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(Destroyers and Torpedo Boats)

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ROGER WELLES,

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

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Part III Section 4. March, 1917.

C.B. 1182.

GERMAN NAVY.

PART III.

SECTION 4.

DESTROYERS AND TORPEDO BOATS.

Subject.	PAGE.
General Notes V. 1–6, description of Destroyers, tabular details Torpedo Boats, tabular details	3 9 14
Plates. Block Sketches of Torpedo Boats and Destroyers	Facing page 3.
Destroyers— 60 V. 67–72. Outline drawing. 61 V. 1–6. General drawings. 62 B. 97, 98 and 109–112. Rough sketch. 63 G. 101–104. Outline drawing. 64 New Two-funnel Destroyers. 65 G. 8, G. 7, G. 196, and V. 186. 66 V. 181, S. 177, G. 172, and G. 170. 67 V. 151, S. 149, T. 137, and T. 134.	
Torpedo Boats— 68 V. 105–108. General drawings	

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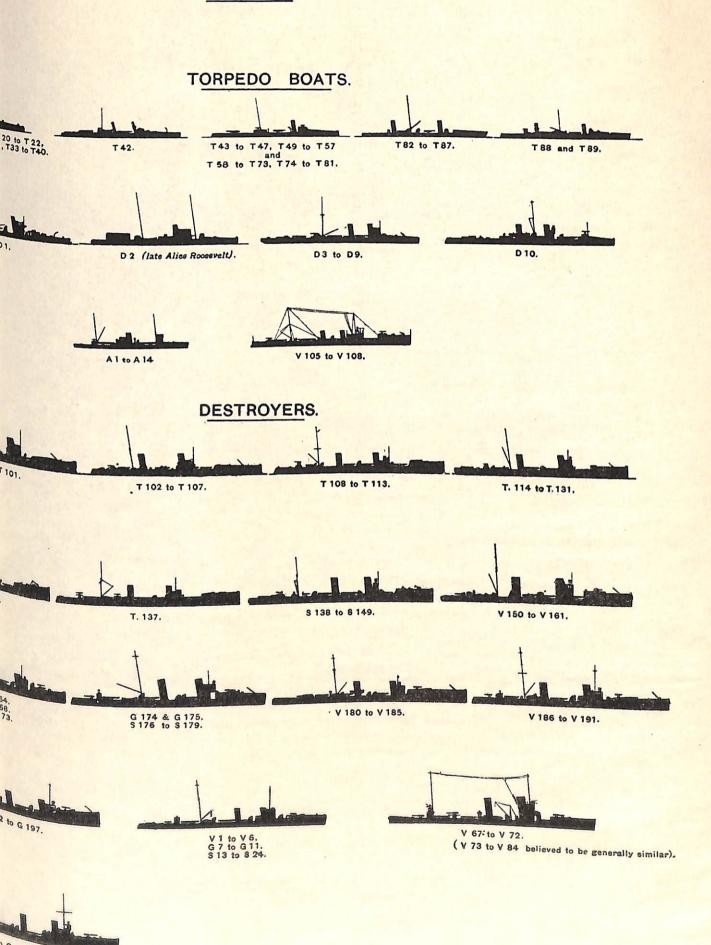
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BLOCK SKETCHES

OF

TORPEDO BOATS AND DESTROYERS.

Scale 1" = 125ft.

