet units, a seaplane carrier, but in the former they operate from carriers or shore bases.

The illustrations show the "Roc," "Swordfish" and "Walrus." The "Skua" and "Fulmar" are very similar to the "Roc," while the "Albacore" is a later development of the "Swordfish."

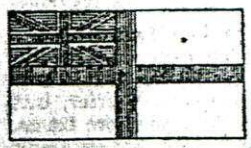


## FLAGS

Flags are used for indicating the nationality of vessels, the owners in the case of merchantmen or the club in the case of yachts, etc., and also to show the rank of the commander or special guest on board. Signal flags form one of the readiest means of communication between ships visible to each other.

A British warship may wear or fly any of the following :—

**Royal Standard.**—The personal flag of the Sovereign and only hoisted when the sovereign is actually present and remaining in position at the mainmast head until the departure of the sovereign from the ship.



**White Ensign.**—Since 1864 this has been the only ensign worn by ships of the Royal Navy and is hoisted either at the peak, or end of the gaff on the mainmast, or on the ensign staff at the stern. In action other positions may be utilised for it also. From March 24th to September 20th in Home Waters it is hoisted at 8 a.m. and one hour later during the rest of the year, always being struck at sunset.

**Union Flag.**—Worn at the main by an Admiral of the Fleet. This is the flag generally erroneously called the Union Jack which is worn on the jackstaff in the bows when in commission and in harbour.

**Admiralty Flag.**—A red flag with a yellow foul anchor set horizontally and worn by any ship carrying the Lords Commissioners of the Admiralty.

**Admiral's Flag.**—A red St. George's Cross on a white ground hoisted at the main.

**Vice-Admiral's Flag.**—A similar flag but having also a red ball in the upper canton nearest the hoist and worn at the foremast of a two-masted ship.

**Rear-Admiral's Flag.**—This has a ball in both cantons nearest the hoist and is worn at the foremast unless the ship has a mizzen or third mast.

**Commodore (1st Class)** has a pendant or pointed flag with a St. George's Cross while the **Commodore (2nd Class)** has one with a ball in the upper canton next the hoist.

**Senior Officer's Pendant.**—Similar to the Commodore's pendant and worn at the yardarm of the Senior Officer's ship when two or more British warships are together in harbour.

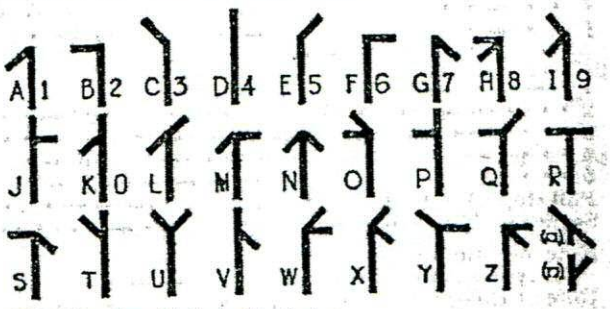


## SIGNALS

Ships are able to transmit signals by flag, semaphore, flashing and wireless.

Flag signalling utilises a different flag for each letter of the alphabet and each numeral. These have not been illustrated as their use involves a long code for which no space is available.

Semaphore signalling is done by mechanical arm and the alphabet employed is illustrated here. Hand flags may be used with the same code.




" J " is also Alphabetical sign.

Sketch (*a*) shows Annul sign and sketch (*n*) that preceding the use of numerals.

Morse signalling is done by the use of a searchlight with controlled horizontal slats and wireless, generally employing the Morse Code, enables British warships to be in touch with the Admiralty or other ships, irrespective of their position. (*See page* 86 *for Morse Alphabet.*)

## SALUTES

Gun salutes are fired when a warship visits a foreign port, on Royal birthdays, and on other State occasions as ordered.

The salutes accorded to dignitaries and naval officers are as follows :

21 guns—Royal salute ; His Holiness the Pope.
19 guns—Board of Admiralty ; Lord Warden of the Cinque Ports ; Governors-General, etc.
17 guns—Admirals of the Fleet.
15 guns—Admirals.
13 guns—Vice-Admirals.
11 guns—Rear-Admirals.
9 guns—Commodores.
7 guns—Captains.

