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(Index and General Remarks)

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Captain, U. S. Navy, Director of Naval Intelligence.

C. B. 1182.

GERMAN NAVY.

PART III.

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LIST OF VESSELS ARRANGED ACCORDING TO CLASSIFICATION.

——	Date of Launch.	Displacement.
Battleships.		Tons.
Baden	1915	28,050
Bayern	1915	28,050
Sachsen	1916	28,050
Württemberg	.....	28,050
Kronprinz	1914	25,390
Markgraf	1913	25,390
Grosser Kurfürst	1913	25,390
König	1913	25,390
König Albert	1912	24,310
Prinzregent Luitpold	1912	24,410
Kaiserin	1911	24,310
Friedrich der Grosse	1911	24,310
Kaiser	1911	24,310
Oldenburg	1910	22,440
Thüringen	1909	22,440
Ostfriesland	1909	22,440
Helgoland	1909	22,440
Posen	1908	18,600
Rheinland	1908	18,600
Westfalen	1908	18,600
Nassau	1908	18,600
Schleswig-Holstein	1906	13,040
Schlesien	1906	13,040
Hannover	1905	13,040
Deutschland	1904	13,040
Lothringen	1904	12,988
Preussen	1903	12,988
Hessen	1903	12,988
Elsass	1903	12,988
Braunschweig	1902	12,988
Mecklenburg	1901	11,611
Schwaben	1901	11,611
Zähringen	1901	11,611
Wettin	1901	11,611
Wittelsbach	1900	11,611
Kaiser Barbarossa (R. 1907)	1900	10,474
Kaiser Karl der Grosse	1899	10,474
Kaiser Wilhelm der Grosse (R. 1910).	1899	10,474
Kaiser Wilhelm II. (R. 1910)	1897	10,474
Kaiser Friedrich III. (R. 1909)	1896	10,474
Wörth (R. 1903)	1892	9,901
Brandenburg (R. 1902)	1891	9,901
Battle Cruisers.		
Mackensen	.....	.....
Manteuffel	1915	.....
Hindenburg	1915	27,000*
Derfflinger	1913	26,180
Seydlitz	1912	24,610
Moltke	1910	22,640
von der Tann	1909	19,100
Coast Defence Ships.		
Aegir (R. 1904)	1895	4,084
Odin (R. 1903)	1894	4,084
Hagen (R. 1900)	1893	4,034
Hildebrand (R. 1902)	1892	4,034
Heimdall (R. 1902)	1892	4,034
Frithjof (R. 1903)	1891	4,034
Beowulf (R. 1902)	1890	4,034
Siegfried (R. 1903)	1889	4,034

——	Date of Launch.	Displacement.
Cruisers.		Tons.
Roon	1903	9,348
Prinz Heinrich	1900	8,756
Fürst Bismarck	1897	10,520
Light Cruisers.		
Ersatz Amazone	.....	.....
Ersatz Ariadne	.....	.....
Ersatz Medusa	.....	.....
P	.....	.....
Q	.....	.....
R	.....	.....
Nürnberg	.....	.....
Emden	1916	4,200*
Karlsruhe	1916	4,200*
Königsberg	1916	4,200*
Frankfurt	1915	4,200*
Pillau	1915	4,800*
Regensburg	1914	4,330
Graudenz	1914	4,820
Strassburg	1913	4,820
Stralsund	1911	4,820
Augsburg	1911	4,820
Kolberg	1909	4,280
Stettin	1908	4,280
Stuttgart	1907	3,494
Danzig	1906	3,400
Lübeck	1905	3,200
München	1904	3,200
Berlin	1904	3,200
Hamburg	1903	3,200
Arcona (R. 1912)	1903	3,200
Amazone	1902	2,656
Medusa	1900	2,608
Thetis	1900	2,608
Niobe	1900	2,608
Nymphe	1899	2,558
Gazelle	1899	2,608
Hansa (R. 1909)	1898	2,558
Vineta (R. 1911)	1898	5,790
Freya (R. 1913)	1897	5,790
Victoria Luise (R. 1908)	1897	5,575
Hertha (R. 1908)	1897	5,575
Gefion	1897	5,575
Kaiserin Augusta (R. 1905)	1893	3,705
	1892	5,900
Minelaying Cruisers.		
Viper	.....	.....
Skorpion	.....	3,800*
Crokodill	.....	3,800*
Basilisk	.....	3,800*
Mücke	.....	3,800*
Fliege	.....	3,800*
Natter	.....	3,800*
Hummel	.....	3,800*
Biene	.....	3,800*
Wespe	1916	3,800*
Bremse	1915	3,800*
Brummer	1915	3,800*
	1915	3,800*
Torpedo Boat Destroyers.		
B 109–112	.....	.....
G 101–104	1915	.....
V 100	1914	1,300*
B 97–98	1915	1,250*
	1915	1,300*
		1,300

* Approximate.

——	Date of Launch.	Displacement.
Torpedo Boat Destroyers—Contd.		Tons.
G 86–96	1915–16	.....
V 67–84	1915–16	.....
S 58–66	1916	.....
S 49–57	1913–15	.....
V 43–48	1915	.....
G 37–41	1915	.....
S 31–34, 36	1913–14	640*
V 26, 28, 30	1914	640
S 13–24	1912–13	555
G 7–11	1911–12	555
V 1–3, 5	1911–13	561
G 192–3, 195–7	1910–11	638
V 186, 189, 190	1910–11	646
V 180–185	1909–10	626
S 176, 178, 179	1910	625
G 174, 175	1910	643
G 169, 170, 172, 173	1908–9	625
S 165–168	1910–11	605
V 162–164	1909	603
V 150–161	1907–8	545
S 138–149	1906–7	520
T 137	1907	560
T 132–136	1906	480
T 126–131	1905	480
T 120–123	1904	465
T 114	1902	413
T 108–113	1901–2	394
T 102–107	1901	394
T 96–101	1900–1	394
T 91–95	1899–1900	394
Torpedo Boats, Divisional.		
D 10	1898	349
D 9	1894	374
D 7–8	1888–89	344
D 3–6	1887–89	295–315
D 1–2	1886	226
Torpedo Boats, 1st Class.		
V 105–128	1914	318
A 13–36	1915–16	200*
A 1–12	1915	95
T 82–89	1897–98	152
T 75–81	1894–95	150
T 74	1895	143
T 66–73	1893	167
T 58–65	1891–92	151
T 49–57	1889–90	128
T 42–47	1889	143
Torpedo Boats, 2nd and 3rd Class.		
T 11, 13–16, 20–22, 24, 25, 27–31, 33–40.	1885–87	84
Submarines.		
U 101–130	1916–17	.....
U 81–100	1916–17	1,300*
U 71, 73, 75, 78–80	1916	1,150*
U 66–67, 69–70	1915	1,150*
U 63–65	1916	1,150*
U 52–55, 57–62	1916	1,000*
U 43–50	1915	1,050*
U 33, 35, 38, 39	1914	1,000*
U 28, 30, 32	1914	1,000*
U 21, 22, 24, 25	1913	950*
U 19	1913	800*

——	Date of Launch.	Displacement.
Submarines—Continued.		Tons.
U 16, 17	1911	640*
U 9	1910	550*
U 3, 4	1909	500*
U 2	1908	295*
U 1	1906	236
U. A	1914	332
U. B. 48–65	1917	.....
U. B. 18, 19–28, 30–47	1916	290
U. B. 1–3, 5–8, 9–17	1915	140
U. C. 80–99	1917	.....
U. C. 16–18, 20–31, 33–38, 40–79	1916–17	475–513*
U. C. 1–15	1915–16	194–202
Gunboats.		
C	.....	1,132
Eber	1903	984
Panther	1901	984
Condor	1892	1,602
Seeadler	1892	1,602
Mining Vessels.		
Albatross	1907	2,165
Nautilus	1906	1,945
Pelikan	1890	2,320
M 1–60	1915–16	.....
Submarine Depôt Ships.		
Vesuv (?)	.....	2,755
Vulkan	1907	1,800
Fishery Protection Vessel.		
Zieten	1876	994
Imperial Yachts.		
Ersatz Hohenzollern	1915	7,185
Hohenzollern (R. 1907)	1892	4,210
Raiders.‡		
Möwe	1914	4,500*†
Seeadler	1888	1,571†
Wolf	.....	5,000*†
Repair Ship.		
Bosnia	1899	9,683†
Fleet Tender.		
Nordsee	1914	778
Training Ships.		
Schwalbe	1887	1,100
Württemberg	1878	7,250
Grille	1857	344
Miscellaneous.		
Drache	1908	758
Hay	1907	630
Fuchs	1905	630
Delphin	1906	440
Blitz	1882	1,366
Pfeil	1882	1,366
Surveying Vessel.		
Hyäne	1878	485

* Approximate. † Gross register tons. ‡ Shown also under Armed and other Auxiliaries.