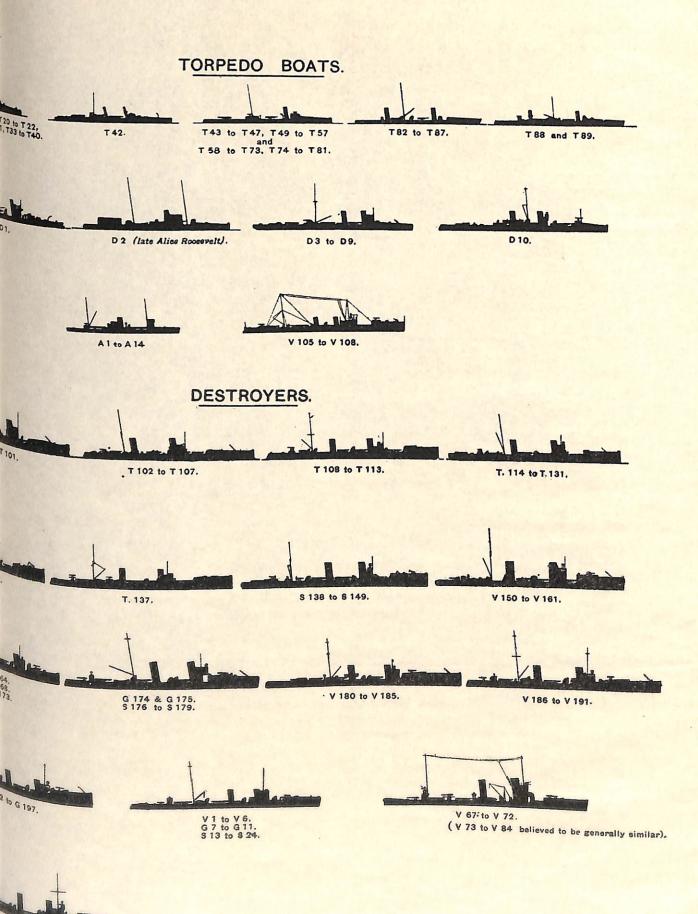




BLOCK SKETCHES

TORPEDO BOATS AND DESTROYERS.

Scale 1" = 125ft.





Oranance Survey, March 1917.

DESTROYERS AND TORPEDO BOATS.

Section 4. Destroyers and

Part III.

Torpedo

Boats.

General Notes.

Armament.—Up to the outbreak of war all German torpedo craft were designed as torpedo-boats proper and not as destroyers, and hence carried a strong torpedo armament with a relatively weak gun armament. During the war, however, a considerably heavier gun armament has been introduced. Prior to the war, two 22-pr. (8.8 cm.) L/30 guns formed the standard armament. In the boats completed towards the end of 1914 the number of 22-prs. was increased to three. In the course of 1915 a new 4.1-in. (10.5 cm.) L/50 semi-automatic gun was introduced, and during 1916 boats appeared armed with three 4.1-in. The latter appears now to have been adopted as the standard armament, and the earlier boats are to be re-armed as guns become available. A few specially large 3-funnel boats carry four 4.1-in. guns. No gun shields are fitted.

Ammunition Supply.—22-pr. ammunition is supplied to the gun in cylindrical leather cases, each containing five rounds. Probably similar cases are used for 4.1-in. ammunition. Metal racks for these cases are fitted abreast the guns. The foremost gun is supplied from a magazine immediately below it; the after gun or . guns from a magazine aft.

Gun Control.—Fire is controlled by means of electric transmitter, telephone or

flexible voice-piping.

The electrical receiving apparatus is fixed above each gun just in front of the breech. It shows the range to the nearest 100 metres, and the deflection and the orders for firing. The latter are as follows:—Rapid Fire (Schnellfeuer), Independent (Selbständig), Local Control (Geschützweise) and Cease Firing (Batterie Halt). Fire gongs are fitted.

Salvo firing is always used as long as the control remains intact, and salvo firing in half-flotillas appears to be practised considerably. A short rangefinder is fitted in some of the recent boats, on the fore searchlight platform.

Torpedo Tubes and Torpedoes.—All destroyers prior to the 1909-10 programme (S. 176, &c.) carry three 17.7-in. revolving tubes mounted in the centre line, so that all three will bear on either broadside. Five torpedoes are carried—three in the

In the destroyers from 1909–10 to 1912–13 programmes inclusive (S. 176 to tubes and two spare. S. 24), the number of tubes was increased to four, and the calibre to 19.7 in. The two foremost tubes are mounted one on either side, directly abaft forecastle, with an arc of training of about 45° from nearly right ahead to about 40° before the beam. The other two are mounted in the centre line for all-round training. This disposition permits of the use of three tubes on either beam. Five torpedoes are carried—four in the balder on deals four in the tubes and one in a watertight holder on deck.

All destroyers from V. 25 onwards, except G. 101-104, apparently carry six torpedo tubes, one on either side, directly abaft forecastle, the other four mounted in pairs in the centre line (see Plate 60). Seven torpedoes are carried, six in the tubes

In all modern boats, along one side of the upper deck, rails are fitted for a torand one spare. pedo trolley. They are usually on the port side in "S" and "V" boats, and on the starboard side in "G" boats.

Torpedo Control.—Torpedoes are usually fired from the bridge, a director being fitted on either side. In practice the two foremost tubes are kept locked, usually on the extreme forward bearing, owing to their being inaccessible in anything but fine weather; the two pairs of tubes aft are trained to the most suitable bearing shortly before firing.

Mines.—(See under Minelaying, p. 7.)

Boats.—Modern destroyers carry two—a dinghy and a whaler, which in boats up to S. 24 are stowed just before the mainmast, but in all subsequent 2-funnel boats occupy the space between the funnels. They are hoisted out by derrick. Leaders of flotillas (recent vessels) carry a motor boat instead of a whaler.