## CONTINENTAL MORSE CODE

| | | | | | |
|---|---|---|---|---|---|
| a | · — | g | — — · | q | — — · — |
| ä | · — · — | h | · · · · | r | · — · |
| á } a } | · — — · — | i | · · | s | · · · |
| | | j | · — — — | t | — |
| b | — · · · | k | — · — | u | · · — |
| c | — · — · | l | · — · · | ü | · · — — |
| ch | — — — — | m | — — | v | · · · — |
| d | — · · | n | — · | w | · — — |
| e | · | ñ | — — · — — | x | — · · — |
| é | · · — · · | o | — — — | y | — · — — |
| f | · · — · | ö | — — — · | z | — — · · |
| | | p | · — — · | | |

| | | | | | |
|---|---|---|---|---|---|
| 1 | · — — — — or · — | 6 | — · · · · | | |
| 2 | · · — — — or · · — | 7 | — — · · · | or | — — · · |
| 3 | · · · — — or · · · — | 8 | — — — · · | or | — — — · |
| 4 | · · · · — | 9 | — — — — · | or | — — — — · |
| 5 | · · · · · | 0 | — — — — — | or | — — — — — |

Full stop (.) · · — · — · Colon (:) — — — · · ·
Semicolon (;) — · — · — · Comma (,) · — · — · —

| | |
|---|---|
| Note of interrogation, request for repetition (?) | · · — — · · |
| Note of exclamation (!) | — — · · — — |
| Apostrophe (') | · — — — — · |
| Hyphen or dash (-) | — · · · · — |
| Fractional bar (/) | — · · — · |
| Brackets. *Made before and after words* ( ) | — · — — · — |
| Inverted commas. *Made before and after words quoted* (" ") | · — · · — · |
| Underline. *Made before and after words underlined* | · · — — · — |
| Preliminary call. *Precedes every transmission* | — · — · — |
| Double dash. *The "break sign"* (=) | — · · · — |
| End of message | · — · — · |
| Error. *Means, "Erase." Some operators, however, use the repetition signal* | · · · · · · · · |
| Invitation to transmit | — · — |
| Wait (AS) | · — · · · |
| "Received" signal | · — · |
| Distress call. *Formerly* CQD (SOS) | · · · — — — · · · |
| "All stations" (CQ) | — · — · — — · — |
| End of work (SK) | · · · — · — |



## BEAUFORT WIND SCALE

| No. | Velocity Knots | Pressure lb./sq. ft. | Description |
|---|---|---|---|
| 0 | 0 | 0 | Calm. |
| 1 | 1– 3 | ·01– ·04 | Light Air. |
| 2 | 4– 6 | ·05– ·16 | Light Breeze. |
| 3 | 7–10 | ·17– ·44 | Gentle Breeze. |
| 4 | 11–16 | ·45– ·96 | Moderate Breeze. |
| 5 | 17–21 | ·97– 1·75 | Fresh Breeze. |
| 6 | 22–27 | 1·76– 2·88 | Strong Breeze. |
| 7 | 28–33 | 2·89– 4.435 | Moderate Gale or Half a Gale. |
| 8 | 34–40 | 4·44– 6·4 | Fresh Gale. |
| 9 | 41–47 | 6·46– 9·00 | Strong Gale. |
| 10 | 48–55 | 9·01–12·16 | Heavy Gale or Whole Gale. |
| 11 | 56–65 | 12·17–15·97 | Storm. |
| 12 | above 65 | 15·98 & above | Hurricane. |

## SEA DISTURBANCE SCALE

| No. | Description | Height of Wave, Crest to Trough |
|---|---|---|
| 0 | Calm | 0 |
| 1 | Very Smooth | Less than 1 ft. |
| 2 | Smooth | 1– 2 ft. |
| 3 | Slight | 2– 3 ,, |
| 4 | Moderate | 3– 5 ,, |
| 5 | Rather Rough | 5– 8 ,, |
| 6 | Rough | 8–12 ,, |
| 7 | High | 12–20 ,, |
| 8 | Very High | 20–40 ,, |
| 9 | Precipitous | 40 ft. and over. |

## NAUTICAL MEASURE

| | |
|---|---|
| 6 Feet | = 1 Fathom. |
| 100 Fathoms | = 1 Cable. |
| 10 Cables | = 1 Nautical Mile. |
| 1 Nautical Mile | = 6080 Feet or 1·151 Statute Miles. |
| 3 Miles | = 1 League. |
| 1 Knot | = 1 Nautical Mile per Hour (Speed Measure). |