MEMORANDUM AS TO THE COLLECTION OF FURTHER INFORMATION.

Every opportunity should be taken by Officers to verify and supplement the information contained herein.

The attention of Officers is called to the following table of headings, which is given as a guide to the details required to complete the description of a ship, so that as much further information as possible may be obtained and transmitted to the Admiralty at the earliest opportunity.

TABLE OF HEADINGS.

General Remarks: (State if fitted as flagship).

Complement.

Berthing:

General description of berthing of Officers and Men.—Description of messing arrangements, mess-traps, galleys.—System of preparing and cooking meals.

Accommodation:

General description of accommodation of officers.
Description of furniture in messes and cabins.

General Appearance:

See Photograph Book. Note any alteration in appearance. A correct photograph forwarded for the Foreign War Vessels photograph book, if the present one is out of date.

General Dimensions, &c.:

Length between perpendiculars			Ft. Ins.
" extreme			
Breadth, extreme (of hull)			
Metacentric height at	draught		
Freeboard, forward at	"		
" aft at	"		
Height of axis of guns, forward at	"		
" " " aft at	"		
" masthead, at	"		
" " "	"		
Range of stability at	"		
Load displacement	tons		Tons.
Full load "	"		
Draught at load displacement, maximum			Ft. Ins.
" " " mean			
" " full load " maximum			
" " " " mean			
Tons, per inch immersion			

Weights:

	Tons.
Hull	
Equipment	
Armour	
Armament	
Machinery	
Coal, oil fuel, water, stores	
Total	
Total	Normal.
Coal	
Oil fuel	

Details of coal and oil fuel stowage, mentioning any special arrangements for transport of coal in bunkers.

Masts:

Type. Number. Height.
Control tops—Description. Height. If armoured or not.
Search-light platforms—Height and Number.

Derricks and Cranes:

Position. Number. Tested load. For what purpose fitted.

Fire Flooding and Draining System:

General Description. Size of pipes and capacity of pumps.

Carbon Dioxide System:

State if fitted or not; if fitted, to what compartment, and from where it is controlled.

Compressed Air System:

Is this fitted to expel water from compartments below protective deck?

Ventilation:

Complete description of system. Mentioning any heating and cooling arrangements for living spaces.

Coaling Arrangements:

Type and description of machinery installed for this purpose.

Magazine Cooling Machinery:

Type of apparatus, and temperatures to which it is designed to maintain magazine.

Anchors and Cables:

Number. Weight and position of stowage of anchors.
Cable—Size and length.
Capstans and cable holder—Description.

Towing Arrangements:

Description of arrangements made for towing—being towed.

Hull:

Material.—
Constructive details.—Give as much information as possible on the construction of the ship.
Anti-rolling tanks.—Number. Position. Description.
Bilge keels.—Whether fitted.

Armour:

Material.—
Thickness and dimensions of all armour is required.
Belt.— Transverse bulkheads.—
Citadel or Upper Belt.— Transverse bulkheads.—
Main Battery.— Transverse bulkheads.—
Screens.—Whether fitted between guns, thickness, &c.
Funnel casing protection.—Whether fitted.

Auxiliary Machinery:

Steam.—

Description. No. Position.

Capacities of pumps available for clearing ship of water.

Output of evaporators and distillers.

Electric.—

Description. No. Position.

Plant for generating Electricity.—

Description. Position.

Hydraulic.—

Description. No. Position.

Plant for generating Hydraulic Power.—

Description. Position.

Speed, Trials, &c.

——	Speed.	Revs.	H. P.	Coal Consumption per Day for all Purposes.	Endurance.	Remarks.
	Knots.	No.		Tons.	Miles.	
As designed						
Max. speed on trial						
Sea-going full speed						
At 10 knots						

Sea-going Performances.

Date.	Draught of Water.	Displacement.	Duration.	Speed, Mean.	H. P. Mean.	Steam pressures.		Revolutions, Mean.	Coal Consumption.		Fuel used.
						At Engines.	At Boilers.		Per Hour per H. P.	Per Day for all Purposes.	
	Ft. ins.	Tons.	Hours.	Knots.		Lbs.	Lbs.	No.	Lbs.	Tons.	

Consumption of coal for all purposes per day in harbour, Tons.

" " " " exclusive of distilling, "

TABLE OF NAVAL ORDNANCE.

The data in this table is mainly derived from Krupp's published tables, and should therefore be accepted with reserve. For fuller details concerning ammunition, *see* the table of ammunition on Part IV., Section 2.

Guns.					Ammunition.					Ballistics.			Remarks.
Calibre and Model.	Exact Calibre.	Total Weight.	Length.		Charge.		Projectile.			Muzzle Velocity.	Muzzle Energy.	Muzzle Penetration, W. I.	
			Total.	Bore.	Weight.	Powder.	Nature.	Total Weight.	Burster.				
	Ins.	Tons.	Ft. Ins.	Calrs.	Lbs.			Lbs.	Lbs.	f. s.	Ft.-Tons.	Ins.	
15-in. (38.1 cm.), L/45	15	75 (?)	.....	.....	531.3 (?)	.....	.....	1,675 (?)	.....	2,760 (?)	.....	.....	
12-in (30.5 cm.) Q. F., L/50.	12	52.2 (?)	52 6	50	273.4	*See* Table of Ammunition			.....	2,800 (?)	.....	.....	In *"Thüringen"* and *"Kaiser"* classes and *"Derfflinger."*
11-in. (28 cm.) B. L., L/35.	11.02	43.0	32 1	32.0	317 212	P.P. C/85 P.P. C/85	Steel A.P. shell C. I. Common	529 531	Nil 15.4	2,247	18,520	28.0	
11-in. (28-cm.) B. L., L/40.	11.02	43.3	36 6	37.0	115 108	R.P. C/00 R.P. C/98	Steel A.P. shell C. I. Common	529 531	Nil 15.4	2,313	19,630	28.9	
11-in. (28 cm.) Q. F., L/40.	11.02	38.2	36 8	37						2,700	.....	.....	
11-in. (28 cm.) Q. F., L/45.	11.02	37	41 9	43	*See* Table of Ammunition					2,821	.....	.....	In *"Nassau"* class and *"Von der Tann."*
11-in. (28 cm.) Q. F., L/50.	11.02	.....	.....	.....						.....	.....	.....	In *"Moltke"* and *"Seydlitz."*
9.4-in. (24 cm.) B. L., L/35	9.45	21.6	27 7	32.0	.....	.....	H. E. Common	474	7.49	2,263	16,830	28.9	
9.4-in. (24 cm.) Q. F., L/40	9.45	25.2	31 4	36.9	*See* Table of Ammunition					2,739	16,090	31.1	
8.2-in. (21 cm.) Q. F., L/40	8.24	15.7	27 6	37	*See* Table of Ammunition					2,526	.....	.....	
8.2-in. (21 cm.) Q. F., L/40	8.24	19.9	30 11	42						.....	.....	.....	In *"Blucher"* only.
6.7-in. (17 cm.) Q. F. L/40.	6.69	7.8	22 3	37.7	*See* Table of Ammunition					2,726	7,365	24.8	
5.9-in. (15 cm.) Q. F. L/35.	5.87	4.4	17 2	32.0	15.8	R.P. C/00	Capped A. P. shot	88	.....	2,231	3,038	15.4	
					16.3	R.P. C/98	C. I. Common Shrapnel Star shell	88	2.8				
5.9-in. (15 cm.) Q. F. L/40.	5.87	4.7	19 6	37	.....	*See* Table of Ammunition also Star shell		88	.....	2,624	4,207	19.7	In *"Nassau,"* &c.
5.9-in. (15 cm.) Q. F. L/45. 5.9-in. (10.5 cm.) Q. F. L/50	5.87	....	....	....	*See* Table of Ammunition also Star shell			88		.....	.....	.....	
5.1-in. (13 cm.) Q. F.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
4.1-in. (10.5 cm.) Q. F. L/35	4.13	1.1	11 10	32.3						2,001	1,055	.....	
4.1-in. (10.5 cm.) Q. F. L/40	4.13	1.7	13 9	37.2	*See* Table of Ammunition also Star shell					2,296	1,390	.....	
4.1-in. (10.5 cm.) Q. F. L/45	4.13	.....	.....	.....						.....	.....	.....	In *"Breslau"* class. Automatic B. M.
4.1-in. (10 cm.) Q. F. L/50.	.....	.....	.....	.....						.....	.....	.....	
3.5-in. 22-pr. (8.8 cm.) Q. F. L/30.	3.46	.5	8 7	27.1	.....	.....	H. E. Common	22	3.13	1,936	.....	1.97	New T. B. D. and submarines gun.
3.5-in. 22-pr. (8.8 cm.) Q. F. L/45.	3.46	.....	.....	.....	*See* Table of Ammunition also Star shell					.....	.....	.....	Semi-automatic gun.
3.5-in. 15-pr. (8.8 cm.) Q. F. L/30.	3.46	.....	.....	.....						.....	.....	.....	T. B. and older T. B. D. gun.
3.5-in. 15-pr. (8.8 cm.) Q. F. L/35.	3.46	1.34	10 1	32.1						2,461	.....	.....	
		Lbs.									Ft.-Tons.	Ins.	
7-pr. (6 cm.) Bts. B. L. L/21.	2.36	238	4 1	18.6	0.88	Grob. K. P.	C.I. Ring Shell	6.6	0.15	1,168	62	.....	Boat and field guns.
7-pr. (6 cm.) Q. F. L/21...	2.36	.....	4 1	18.6	0.24	W.P. C/89	C.I. Ring Shell	6.6	0.15	.....	.....	.....	
4-pr. (5.2 cm.) Q. F. L/55..	2.05	860	9 5	52	.....	.....	C. I. Common	3.8	.....	2,789	205	.....	
									Oz.				
4-pr. (5 cm.) Q. F. L/40...	1.97	529	6 6	36.6	0.86	R.P. C/00	C. I. Common	3.8	0.9	2,165	124	.....	
4-pr. (5 cm.) Q. F. L/55...	1.97	.....	.....	.....	.....	.....	.....	3.8	.....	.....	.....	.....	
					Oz.								
1-pr. (3.7 cm.) Maxim automatic.	1.46	416	6 2	.....	1.5	.....	Common	1.0	0.4	1,800	22	.....	
.31-in. (8 mm.) Maxim automatic.	0.311	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Rifle calibre M. G.