Part III. Section 4. Destrovers Desbusers Torpedo Boats.T

Classification.—German above-water torpedo craft are classified officially as Small (kleine) and Large Torpedo-boats (grosse Torpedoboote).

T. 11 to T. 89 are classified as Small Torpedo-boats, whilst the Division boats

(D. 1–10), and all boats subsequent to T. 89 are classified as Large Torpedo-boats. In this work the Large Torpedo-boats (Division boats excepted) are styled

Destroyers; but this title is not applied to them by the Germans, who prefer the term Torpedo-boat as being more correctly descriptive of their purpose.

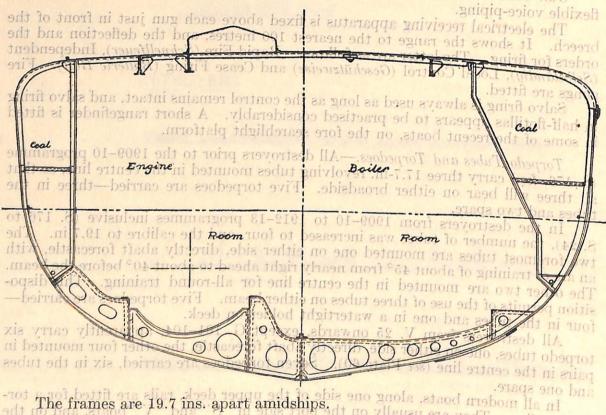
The Germans reserve the name of Destroyer for the big boats, G. 101-104 (originally building for the Argentine), B. 97-98 and 109-112, &c., which correspond roughly (in dimensions, speed, and armament) to our Flotilla Leaders.

Colour.—All destroyers are now painted a light grey. Bow waves are occatowards the end of 1914 the number of 22-prs. was increased to the batning glanois of 1915 a new 4.1-in. (10.5 cm.) L/50 semi-automatic gun waliared distribution of 1915 and waliared distribu

General.—In the endeavour to ensure the continuance of the essential characteristic of German torpedo craft—that of true torpedo-boats—whilst embodying all the latest improvements and meeting all demands, without, on the other hand, unduly increasing their size and visibility, the construction of these vessels has been kept admittedly light. It is claimed, nevertheless, that by a careful choice of material as well as the mode of their construction, the requisite strength has been secured; and this appears to be borne out on the whole, as far as the hull is concerned, by the tests of active service in solven a magazine in solven service in solven a magazine in solven service in solven a magazine in solven service in solven service

a

Frames.—The inset plan shows a section through Engine and Boiler Rooms of un Control. -Fire is controlled by means of electric transmitter, tsaslon 041 .W



Plating.—The plating, which is of Siemens-Martin steel, has apparently increased in thickness. It is reported as being, for-

S. 114-131 (1902 to 1904-5 proved by side plating strength of the strength of

The figures for the last-named programme are authentic.

Weights.—Great economy is weights, both above and below deck, is observed, and to this end aluminium has been introduced to an increasing extent. In S. 138–149, all panels and lockers are made of it; in S. 165–168 the boiler casings in part also; and in V. 1–6 and G. 7–12 many fittings, formerly made of steel, are now of aluminium.



External Details.—In spite of the progressive movement in armament, speed, Part III. &c., and certain minor differences, there is a very great resemblance between all 2-funnel German destroyers, and they form a type very distinct from the British

The 3-funnel destroyers represent a new departure, and there is at present (March 1917), no evidence that any considerable number of these boats are being

All 2-funnel German destroyers are noticeable for their low freeboard. In prewar types the forecastle is not joined to the navigating bridge. Its height varies slightly, and its length considerably, in the vessels of different programmes (see Plates). In V. 1–G. 12 the freeboard at the stem is 11½ ft.

In all destroyers up to S. 24 the bridge is kept back to the foremost funnel, and in the majority well away from the forecastle, enabling torpedo-tubes to be mounted in the interval. In V. 162-185 however, it is placed so close to the forecastle, while yet remaining separate, that there is no room for any tubes, and they are therefore mounted abaft the fore-bridge. The bridge is housed in and roofed over, and a chart-house is fitted abaft the steering position.

Destroyers from V. 25 onwards form two or three distinct classes. In the new "V" and "S" boats the bridge is close back against the fore funnel, as in earlier types. In recent "G" boats the bridge abuts on forecastle, and there is a considerable interval between bridge and funnel. The characteristic feature, however, of all these later destroyers is the increased armament, viz., 3 guns and 6 torpedo tubes instead of 2 guns and 4 tubes. Other features are (1) the position of the mainmast, which has been carried aft to the wheelhouse, (2) the increased height of the foremast, and (3) a derrick with samson post fitted between the funnels for hoisting boats.