## BELLS, WATCHES

| Bells Struck | 12 to 4 or Middle Watch | 4 to 8 or Morning Watch | 8 to 12 or Forenoon Watch |
|---|---|---|---|
| 8 | Midnight | 4 a.m. | 8 a.m. |
| 1 | 12.30 a.m. | 4.30 ,, | 8.30 ,, |
| 2 | 1 ,, | 5 ,, | 9 ,, |
| 3 | 1.30 ,, | 5.30 ,, | 9.30 ,, |
| 4 | 2 ,, | 6 ,, | 10 ,, |
| 5 | 2.30 ,, | 6.30 ,, | 10.30 ,, |
| 6 | 3 ,, | 7 ,, | 11 ,, |
| 7 | 3.30 ,, | 7.30 ,, | 11.30 ,, |
| 1 | 3.45 ,, | 7.45 ,, | 11.45 ,, |
| 8 | 4 ,, | 8 ,, | Noon |

| Bells Struck | 12 to 4 or Afternoon Watch | Dog Watches | | 8 to 12 or First Watch |
|---|---|---|---|---|
| | | 1st 4 to 6 | 2nd 6 to 8 | |
| 8 | Noon | 4 p.m. | — | 8 p.m. |
| 1 | 12.30 p.m. | 4.30 ,, | 6.30 p.m. | 8.30 ,, |
| 2 | 1 ,, | 5 ,, | 7 ,, | 9 ,, |
| 3 | 1.30 ,, | 5.30 ,, | 7.30 ,, | 9.30 ,, |
| 4 | 2 ,, | 6 ,, | — | 10 ,, |
| 5 | 2.30 ,, | — | — | 10.30 ,, |
| 6 | 3 ,, | — | — | 11 ,, |
| 7 | 3.30 ,, | — | — | 11.30 ,, |
| 1 | 3.45 ,, | — | 7.45 ,, | 11.45 ,, |
| 8 | 4 ,, | — | 8 ,, | Midnight |

## EQUIVALENT RANKS IN THE ARMY AND ROYAL AIR FORCE

| *Royal Navy* | *Army* | *Royal Air Force* |
|---|---|---|
| Admiral of the Fleet | Field-Marshal | Marshal of the Royal Air Force |
| Admiral | General | Air Chief Marshal |
| Vice-Admiral | Lieut.-General | Air Marshal |
| Rear-Admiral | Major General | Air Vice-Marshal |
| Commodore | Brigadier | Air Commodore |
| Captain | Colonel | Group Captain |
| Commander | Lieut.-Colonel | Wing Commander |
| Lieut.-Commander | Major | Squadron Leader |
| Lieutenant | Captain | Flight Lieutenant |
| Sub-Lieutenant | Lieutenant | Flying Officer |



## SLEEVE MARKINGS—COMMISSIONED OFFICERS

ADMIRAL OF THE FLEET.

ADMIRAL.

VICE-ADMIRAL.

REAR-ADMIRAL.

COMMODORE.

CAPTAIN.

COMMANDER.

LIEUT.-COMMANDER

LIEUTENANT.

SUB.-LIEUTENANT & COMMISSIONED WARRANT OFFICER.

WARRANT OFFICER.

MIDSHIPMAN.

LIEUTENANT FLEET AIR ARM.

LIEUTENANT ROYAL NAVAL RESERVE.

LIEUTENANT ROYAL NAVAL VOL. RESERVE.

COAT LAPEL.

WHITE PATCH. R.N.
BLUE PATCH. R.N.R.
RED PATCH. R.N.V.R.
MIDSHIPMAN.

Executive Officers have sleeve markings as above, plain gold lace on the sleeve material.

Other branches are distinguished by coloured cloth between the gold stripes :—

Engineer Officers—Purple
Medical Officers—Scarlet.
Dental Officers—Orange.
Accountant Officers—White.
Instructor Officers—Light Blue.
Shipwright Officers—Silver Grey.
Wardmaster Officers—Maroon.
Electrical Officers—Dark Green.
Ordnance Officers—Dark Blue.

Caps.—Rear Admirals and above have two rows of gold oak leaves on the peak. Commodores, Captains and Commanders have one row of gold leaves on the peak. Lieutenant Commander and below have plain patent leather peaks.