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Part III. Section 1.

Fleet Strength.

FLEET STRENGTH.

Before the war the full strength of the German Fleet had been fixed at—

41 battleships
20 large cruisers } by the 1912 Amendment *Law* to the Fleet Law of 1900.
40 small cruisers

144 destroyers
72 submarines } by the Argument to the 1912 Amendment *Bill* to the Fleet Law of 1900.

The number of gunboats and special ships was not fixed.
This strength was to be attained as follows:—

Pre-War Programme of Construction.

Until the fleet had attained the established strength, the programme of construction was to consist of (1) the additional vessels required to bring it up to full strength, and (2) the vessels built to replace those which have reached the legal limit. After it had been attained, the programme, in theory, was to become one of replacement only.

As regards (1)—The following additional ships had still to be laid down to complete the fleet to establish strength:—

1 battleship "U" in 1916
1 small cruiser "P" in 1917 } included in the programme below.
1 battleship "V"
2 small cruisers "Q" and "R" } at a date to be determined later, and therefore not included in the programme below.

As regards (2)—According to Clause 2 of the Fleet Law, battleships, large and small cruisers, except in case of loss, were to be replaced after 20 years, this period being reckoned from the granting of the first instalment of the ship to be replaced to the granting of the first instalment for the ship which is to replace it. In elucidation, it was stated in the Amendment Bill of 1908, that the (actual) "replacement of a ship does not take place when the first instalment of the substitute ship is granted, but when the substitute ship is completed and commissioned."

The life of destroyers† and submarines‡ was taken to be 12 years, but was not legally fixed.

Excluding gunboats and other special ships, the programme of construction followed from 1897–98 to 1913–14, and that to be followed in accordance with an appendix to the 1912 Fleet Law Amendment Bill from 1914–15 to 1917–18 inclusive, was as follows:—

Financial Year.	Battleships.	Large Cruisers.	Small Cruisers.	Torpedo Boats (*i. e.* *Destroyers*).	Financial Year.	Battleships.	Large Cruisers.	Small Cruisers.	Torpedo Boats (*i. e.* *Destroyers*).
1897–98	1				1908–09				
1898–99	2	1	2	6	1909–10	3			
1899–1900	3		2	6	1910–11	3	1		
1900–01	2	1	2	6	1911–12	3	1	2	12
1901–02	2	1	3	6	1912–13	3	1	2	12
1902–03	2	1	3	6	1913–14	1	1	2	12
1903–04	2	1	2	6		2	1	2	12
1904–05	2	1	3	6	1914–15		1	2	12
1905–06	2	1	3	6	1915–16	1			
1906–07	2	1	2	12	1916–17	1	1		
1907–08	2	1	2	12	1917–18	2*	1	2	12
						1	1	2	12
							1	2*	12

* Including one additional ship.

No special programme of construction had been drawn up for the period after 1917–18.

The exact number of submarines laid down each year is not known, but 29 submarines in all were completed between 1906 (U. 1) and August 1914.

A tabular statement of battleships, large and small cruisers built, building, or to be built under the pro-war programme, either in replacement, or as additional, *i. e.*, to bring the fleet up to full strength, is given on next page.

† Memorandum accompanying Navy Estimates, 1906.
‡ Argument to the 1912 Amendment *Bill* to the Fleet Law of 1900.

Note 1.—In regard to the columns headed "Construction," where a letter follows a ship's name, or appears alone, the ship is additional to those in the first column which were reckoned towards the Established Strength in Appendix A. to the Fleet Law of 1900; where a ship's name only is given, or is preceded by the word *Ersatz* the ship is in replacement of the ship opposite it in the first column.

Note 2.—Ships in italics had been removed from the effective list before outbreak of war.

Note 3.—Dates in italics are dates of launch.

Battleships.			Large Cruisers.			Small Cruisers.		
Ships reckoned towards the Established Strength in Appendix A. to the Fleet Law of 1900. (*See* Notes 2 and 3 above.)	Year of granting First Instalment.	Construction from 1901 inclusive onwards. (*See* Note 1 above.)	Ships reckoned towards the Established Strength in Appendix A. to the Fleet Law of 1900. (*See* Notes 2 and 3 above.)	Year of granting First Instalment.	Construction from 1901 inclusive onwards. (*See* Note 1 above.)	Ships reckoned towards the Established Strength in Appendix A. to the Fleet Law of 1900. (*See* Notes 2 and 3 above.)	Year of First Instalment was to be granted.	Construction from 1901 inclusive onwards. (*See* Note 1 above.)
						Zieten	1876	Friedrich Carl.
						Merkur (*ex Arcone*)	1885	Roon.
						Alexandrine	1885	Gneisenau (C).
						Meteor	1890	Scharnhorst (D).
						Wacht	1887	Blücher (E).
						Blitz	1889	von der Tann (F).
						Pfeil	1892	Moltke (G).
						Comet	1892	Goeben (H).
						Greif	1893	Seydlitz (J).
						Jagd	1893	Derfflinger (K).
						Seeadler	1895	Lützow (L).
						Cormoran	1895	Hindenburg.
						Condor	1896	Mantcuffel.
						Seeadler	1896	Mackensen.
						Geier	1896	*Ersatz* Vineta
						Irene	1897	*Ersatz* Hansa.
						Princess Wilhelm	1898	
						Hela	1898	
						Gazelle	1899	
						Niobe (B)	1899	
						Nymphe (A)	1899	
						Thetis (C)	1899	
						Ariadne (D)	1899	
						Amazone (F)	1900	
						Medusa (E)	1900	
Bayern	1881							
Sachsen	1887							
Württemberg	1889							
Baden	1890							
Oldenburg	1896							
Siegfried	1888							
Beowulf	1889							
Frithjof	1890							
Hildebrand	1890							
Heimdall	1891							
Hagen	1891							
Aegir	1892							
Odin	1892							
Kurfürst Friedrich Wilhelm	1890							
Weissenburg	1889							
Brandenburg	1890							
Wörth	1891							
Kaiser Friedrich III	1894							
Kaiser Wilhelm II	1896							
Kaiser Wilhelm der Grosse	1897							
Kaiser Barbarossa	1898							
Kaiser Karl der Grosse	1898							
Wittelsbach (C)	1899							
Stettin (D)	1899							
Zähringen (E)	1899							
Mecklenburg (F)	1900							
Schwaben (G)	1900							