In all these destroyers the bridge has been raised about 7 ft., the increased height having been found particularly necessary in the case of the "G" boats. At the same time the fore funnel has been raised, and the big cowl, formerly fitted for ventilating the forward stokehold, has been replaced by a conspicuous trunk, led vertically and then horizontally, terminating under the bridge (see Plate 60).

For an example of a new "V" or "S" boat, see Plate 60; f

The foremost steering position and steering engine are under the break of the new "Gi' boat, see Plate 64. forecastle, and, in all recent destroyers, there is a deck-house aft, containing the reserve steering position and steering engine. The steering position and steering engine.

The freeboard amidships is from 6 to 7 ft. The decks are rounded at their junction with the sides. This rounding is of varied extension, being carried right aft in some types, whilst in others it only exists between forecastle and after wheel-

German destroyers, especially the "S." boats, have very fine lines both forward and aft. The "G." boats generally have rather fuller lines forward and more free-Subdivision.—Internally the hull is divided into 12 or more water-tight compartboard aft than the "S." boats.

Metacentric Height.—In V. 1-6 is about 32½ inches. Draught Marks.—The draught is marked in decimetres (1 dcm.=3.9.3 ic)

The average cost of one destroyer of each year's programme was:—

Januare organization of the state of the sta	Programme M.	Hull, achinery.	Gun Arma- ment.	Torpedo Arma- ment.	HOMETO	In the following year's processived in addition to coal introduction was contemp
T. 90—T. 95 T. 96—101 T. 102—107 T. 108—113 T. 114—119 T. 120—125 T. 126—131	1898-99 1899-1900 1900-01 1901-02 1902-03 1903-04 1904-05	£ 389, 742 389, 742 47, 619 47, 619 45, 173 45, 173 45, 173	, 10, 210	7, 338 1181 and 0 27, 338 7, 338	58, 790 72, 977	Reciprocating engines. T. 125 turbines. New type of torpedo introduced, and number of torpedoes increased. T. 137 alone received turbines. Gun armament of all vessels increased. V. 161 alone received tur-
S. 138—149 V. 150—161	1906-07	58, 709	6 930	7,338	75, 423	bines. Price of boilers in- bereased.

Destroyers and

Torpedo Boats.

Section 4.

Programme Year.	Hull, Machinery, &c.	Gun Arma- ment.	Torpedo Arma- ment.	Total Cost.	Remarks.
and there's	£	£	£ HAR	£	Displacement increased. All destroyers of this and suc-
1908-09	77, 870	7, 746	9, 377	94, 993	ceeding programmes fitted with turbines. An im- provement was effected at this date in Torpedoes.
1909-10	77, 870	7, 746	13, 698	99, 314	The number of torpedo tubes was increased from three to four, and the calibre to 19.7 in.
1910–11	77, 870	7, 746	13, 698	99, 314	in the interval. In V. 16:
1911–12	67, 271	7, 746	13, 698	88, 715	The displacement was reduced from about 640 to about 560 tons.
1912–13	67, 271	7,746	13, 698	88, 715	about 500 tons.
} 1913–14	80, 724	7, 746	17, 539	106, 009	Displacement again increased. "All oil" fuel introduced.
	Year. 1908-09 1909-10 1910-11 1911-12 1912-13	Programme Machinery, &c. £ 1908-09 77,870 1909-10 77,870 1910-11 77,870 1911-12 67,271 1912-13 67,271	Programme Year. Machinery, &c. Armament.	Machinery, Armament. Armament.	Programme Year. Machinery, &c. Armament. Armament. Total Cost. £ £ £ £ £ 1908-09 77,870 7,746 9,377 94,993 1909-10 77,870 7,746 13,698 99,314 1910-11 77,870 7,746 13,698 99,314 1911-12 67,271 7,746 13,698 88,715 1912-13 67,271 7,746 13,698 88,715

Distinctive Marks.—

On Funnels.—In peace time, (a) Leaders of half-flotillas have a large white distinguishing letter painted on the sides of the after funnel, viz.:—

No. of Flotilla.	No. of Half-Flotilla.	Letter.	No. of Half-Flotilla.	Letter.
1st 2nd 3rd 4th 5th	1st 3rd 5th 7th 9th	A C E G J and so on.	2nd 4th 6th 8th 10th	B D F H K

(b) Leaders of flotillas have the number of the flotilla painted in Arabic figures on one of the funnels.