## BADGES FOR NON-COMMISSIONED OFFICERS AND RATINGS

CAP BADGE CHIEF PETTY OFFICER

CAP BADGE PETTY OFFICER

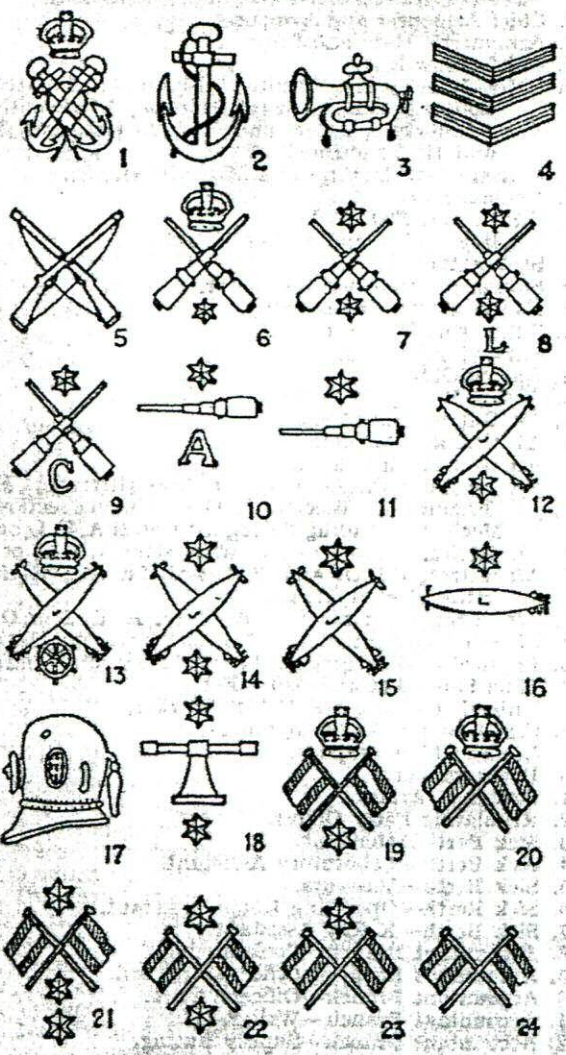
### Key to Diagrams on pages 92-94

1. Petty Officer (left sleeve).
2. Leading Rate (left sleeve).
3. Bugler.
4. Good Conduct Badges (3 stripes—13 years or over, 2 stripes—8 years or over, 1 stripe—3 years or over). (Left sleeve.)
5. Marksman (Rifle)—Good shooting badge.
6. Gunner's Mate.
7. Director Layer and Gunlayer (1st class).
8. Gunnery Rating (1st class), with appropriate letter below (Q.L.C. or A. for Quarters, Layer, Control or Anti-Aircraft).
9. Gunnery Rating (2nd class), with letter Q, L, C, or A.
10. Gunnery Rating (3rd class), with letter Q, L, C, or A.
11. Gunner (not C.P.O. and P.O.).
12. Torpedo Gunner's Mate.
13. Torpedo Coxswain.
14. Leading Torpedoman (low power).
15. Leading Torpedoman.
16. Torpedoman.
17. Diver.
18. Rangetaker (1st class).
19. Visual signalman (1st class).
20. Visual Signalman (2nd class), C.P.O. and P.O.
21. Visual Signalman (2nd class), other ratings.
22. Visual Signalman (3rd class).
23. Trained Operator (V/S).
24. Ordinary Signalman and Signal Boy (V/S).
25. Wireless Telegraphist (1st class).
26. Wireless Telegraphist (2nd class), C.P.O. and P.O.
27. Wireless Telegraphist (2nd class), other ratings.
28. Wireless Telegraphist (3rd class).
29. Trained Operator (W/T).
30. Not Trained Operator (W/T). (Ordinary Boy and Telegraphist.)