Battleships.			Large Cruisers.			Small Cruisers.		
Ships reckoned towards the Established Strength in Appendix A. to the Fleet Law of 1900. (*See* Notes 2 and 3 above.)	Year of First Instalment was to be granted.	Construction from 1901 inclusive onwards. (*See* Note 1 above.)	Ships reckoned towards the Established Strength in Appendix A. to the Fleet Law of 1900. (*See* Notes 2 and 3 above.)	Year of granting First Instalment, or of launch.	Construction from 1901 inclusive onwards. (*See* Note 1 above.)	Ships reckoned towards the Established Strength in Appendix A. to the Fleet Law of 1900. (*See* Notes 2 and 3 above.)	Year of First Instalment was to be granted.	Construction from 1901 inclusive onwards. (*See* Note 1 above.)
Braunschweig (H)	1901		*König Wilhelm*	*1893*		Kaiserin Augusta	1901	Frauenlob (G).
Elsass (J)	1901		*Kaiser*	*1874*		Berlin	1901	Arcona (H).
Preussen (K)	1902		*Deutschland*	*1874*		Victoria Louise	1901	Undine (J).
Hessen (L)	1902					Prinz	1902	Hamburg (K).
Lothringen (M)	1903					Hansa	1902	Bremen (L).
Deutschland (N)	1903					First Bismarck	1902	Berlin.
Pommern (O)	1904					Prinz Heinrich	1903	Mainz (M).
Hannover (P)	1904					Prinz Adalbert (*ex*)	1903	Lübeck.
Schleswig-Holstein (Q)	1905							Leipzig (N).
Schlesien (R)	1905							Danzig.
Nassau	1906							Königsberg (*old*).
Westfalen	1906							Stuttgart (O).
Rheinland	1907							Stettin.
Posen	1907							Nürnberg (*old*).
Ostfriesland	1908							Emden (*old*).
Helgoland	1908							Kolberg.
Thüringen	1908							Mainz.
Oldenburg	1909							Cöln.
Kaiser	1909							Augsburg.
Friedrich der Grosse	1909							Magdeburg.
Kaiserin	1910							Breslau.
König Albert	1910							Stralsund.
Prinzregent Luitpold	1910							Strassburg.
Grosser Kurfürst	1911							Karlsruhe (*old*).
Markgraf	1911							Rostock.
König (S)	1911							Regensburg.
Kronprinz	1912							Graudenz.
Bayern (T)	1913							Wiesbaden.
Sachsen	1914							Frankfurt.
Württemberg	1915							Königsberg (*new*).
Ersatz Kaiser Wilhelm der Grosse (U)	1916							Karlsruhe (*new*).
	1916							Emden (*new*).
Ersatz Barbarossa (V)	1917							Nürnberg (*new*).
	*							*Ersatz* Ariadne.
								Ersatz Amazone.
								Ersatz Medusa.
								(P).
								(Q).
								(R).

* The date of laying down this additional ship, sanctioned by the 1912 Amendment to the Fleet Law, was not fixed at outbreak of war.
† The date of laying down these two additional ships, sanctioned by the 1912 Amendment to the Fleet Law, was not fixed at outbreak of war.
§ Sold to Turkey in 1910.

Part III. Section 1.

Fleet Strength.

CONSTRUCTION AND LOSSES DURING THE WAR.

It may be of interest to compare the figures given at the top of page 18, which were to be attained at some date subsequent to 1920, with the actual known strength of the German fleet in June 1917.

The figures for June 1917, excluding vessels outside the age limit, are as follows:—

Thirty-six battleships, including three vessels of the *Kaiser Friedrich* class, which are of no practical fighting value.

Seven large cruisers, viz., five battle cruisers and two cruisers, one of the latter being negligible as a modern fighting unit.

Thirty-two small cruisers.

About 150 destroyers.

About 160 submarines of all classes, including five of no fighting value, which serve for instructional purposes.

It will thus be seen that the number of battleships and large and small cruisers still falls considerably short of the intended standard; this is, of course, partly due to the losses sustained during the war, particularly in the case of cruisers, as is shown below.

On the other hand, the number of destroyers is slightly, and the number of submarines very much, in excess of the prescribed strength; great activity having been displayed in the construction of submarines throughout the war, and in the construction of destroyers during the first two years of it.

All the battleships, battle cruisers, and light cruisers authorised under the pre-war programme of construction, have been laid down on or before their appointed dates. In the case of light cruisers the dates have been considerably anticipated, and in addition, a number of smaller light cruisers of the *Brummer* type, not contemplated in the pre-war programme, have been laid down. These last-named vessels, though essentially light cruisers in general design, speed, and armament, are specially adapted for minelaying, and therefore in this book are designated minelaying cruisers.

The rate of construction for capital ships and light cruisers has been, almost without exception, slower than the peace rate, although not greatly so.

The following are (June 1917) the figures of losses and newly completed ships since August 1914:—

—	Lost.	Added.	Increase or Decrease.
Battleships	1	4*	+3
Battle cruisers	1	2†	+1
Cruisers	6	.....	−6
Light cruisers	17	15‡	−2

*Two *Königs*, two *Bayerns*. †*Lützow* and *Hindenburg*. ‡Includes four *Brummers*.

Part III. Section 1.

Fleet Strength.

EXPENDITURE ON NEW NAVAL CONSTRUCTION AND ARMAMENTS.

Financial Year.	Amounts *voted* for New Construction, including Armaments.
	£
1890–91	1,844,712
1891–92	1,734,900
1892–93	1,412,935
1893–94	1,363,945
1894–95	972,930
1895–96	1,062,535
1896–97	1,252,340
1897–98	2,454,400
1898–99	2,565,600
1899–1900	2,832,750
1900–01	3,401,907
1901–02	4,653,423
1902–03	4,662,769
1903–04	4,388,748
1904–05	4,275,489
1905–06	4,720,206
1906–07	5,167,319
1907–08	5,910,959
1908–09	7,795,499
1909–10	10,177,062
1910–11	11,392,856
1911–12	11,710,859
1912–13	11,491,187*
1913–14	11,010,883†
1914–15	10,316,264‡

* Includes 97,847*l.* for airships and experiments with airships.
† Includes 291,096*l.* for airships and experiments with airships.
‡ Amount proposed, includes 431,405*l.* for airships and experiments with airships

Part III. Section 1.

General Remarks.

GENERAL REMARKS CONCERNING SHIPS, ETC.

Index.

Part III. Section 1.

General Remarks.

GENERAL REMARKS CONCERNING SHIPS, ETC.

Accommodation.—The following detailed information is derived from a German official publication, and is believed to apply to the earlier German Dreadnoughts. In general it may be stated that the accommodation in German vessels appears, as a rule, more crowded than in British vessels of a similar class. This is due mainly to the larger complements carried, and is partly counteracted by the neat and convenient arrangements for stowage of clothes, bedding, etc., and by the manner in which every available space is utilized.

Description of Accommodation.	Accommodation provided.	Remarks.
CABINS.*		
Admiral commanding Squadron or Division.	1 reception and dining room 1 day cabin. 1 sleeping cabin. 1 bathroom with closet.	Cabins leading as far as possible from one to another; preferably on starboard side of the ship where the cabins do not occupy the whole breadth of the ship.
Captain	Do. do.	In flagships a special captain's mess is not fitted.
Chief of Staff	1 day cabin	In flagships with squadron staff only.
Executive Officer	1 sleeping cabin. 1 bathroom with closet. 1 day cabin	In as quiet a place as possible on the upper deck, and well lighted.
Officers:	1 sleeping cabin. (In small cruisers, a single larger cabin only.)	
Navigating, Gunnery, Torpedo Officers, Watchkeepers, Adjutant, Surgeons, Engineers, Fleet Constructor, Paymaster, Chaplain.	1 cabin each	The cabins on the upper deck are primarily for the Navigating Officer, Gunnery Officer, and Staff Surgeon. The bunks are placed amidships.
Sub-Lieutenants: (For every 2 Sub-Lieutenants).	1 cabin as above, or an enclosed living space (berth) and washplace combined.	With double bunk or sofa bunk for 2.
Disposable: (For the use of supernumeraries: Constructor, Assistant Constructor, Reserve Officers, Umpires at manœuvres, &c.).	1 cabin with 2 bunks; in small cruisers with 1 bunk.	All officers' cabins are to be adequately lighted by natural light.
Squadron or Division Staff: Flag-Lieutenant, Engineer, Paymaster, Chaplain, Signal Officer, Admiralty Staff Officer, Surgeon, Judge-Advocate, and Secretary.	1 cabin each	Flag-Lieutenants' and Signal Officers' cabins are to be as close as possible to the fore bridge. Admiral's Secretary's cabin next to the Admiral's office.
Warrant Officers: Senior Chief E. R. Warrant Officer, Gunner, Navigating Warrant Officer, Boatswain, Storekeeper, Pumpmaster, Master-at-Arms, Carpenter.	1 cabin each	In flagships a cabin is provided for the bandmaster as well if there is sufficient space. If not, he is accommodated with the carpenter.

* Officers' cabins are fitted for steam-heating. The bunks, wherever possible, are placed away from the ship's side against the inner fore-and-aft bulkhead. Floor space in general 8′ 4″ long and 8′ 3″ wide. Height 6½′ to 7½′. The walls and partitions are of steel and are covered with an insulating material.

Description of Accommodation.	Accommodation provided.	Remarks.
Warrant Officers—*contd.* The rest of the warrant officers borne as part complement: for every 2 W. O.s.	1 cabin	If necessary 3 Warrant Officers may occupy 1 cabin.
Cooks and stewards. If more than 4 are allowed in complement.	1 cabin 2 cabins	
BATHROOMS AND WASH-PLACES.		
Officer commanding Squadron, Division, or Flotilla, Chief of Staff, Captain.	1 bathroom each, with fixed bath and shower-bath, adjoining the sleeping cabin.	When there is lack of space, a common bathroom is provided for the Captain and the Chief of Staff.
Members of the Officers' Mess.	2 in battleships and large cruisers (including 1 for the engineers);—in other ships 1 bathroom as above.	
Midshipmen and Cadets...	In training ships, as large a room as possible, with shower-baths and hand basins (1 for every 2 cadets, and 1 bath partitioned off).	If there is not enough space for the provision of a separate bathroom with fixed bath, the midshipmen are to make use of the bath accommodation provided for members of the Officers' Mess.
Members of Warrant Officers' Mess.	Bathroom, with separate shower-baths for one-third of the complement of W. O.s of the engine room personnel.	With partition—the height of a man—seat, 3 cupboards, and waterproof curtains. In the larger ships, if there is space, a second bathroom with bath may be provided for the other Warrant Officers also.
Other Engine-room ratings.	Bathroom with washing and shower-bath arrangements for at least one-sixth to one-third of the ratings of the engineering branch, 1 shower for every 2–3 men, and 1 hand basin for each man.	These rooms have two entrances. Half the showers and all hand basins have fresh-water supply, two-thirds of the showers salt-water supply. Partition for P. O.s, 5 ft. high.
Remainder of the ship's company.	Joint use of the bathrooms for ratings of the engineering branch.	In addition, in suitable places 2 to 10 hand basins, each with a tap from fresh-water supply, and a few shower-baths with fresh-water supply and drainage, are provided.
SICK BAY		Situation must be light and airy. Entrance at least 3½ ft. broad. Battleships and large cruisers are provided with swinging cots for 1.5 per cent., small cruisers for 2 per cent. of complement. Floor space for each swinging cot is at least 5$\frac{3}{4}$ sq. ft.: and there is an interval of at least 17$\frac{3}{4}$ in. between 2 cots, so that they can swing 20 degrees either side. Bathroom close to sick bay with bath and shower-bath, fresh-water supply and heating apparatus.
DISPENSARY		As near as possible to the sick bay. In ships with complement of 100 and over, at least 8¼ ft. deep, 8½ ft. broad, with regulation fittings. Must be easily accessible at night, light and airy. Small ships are fitted with a cupboard for medicines and surgical dressings, or carry a medicine chest only.

Description of Accommodation.	Accommodation provided.	Remarks.
DRESSING STATION		In battleships and large cruisers, 21½ ft. long, 14 ft. broad, without hatchways, and in addition a gangway at least 5 ft. broad. Behind armour, cool, easily accessible, and as far as possible, enclosed. Near well-protected and airy spaces which are suitable for accommodating wounded. Space for depositing 10 per cent. of the complement. Hatchways and doors for transport, 4$\frac{3}{4}$ ft. x 2$\frac{1}{4}$ ft. Other ships, in so far as they possess dispensaries, are provided with a surgical dressing cupboard in a protected position. 2 operating tables, 6$\frac{1}{4}$ ft. x 2$\frac{1}{4}$ ft., with a 7$\frac{1}{2}$ ft. gangway between. At the free ends and sides a space at least 2 ft. wide. Arrangements are fitted for lighting, ventilation, water supply and drainage.
CELLS	Battleships, 3–4. Large cruisers, 3. Small cruisers, 1.	Contain plank bed with hinged table. Must not be near the engine rooms, and must be well ventilated.
DRYING ROOMS	43 sq. ft. floor space in all ships for every 50 men. Existing sources of heat to be utilised if possible. If the room is used for other purposes as well, e. g., as a sleeping place, double the floor space must be provided.	Ceilings and free walls at sides to be insulated with cork. With a temperature on deck of 14° F., the temperature in the drying room can be raised to from 63° to 72° F. Artificial ventilation.
WIRELESS ROOM		In battleships and large cruisers, behind armour; in small cruisers, on the upper deck aft. Floor space at least 8$\frac{1}{4}$ x 8$\frac{1}{4}$ ft. Height 7$\frac{1}{4}$ ft. Door on after side and to open outwards. Position to be chosen with reference to the most favourable lead for the wires using both masts. Ventilation, heating, and insulation of the walls to be provided. A table against 2 or 3 walls 31½ ins. in breadth and the same in height.
CUPBOARDS AND LOCKERS: Cadets' cupboards	A number corresponding to the midshipmen, naval cadets, or engineer aspirants in complement.	Of galvanised iron. In or outside the mess. The cupboards are about 6 ft. high, 2 ft. 6 ins. wide and 1 ft. 6 ins. deep and are built into the ship. They are neat and serviceable, and there is sufficient room for kit and all effects.
Clothes lockers	Corresponding to the numbers sleeping in hammocks, together with a small number as spare. Each with 2 compartments side by side— 17.7″ high x 12.7″ wide x 19.7″ deep for clothes. 17.7″ high x 7.3″ wide x 19.7″ deep for boots. A movable shelf divides each of the compartments into 2 parts, 8″ high (above) and 9$\frac{3}{4}$″ (below).	Of galvanised iron. In the same compartment as the mess tables if possible, but in any case on the same deck. Each locker has a thin iron door which is padlocked. The lockers are numbered with brass letters. They are built into the ship, and extend from the deck to a height of about 5 to 6 ft. They are fitted into any available space, there being a great saving of space as compared with bags and bag racks.
Stokers' lockers for dirty clothes. (These are in addition to the clothes lockers previously mentioned.)	For the established number of engine-room personnel, plus 20 spare for battleships, 14 for large cruisers, 10 for small cruisers. Divided into 2 compartments by a horizontal shelf of thin iron sheeting— 17.7 x 13.8 x 7.9 ins. (below), 17.7 x 13.8 x 5.9 ins. (above).	Of galvanised iron. Outside the bathroom or in the bathroom (above the hand basins).

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Part III. Section 1.

General Remarks.

Alarm Bells.—In all modern vessels, alarm bells for use in night defence are fitted outside officers' cabins and on the mess decks.

Anchors, Capstans, and Chain Cables.—ANCHORS.—Hall's stockless anchors are carried almost exclusively by all larger vessels.

Admiralty pattern anchors are used in river gunboats, torpedo boats, and generally in destroyers.

Bower Anchors.—Two are carried by all larger vessels—destroyers carry one only.

Sheet Anchor.—A sheet anchor is supplied, as a rule, to battleships and battle cruisers only.

Stern Anchor.—Almost all ships carry one—destroyers and torpedo boats excepted. Whenever possible, the stern anchor (stockless) is carried in a stern hawse-pipe in the centre line of the ship ready for letting go instantly.

Kedge Anchors.—Are supplied to cruisers and light cruisers only.