### SLEEVE BADGES—*Continued*

31. Chief Armourer and Armourer.
32. Armourer's Mate and Crew.
33. Chief Shipwright.
34. Chief Joiner; Blacksmith; Plumber; Painter; Cooper and Shipwright; Joiners; Blacksmiths; Plumbers, Painters and Coopers (1st, 2nd, 3rd and 4th (confirmed) classes).
35. Artisans (4th (acting) and 5th classes).
36. Mechanician.
37. C.P.O. and P.O. Stoker.
38. Leading Stoker and Stoker (1st class).
39. Stoker (2nd class).
40. Submarine Detector Instructor.
41. Higher Submarine Detector.
42. Submarine Detector.
43. Surveying Recorder.
44. Rating Observer.
45. Acting Rating Observer.
46. Air Gunner (1st class).
47. Air Gunner (2nd class).
48. Air Gunner (3rd class).
49. Air Mechanic C.P.O. and P.O. (A—Airframe; E—Engine; L—Electrical; O—Ordnance sections).
50. Air Mechanic, Leading Rating with letter A, E, L, or O.
51. Air Mechanic, other ratings with letter A, E, L or O.
52. Air Fitter, C.P.O. and P.O. and Leading Rating, with letter A, E. L or O.
53. Air Fitter, other ratings with letter A, E, L or O.
54. Physical and Recreational Training Instructor (1st cl).
55. Physical and Recreational Training Instructor (2nd cl).
56. Chief Sailmaker and Sailmaker.
57. Sailmaker's Mate and Fabric Worker.
58. C.P.O. and P.O. Photographer.
59. Leading Photographer.
60. Photographer.
61. Master at Arms.
62. Regulating Petty Officer.
63. Sick Berth Attendant.
64. Sick Berth—Laboratory Assistant.
65. Sick Berth—Masseurs.
66. Sick Berth—Operating Room Assistant.
67. Sick Berth—X-Ray Assistant.
68. Accountant Branch—Cook Rating.
69. Accountant Branch—Officer's Steward.
70. Accountant Branch—Officer's Cook.
71. Accountant Branch—Writer.
72. Accountant Branch—Supply Rating.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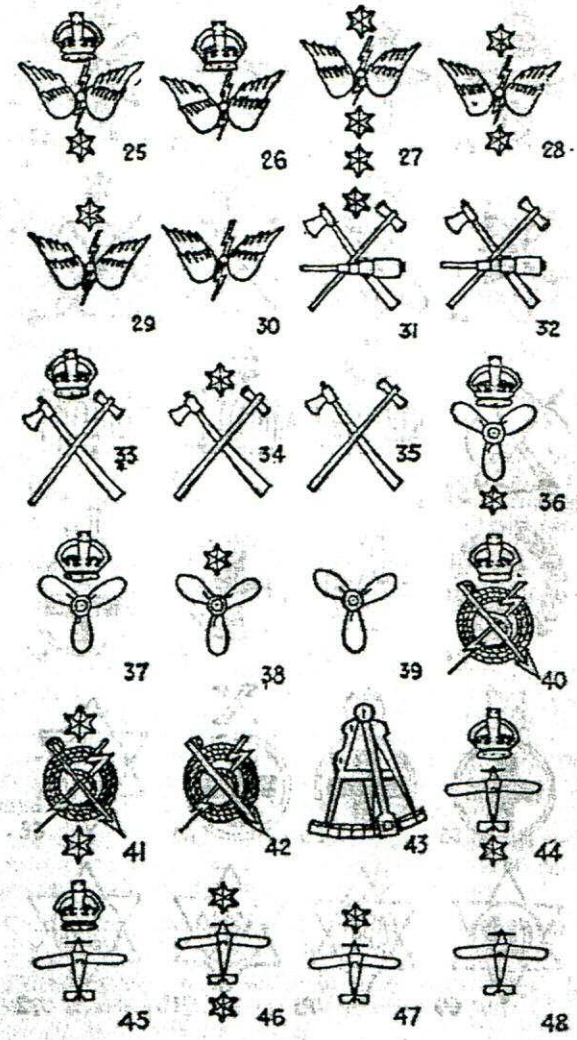
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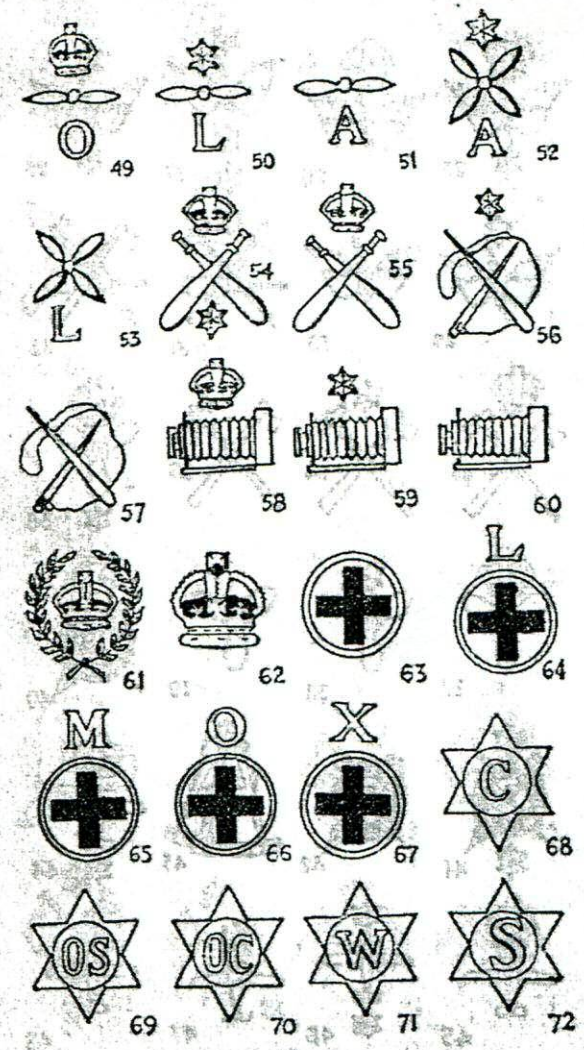
SLEEVE BADGES (*For Key see pages* 90, 91)