CAPSTANS.—Baxter capstans are usually fitted. In large ships there are two on the forecastle before the turret and one on the quarterdeck. In addition in later ships one warping capstan, worked by the capstan engine, is fitted on the forecastle and another on the quarterdeck.

CHAIN CABLES.—Each cable of 1.53 ins. thickness and over consists of 9 shackles; if under 1.53 ins. of 7 shackles. A shackle is 82 ft. long. 18 shackles are carried for the bower anchors and 3 as spare. Where no chain cable is supplied for the stern anchor, the heaviest steel hawser carried is utilised instead.

Full Load Displacement of Ship. Tons (British).	Anchor.			Chain Cable for Bower Anchor.
	Bower.	Stern.	Kedge.	
	Weight in Tons.			Thickness in inches.
1,480— 2,460	2	.7	.25	1.65
2,460— 3,440	2.5	.9	.3	1.77
3,440— 4,430	3	1.1	.3	1.89
4,430— 5,900	3.5	1.3	.4	2.00
5,900— 7,380	4	1.6	.5	2.13
7,380— 8,860	4.5	1.85	.6	2.24
8,860—10,330	5	2.1	.7	2.36
10,330—12,300	5.5	2.4	.7	2.36
12,300—14,760	6	2.7	.8	2.48
14,760—18,210	6.5	3.1	.8	2.60
18,210—22,150	7	3.5	.9	2.71
22,150—26,570	7.5	3.75	.9	2.83
26,570—32,480	8	4	1.0	2.95

Armour, &c.—General disposition of side armour and under-water protection in Dreadnought battleships and battle cruisers:

The system of armouring is that of a closed caisson extending between the extreme turrets, the main side armour being closed transversely at the ends by vertical armoured bulkheads. Beyond the caisson, the armour is continued to bow and stern by armour of lesser thickness.

The under-water protection against torpedoes and mines consists of (*a*) protective coal bunkers; and (*b*) a closed caisson, of the same length as the principal belt, formed by a torpedo protection bulkhead on each side, and a transverse bulkhead connecting the ends forward and aft.

The best description available of the armour and other protection in a German capital ship is that given for the battle-cruiser *Seydlitz*. The details there given may be accepted as absolutely authentic.

An equally reliable, though less detailed, description is that given for the *Derfflinger* (*see* Section 2, Battleships, &c.). It should be noted that in this vessel the under-water protection has been augmented by (*c*) supply bunkers on the inner side of the torpedo protection bulkhead.

Boats.

	Dimensions.			Weights.					Engines or *Motors.*	Boilers.	Speed.	Cost, excluding Equipment.	Numbers that can be carried in moderate weather with all Stores on board.
	Length.	Breadth.	Depth.	Hull.	Machinery.	Equipment.	Fuel.	Total.					
				Cwt.	Cwt.	Cwt.	Cwt.	Cwt.				£	
Motor Boats, Class A	47′ 7″	9′ 2″	.....	.....	60	.....	.....	180	Daimler	.....	13	1,960	.....
A	49′ 10″	9′ 3″	.....	.....	85	.....	.....	195	Körting	.....	14½	1,910	.....
C*	39′ 4″	8′ 4″	.....	.....	40	.....	.....	120	Daimler or Körting	.....	11	1,560	.....
I	32′ 10″	8′ 2″ to 9′ 0″	.....	.....	17	.....	.....	80	Daimler or Körting	.....	8	880	.....
II	27′ 10″	6′ 7″	.....	.....	14	.....	.....	40	Daimler	.....	8	440	.....
III	24′ 7″	6′ 3″	.....	.....	10	.....	.....	20	Naval type, Daimler or Körting	.....	7	300	.....
Pulling Launch, with Auxiliary Motor, No. O	45′ 11″	11′ 10″	.....	.....	17	.....	.....	90	Daimler or Körting	.....	7½	610	.....
Steamboat, Class A	52′ 6″	10′ 3″	4′ 6″	120	150	30	40	340	3-cylinder compound.	Water-tube	12	2,310	30
A	52′ 6″	10′ 3″	4′ 6″	110	120	35	60	325		Locomotive	12	2,130	30
I	32′ 9″	8′ 9″	4′ 3″	45	80	35	10	170	2-cylinder compound.	Locomotive	8	760	25
II	29′ 6″	8′ 0″	4′ 0″	35	60	30	10	135			7½	660	20
III	26′ 3″	7′ 3″	3′ 6″	30	50	25	5	110			7	595	14
Naphtha Boat, Class II	28′ 0″	6′ 10″	2′ 9″	20	10	25	5	60	3-cylinder single-acting.	Coiled tubes	5½	415	28
III	26′ 3″	6′ 10″	2′ 9″	20	10	20	5	55			6	410	24
Pulling Boats:— Launch, Class I	42′ 6″	11′ 0″	4′ 0″	65	.....	21	.....	86	.....	.....	.....	245	100
II	39′ 0″	10′ 3″	3′ 9″	50	.....	20	.....	70	.....	.....	.....	220	90
III	36′ 0″	9′ 6″	3′ 6″	38	.....	19	.....	57	.....	.....	.....	205	80
IV	33′ 0″	9′ 0″	3′ 6″	42	.....	17	.....	59	.....	.....	.....	185	70
Pinnace, Class O	36′ 0″	9′ 6″	3′ 6″	49	.....	14	.....	63	.....	.....	.....	175	80
I	33′ 0″	9′ 0″	3′ 6″	35 / 38	.....	14	.....	49 / 52	.....	.....	.....	160	62
II	31′ 0″	8′ 9″	3′ 3″	31	.....	13	.....	44	.....	.....	.....	150	56
Cutter, Class O	33′ 0″	8′ 3″	3′ 0″	26	.....	11	.....	37	.....	.....	.....	125	50
I	29′ 6″	7′ 3″	2′ 9″	24	.....	11	.....	35	.....	.....	.....	†105	
II	28′ 0″	7′ 0″	2′ 9″	22	.....	11	.....	33	.....	.....	.....	115	42
III	26′ 0″	7′ 0″	2′ 9″	18	.....	10	.....	28	.....	.....	.....	†90	
IV	24′ 6″	6′ 6″	2′ 6″	17	.....	9	.....	26	.....	.....	.....	95	35
Gig, Class I	33′ 0″	6′ 3″	2′ 6″	12	.....	8	.....	20	.....	.....	.....	†85	
II	30′ 6″	6′ 0″	2′ 6″	11	.....	7	.....	18	.....	.....	.....	90	30
III	26′ 3″	6′ 0″	2′ 3″	9	.....	6	.....	15	.....	.....	.....	†80	
Jolly Boat, Class I	19′ 6″	6′ 3″	2′ 6″	11	.....	5	.....	16	.....	.....	.....	80	28
II	18′ 0″	6′ 0″	2′ 3″	10	.....	5	.....	15	.....	.....	.....	†70	
Skiff-dinghy	12′ 0″	4′ 3″	1′ 9″	2½	.....	0¾	.....	3¼	.....	.....	.....	60	20
Whaler	25′ 0″	6′ 3″	2′ 6″	9	.....	6	.....	15	.....	.....	.....	†45	
Boat for T. B. D.'s and T. B.'s.	12′ 6″	4′ 3″	1′ 6″	2½	.....	0¼	.....	2¾	.....	.....	.....	55	16
												†40	
												25	3
												†20	
												†60	20
												20	3

*Admiral's boat. †Carvel built.

Remarks.

Boats during Action.—When going to sea in expectation of an action, modern battleships and battle cruisers leave all their boats in harbour.

Motor Boats.—These have very largely replaced steam boats, but there appears to be no present intention of doing away with the latter entirely, more especially on foreign stations where there may be difficulty in obtaining supplies of fuel. In some cases (*e. g.*, light cruiser *Bremen*) one gig has been replaced by a small motor boat for the Captain's use, run by two men in order to economise in men and thus not interfere with gun drill. They are very lightly built and would probably not stand rough work, such as towing targets, sweeping, &c. The class "A" boats are fast in smooth water, but are reported soon to loose their speed in a seaway.

In most of the boats either benzine or benzol is used as fuel, but it is stated alcohol may be used alternatively.

Scale of Boats allowed.

Class and Type of Ship.	Ship's Displacement.	Motor Boats.		Steam Boats.		Pulling Boats.										Total No. of Boats carried.
						Launch.		Pinnace.		Cutter.		Gig.		Jolly Boat.		Skiff Dinghy.	
		No.	Class.	No.	Class.	No.	Class.	No.	Class.	No.	Class.	No.	Class.	No.	Class.	No.	
Battleships:	Tons.																
König	25,390	2	A.	1	I.	2	0	–	–	2	0	–	–	2	I.	–	11
		1	C.														
		1	III.														
Nassau	18,600	1	I.	2	I.	2	0	–	–	2	0	–	–	2	I.	–	10
		1	III.														
Deutschland	13,040	1	A.	2	I.	2	0	–	–	2	0	2	I.	2	I.	–	13
		1	C.	1	II.												
Braunschweig	12,988	–	–	1	A.	2	0	–	–	2	0	1	I.	2	I.	–	10
				1	I.							1	II.				
Wittelsbach	11,611	–	–	1	A.	2	0	–	–	2	0	1	I.	2	I.	–	5
				1	I.							1	III.				
Kaiser Friedrich	10,474	–	–	1	A.	2	0	–	–	2	0	1	I.	2	I.	–	10
				1	I.							1	II.				
Brandenburg	9,991	–	–	1	T.	2	I.	–	–	2	I	1	I.	2	I.	–	10
				1	I.							1	III.				
Battle Cruisers:																	
Derfflinger	26,180	1	A.	1	A.	1	0	1	I.	2	0	1	I.	–	–	–	8
		1	C.									1	III.				
		1	III.														
von der Tann	19,100	1	A.	1	A.	1	0	1	I.	2	0	–	–	–	–	–	8
		1	C.														
		1	III.														
Cruisers:																	
Roon	9,348	1	C.	2	I.	1	I.	1	I.	2	0	2	I.	3	I.	1	13
				1	A.												
Prinz Heinrich	8,756	–	–	1	I.	1	I.	1	I.	2	0	2	I.	2	I.	1	13
				1	III.							1	III.				
				1	A.												
Fürst Bismarck	10,520	–	–	1	I.	1	0	2	0	2	0	2	I.	2	I.	1	14
				1	III.							1	III.				
Light Cruisers:																	
Stettin	3,494	1	II.	1	II.	–	–	1	II.	2	II.	1	II.	3	II.	1	10
Berlin	3,230	–	–	1	II.	–	–	1	II.	2	II.	2	II.	2	II.	1	9
Arcona	2,656	–	–	1	III.	–	–	1	II.	2	II.	2	II.	2	II.	1	9
Gazelle	2,558	–	–	1	III.	–	–	1	II.	2	II.	2	III.	1	II.	1	8
										2	I.	1	II.	2	II.	2	16
Hertha	5,575	1	I.	1	I.	2	II.	1	II.	4	II.						
										2	II.	1	II.	1	II.	1	8
Gefion	3,705	–	–	1	I.	–	–	1	II.	2	II.	1	III.	2	II.	–	10
												1	II.				
Kaiserin Augusta	5,960	–	–	1	T.	1	II.	1	II.	2	II.	1	III.	2	II.	1	8
				1	I.												
Special Vessels:																	
Blitz	1,366	–	–	1	III.	–	–	–	–	2	II.	2	II.	2	I.	1	6
Schwalbe	1,100	–	–	1	III.	–	–	–	–	1	II.	1	III.	2	II.	1	7
Gunboats:																	
Eber	984	–	–	1	III.	–	–	–	–	1	II.	2	II.				
Geier	1,590	–	–	1	III.	–	–	–	–								

Remarks—continued.

This fuel appears formerly to have been stowed below, but since the occurrence of a severe explosion on board the cruiser *Yorck*, where the receptacles were in a wing or passage alongside the engine-room, it is stowed in safety tanks on the upper deck.

The new fast boats ("Schnellboote") are direct-driven by Diesel motors with mechanical reversing gear, and exhaust by a short funnel. They are 41 feet in length, weigh about 10 tons, and have a speed of 14 knots.

Naphtha Boats.—Are obsolescent.

Classification.—German war vessels are classified as follows:—

German classification.	Translation.	British classification.
Linienschiffe	Battleships	Battleships.
Küstenpanzerschiffe	Armoured Coast Defence Ships.	Coast defence ships.
Grosse Kreuzer	Large cruisers	Battle cruisers and cruisers.
Kleine Kreuzer	Small cruisers	Light cruisers.
Kanonenboote	Gunboats	Gunboats.
Flusskanonenboote	River gunboats	River gunboats.
Schulschiffe	School ships	Special vessels.
Spezialschiffe	Special ships	
Grosse Torpedoboote	Large torpedo boats	Destroyers and division boats.
Kleine Torpedoboote	Small torpedo boats	Torpedo boats.
Unterseeboote	Submarines	Submarines.

The classification in the last column has been followed as nearly as possible in this publication. The following exceptions are noted.

The five training ships for cadets and boys—*Freya, Hansa, Hertha, Victoria Louise,* and *Vineta,* as well as the *Kaiserin Augusta*—are classified in the German list as large cruisers whereas in this work they are classified as light cruisers.

The British classification of cruisers (except battle cruisers) was changed on 31st January 1913. Prior to that date:—

Cruisers were termed { Armoured cruisers. / Protected cruisers 1st class.

Light cruisers were termed { Protected cruisers 2nd class. / Protected cruisers 3rd class. / Unprotected cruisers. / Scouts.

All German ships now classified as cruisers were previously termed armoured cruisers. The present light cruiser list, in addition to vessels previously classified as protected cruisers 2nd class, includes:—

Protected Cruisers 3rd class.

Amazone.
Arcona.
Gazelle.
Medusa.
Niobe.
Nymphe.
Thetis.

Coaling.—German ships in home waters almost invariably coal from lighters and not from colliers. The best pre-war coaling performance was that of the battleship *Helgoland,* which, in 1913, was reported to have taken in 744 tons in one hour. Under war conditions battleships usually coal about once a week, taking in, in the case of the *König* class, 700–800 tons at the rate of about 300 tons an hour.

Colour.—With the following exceptions, all German war vessels are painted light grey. Destroyers and torpedo boats are usually painted black, but some modern destroyers are painted grey. Submarines are usually painted grey.

For funnels, *see* p. 32.

Compasses.—The Anschütz gyro-compass is in extensive use supplemented by liquid compasses.

Cost.—Particulars of the cost of each type of ship will be found in the detailed description of the type.

The cost of ships is shewn in the German Navy Estimates under three broad headings—Shipbuilding, Gun Armament, and Torpedo Armament; the first of these also includes cost of machinery and of trials. It is not clear whether torpedo nets and mines are included under these heads.

For more detailed information regarding cost of Gun Armament, *see Ostfriesland* (Section 2, Battleships, &c.).

The cost of British and German ships is not directly comparable, as in Germany the cost of the reserve ammunition as well as of the first outfit of ammunition is included under the head of Gun Armament. It is not clear whether reserve guns and mountings are also included, but this is probable.

Before the war money for construction was voted in annual instalments as follows:—

Battleships	4 instalments.
Large cruisers	4 instalments.
Small cruisers	3 ,,
Flotillas (of 12 destroyers)	2 ,,
Submarines	A lump sum was voted annually, but the number to be built was not disclosed.
Other vessels	The number of instalments varied.

The instalments *voted*—the actual expenditure was not published—for the last ships for which complete figures are available, are:—

Instalment.	Battleship "König." Hull, Machinery, &c.	Gun Armament.	Torpedo Armament.	Total.	Battle-Cruiser "Derfflinger." Hull, Machinery, &c.	Gun Armament.	Torpedo Armament.	Total.
	£	£	£	£	£	£	£	£
1st	269,080	195,695	14,677	479,452	244,618	146,771	9,785	401,174
2nd	513,699	232,387	21,526	767,612	538,160	134,540	13,699	686,399
3rd	440,313	256,849	14,188	711,350	415,851	256,849	10,763	683,463
4th	244,619	196,184	16,634	457,437	251,957	197,162	13,209	462,328
Totals	1,467,711	881,115	67,025	2,415,851	1,450,586	735,322	47,456	2,233,364

Instalment.	Light Cruiser "Graudenz." Hull, Machinery, &c.	Gun Armament.	Torpedo Armament.	Total.	Total for Twelve Destroyers, V 25—S 36. Hull, Machinery, &c.	Gun Armament.	Torpedo Armament.	Total.
	£	£	£	£	£	£	£	£
1st	122,309	24,462	4,892	151,663	489,237	48,924	90,509	628,670
2nd	122,309	24,462	10,763	157,534	479,452	44,031	119,961	643,444
3rd	73,385	24,462	10,763	108,610	.....	.....	.....	.....
Totals	318,003	73,386	26,418	417,807	968,689	92,955	210,470	1,272,114

Displacement.—The official displacements of German war vessels—excepting destroyers, torpedo boats and submarines—are published in the German Navy List (Rangliste der Kaiserlichen Marine) and are quoted in metric tons. This Navy List displacement is the designed load displacement, calculated on the basis of what is called the "normal" stowage of fuel and the "authorised" equipment. The "normal" stowage of fuel is always less than half the maximum stowage—in the case of large vessels very considerably less. In practice, therefore, the designed displacement will almost always be exceeded except when the vessel is very light.