## ENTRY INTO THE NAVY

### Physical Standards Required

Candidates for entry into the Navy are required to produce a birth certificate if possible, or if in Ireland, a baptismal certificate. Age limits vary according to the branch chosen.

Characters must be very good and references are required.

A strict medical and dental examination by a Naval Medical Officer to ascertain complete freedom from physical defect or disability is undertaken before acceptance. The recruiting officer arranges for a preliminary examination, when necessary, by a local medical practitioner at Government expense.

Chest and height measurements vary for different ratings, the former without clothes and the latter without shoes. The chest measurement is the mean of maximum inflation and minimum deflation.

Eyesight must be fully normal in most cases and normal colour vision is necessary for boys and for entrants for the seaman and signal branches. A slight degree of colour defectiveness is accepted in most other ratings and the wearing of glasses is not necessarily a bar to entry to most ratings. In branches where these are permitted, glasses, if necessary, will be provided at public expense.

As regards teeth, in all cases the mouth and teeth must be in a good healthy and functioning condition, or in such a state that they can be rendered so by appropriate treatment. The absence of five teeth or that number beyond repair will generally cause rejection for a boy, and twice that number for a man's rating. This rule is not strictly enforced if the remaining teeth are sound and afford an adequate masticating area.

For artificers and shipwrights, well-fitting artificial dentures are not a bar to entry and, should such prove necessary, will be supplied at public expense.

Candidates must be willing to undergo vaccination or re-vaccination and inoculation if required.

Educationally, tests differ in each branch and, for special ratings, depends on the branch selected.

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Although the article on Entering the Navy has been omitted at the request of the Admiralty, particulars regarding present conditions can be obtained from any Combined Recruiting Centre.

The "Y" system of special entry, announced in June, 1941, is so attractive that it deserves some mention.

Young men desiring to carry out their war service in the Royal Navy or Fleet Air Arm can apply at the age of seventeen though they will not be called up until twelve months later. If accepted they will be entered meanwhile in the unpaid reserve and will continue their schooling or work until called up for training.

Candidates can volunteer for service as seamen or for training as Pilot or Observer for the Fleet Air Arm, in the latter case the education standard must include a good knowledge of trigonometry and mechanics. On satisfactorily completing their training course, they will be granted temporary commissions in the Air Branch of the Royal Naval Volunteer Reserve.

Since the number of men wishing for naval service is usually greater than the number of vacancies available, the advantage of entering the Navy as early as possible under the "Y" scheme is obvious.

Men who have already registered are not eligible for entry as seamen but they can volunteer for entry under the "Y" scheme as Pilots or Observers if they are under twenty-eight years of age.

University students are also eligible.

Full particulars of this attractive scheme can be obtained from any combined Recruiting Centre.