Docking.—Ships in commission are usually docked once a year during their annual refit; but where considerable loss of speed arises through fouling of bottom, they may be docked a second time.

Destroyers and torpedo boats which are regularly, though not necessarily continuously, in commission throughout the year, are docked twice a year and have their bottoms coated. The first docking takes place prior to commissioning, the second at some suitable period whilst in commission.

Powder and filled shell are discharged if a stay of more than eight days in dock is anticipated.

Battleships of *Deutschland* type and earlier, as a rule, are docked with empty upper bunkers, and with at most 600 tons in their lower bunkers. The same applies to cruisers of *Roon* type and earlier, except that they may have 750 tons in their lower bunkers.

Draught.—The draught quoted in this publication, unless otherwise stated, is the designed draught, *i. e.*, extreme draught at designed load displacement. In practice this draught is almost always exceeded except when the vessel is in a very light condition.

Draught Marks.—Draught marks are applied on both sides of the ship—as a rule forward and aft only; but in ships whose keel takes a convex form, the marks are also applied on both sides above the lowest point of the keel, from which in this case the depth is reckoned. Arabic numerals are used, the lower edge of which marks the depth indicated.

The zero of the after draught marks is reckoned from the horizontal plane passing through the deepest point of the ship aft—keel, sternpost, bottom of rudder, deepest point reached by the propeller, &c.

The zero of the forward draught marks is reckoned from the horizontal plane passing through the deepest part of the keel forward.

In ships of over 100 tons displacement, the figures are 100 mm. (3.9 in.) high and represent decimetres. Even numbers only are affixed, and are carried at least 19.7 in. above the load waterline.

In smaller vessels and torpedo boats the figures are 50 mm. (2 in.) high and are carried at least 9.8 in. above load waterline.

The draught marks in both cases are carried downwards to the draught the vessel will have when placed in II. Reserve, *i. e.*, when ready for commissioning at any time with stores partially on board.

Electric Leads.—In large vessels the lighting circuits are on the ring system, main leads below the armoured deck. Single twin-cored cable is used. The internal lighting is on five main circuits—

(1)—Forward and above armoured deck;
(2) and (3)—Space below armoured decks;
(4)—After section and above armoured deck;
(5)—Upper deck.

Lighting in charthouse and all fighting positions, *e. g.*, magazines, &c., is fed from two circuits.

Motor circuits are not on the ring system.

The voltage is 220 in modern large vessels, 110 in destroyers and T. B.'s.

Flooding Arrangements.—In modern vessels the arrangements fitted for flooding the ma azines are:—

(*a*) For quick flooding, pipes in direct communication with the sea.

(*b*) For drenching charges and keeping down the temperature of the magazine, pipes are fitted just below the crown of the magazine, perforated with small holes, and supplied with water by means of a small pump.

The magazines can be flooded from within of from a small compartment outside.

Fuel.—*Westphalian Coal* is used for the steam trials of newly built ships, except, perhaps, torpedo craft. It is in general use in all ships in Home Waters, including torpedo craft, after their entry into the fleet.

Tar Oil derived from pit (black) coal is used in the larger German ships fitted to burn oil fuel, except when residual petroleum can be obtained more cheaply. This tar oil is of low viscosity, similar to shale oil, and has a specific gravity of 1.0 to 1.1; the heavier varieties can consequently be flooded in case of fire.

Heavy Oil, as a rule a first distillate of tar oil, specific gravity about 0.9, is used in all but the earliest submarines.

Benzine and *Benzol*, or alternatively *Alcohol*, are used for motor boats.

Funnels.—During the war the peace-time system of painting bands on the funnels appears to have been entirely discarded. On the High Sea Fleet proceeding to sea, the funnels of all the larger vessels and their attendant destroyers are sometimes repainted a special colour. This is done after leaving harbour. Yellow, brown, and blue are the most usual colours.

Furniture.—Almost all furniture of cabins and messes is made of thin steel, and is manufactured, as a rule, in the Imperial Dockyards. In use, this furniture is found to be only slightly liable to rust, but it is not possible to prevent sweating entirely, and the furniture is therefore lined with pegamoid.

Gas Masks.—Gas masks were just being supplied to the fleet at the time of the battle of Jutland. Sufficient are now carried for every man in the complement.

Magazines.—In all modern battleships, battle cruisers, and light cruisers, the magazines are below the shell rooms, the latter being immediately under the armoured deck.

For magazine cooling arrangements, *see under* "Refrigerating Plant."

Masts.—The heavy fighting masts fitted in pre-Dreadnought battleships and cruisers were abandoned in Dreadnought battleships and battle cruisers, light pole masts being fitted in lieu. The battleships *Kronprinz* and *Grosser Kurfürst* have been given a heavier foremast since the battle of Jutland.

In the cruiser *Blücher* a tripod mast was put in forward with great secrecy in February 1914, but this type of mast was not adopted for any other ships at that time. The new *Bayern* class of battleships and the battle cruiser *Hindenburg*, however, have a tripod foremast, and the battle cruiser *Derfflinger* has also received a tripod foremast since the battle of Jutland.

Mines.—All classes of vessels at times carry mines, but there is no permanent stowage for them in capital ships or light cruisers, except those specially appropriated for minelaying duties, or in surface torpedo craft. Consequently light cruisers and destroyers, when employed as minelayers, cannot efficiently perform their ordinary duties. The number of mines carried by light cruisers varies from 70 to 120.

Net Defence.—Torpedo net defence, fitted in the earliest battleships, but discarded since about 1896, was re-introduced in the form of beam defence in all Dreadnought battleships and battle cruisers. The booms were fitted about 33 ft. apart and the nets were hung double. For further details, *see* Part IV., Section 3. But since the battle of Jutland net defence has again been discarded.

Propellers, &c.—In ships with three propellers, the centre propeller is left-handed whilst the others turn outwards. In ships of the *Kaiser Friedrich* and *Wittelsbach* classes, the outer propeller shafts converge slightly towards the engines, but in the *Braunschweig* and later classes they are parallel.

Refrigerating Plant.—CO_2 plant is used, and is generally placed behind armour. In large ships two sets are sometimes fitted. For magazines and refrigerating rooms a 25 per cent. brine-solution, usually cooled to a temperature of between 28° and 32° F., is used and is pumped through circulating pipes in the compartments in question.

Besides cooling the magazines, the refrigerating plant is also employed for cooling drinking water to 46° F., and the refrigerating room to 28°—32° F.

A motor-driven refrigerating apparatus has recently been introduced.

Searchlights.—In all modern capital ships up to and including the *König* class, eight searchlights are carried, viz., four forward and four aft. In the *Bayern* class, and also in the *Derfflinger*, which is now fitted with a tripod foremast, the searchlights forward are somewhat differently arranged, but apparently the number is unaltered.

In recent ships stowage is provided for all searchlights behind armour, and two spare searchlights are carried.

Under war conditions searchlights are stowed below during the day.

For further details, *see* Part IV., Section 3.

Special smaller searchlights are carried for signalling purposes.

Shades for Electric Lights.—In some of the latest ships blue glass shades are fitted to the lights on the mess decks for night defence purposes. The shades are permanently secured to the light fitting and are made in two halves, which are ordinarily kept clear of the lights, but can be lowered and clamped round them when required.

Signalling.—Great importance was attached before the war to having efficient arrangements for signalling in action. In all modern capital ships, good battle signal stations are fitted on the battery deck. For a description of these stations, *see Kaiser* class.

Considerable use is made of searchlights by day and of the short-range wireless set. Masthead flashing lamps are fitted but are not often used under war conditions. The use of the night signalling apparatus, consisting of 3 or 6 lights, each red, white or green, is also probably very limited in war time, but these lights are used for recognition signals. Capital ships, and probably light cruisers also, in addition have two rings of lights fitted round the foremost funnel, these lights likewise being red, white, and green, and being used for recognition signals.

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