On Bow.—In peace time, the official number (omitting the hundred and the yard letters—S., V. or G.—e. g. 69 for G. 169) is painted in large white figures—about 6 ft. high—on either bow. The full official number (e. g., G. 169) is also painted in very small figures, &c. on either bow

G. 169) is also painted in very small figures, &c. on either bow.

On Masts.—The destroyers of a flotilla generally carry a shaped frame with centre cut out (triangle, circle, &c.) on the foremast as flotilla sign, and a second shape of varying description on the mainmast as individual sign. In some cases the flotilla is distinguished by the absence of the foremost sign.

Draught Marks.—The draught is marked in decimetres (1 dcm.=3.93 in.). Fuel.—

Coal only is used in all destroyers up to and including the 1907–08 programme. In the following year's programme (V. 162–G. 173) a small supply of oil-fuel was first carried in addition to coal, and a separate boiler for oil-firing only was fitted. Its introduction was contemporaneous with the final adoption of turbine propulsion in destroyers. The practice of carrying coal as well as oil was followed until 1913, but in the boats of the 1913–14 programme (V. 25—S. 36) all-oil firing was adopted. Great importance had previously been attached to the protection against gunfire afforded by the coal bunkers, but the advantages of oil were evidently now at length recognised, and no subsequent boats carry coal. During the war, the coalburning boats have fallen lower and lower in estimation, and their boilers are now being converted to burn oil and coal (mixed firing).

Coal.—In Home waters, Westphalian coal is used exclusively.

It is generally supplied ready, in bags of thick jute (having two rope loops at the top), which are estimated to hold 220 lbs.

Destroyers up to T. 114 are allowed a deck cargo of 10 tons; T. 120 to S. 149,

15 tons; and later types, 20 tons.

In peace time, whenever flotillas were attached to a fleet, all battleships (except the Fleet Flagship) and all battle-cruisers and cruisers were each obliged to keep 20 tons of coal in bags ready for immediate delivery to the destroyers.

Funnels.—All German destroyers have two funnels, except a few larger boats, completed during the war, which have three. In all the new oil-burning destroyers, the inner funnel is continued above the outer and slopes downward from forward aft, forming a conspicuous feature (see Plates 60 and 64).

Some of the torpedo-boats are fitted with two funnels, some with one funnel only.

Machinery and Boilers.—

Main Engines.—The destroyers up to V. 160 inclusive were fitted with two vertical, triple-expansion engines, except T. 125 (lost 1916) and T. 137. These two as well as V. 161 were experimental boats fitted with turbine machinery.

Since the 1908–09 programme inclusive (V. 162–G. 173), turbine machinery only has been fitted; and in that of 1909–10 Parsons turbines, the only system hitherto fitted on three shafts, were brought into line with the other systems and fitted to

work on two shafts.

A further development was the fitting of three boats of 1913–14 programmes with Föttinger transformers which, however, transmit only about 88 per cent. of the power developed by the turbines, but, being reversible, do away with the necessity of installing separate turbines for going astern, besides rendering a very high power available

for that purpose.

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Boilers.—In all destroyers up to and including T. 136 (1905–06 programme) three water-tube boilers are fitted. From T. 137 to G. 197, four are fitted, of which, from V. 162 inclusive onwards, one is fitted to burn oil and three to burn coal only. This arrangement is now being extended to boats prior to V. 162. In the first of the new series of boats, from V. 1 to S. 24, there are three boilers, the foremost of which is double-ended and fitted to burn oil only, the other two being fitted to burn coal; these two are now being converted to burn coal and oil. All destroyers from V. 25 to G. 96 have three boilers fitted to burn oil only, the two after ones being double-ended.

Dynamos.—The voltage is 110.

Masts.—All destroyers up to S. 24 have two masts, namely, a pole mast situated immediately before the foremost funnel, and a mainmast with light topmast and with a derrick for hoisting in boats, &c., which is abaft the after funnel.

Destroyers from V. 25 onwards have two masts of practically equal height, both with topmasts. The derrick (as mentioned on p. 5) is fitted between the funnels.

Minelaying.—Destroyers carry mines only when they are detailed for that particular purpose, and whilst carrying them are considered to be precluded from undertaking other offensive operations, in view of their dangerous cargo, and are usually provided with an escort.

When detailed for mining, each destroyer carries 12 mines, six on either side amidships, lashed as convenient. There are no special fittings for them, except in a few of the older boats. Rollers are fitted on the under side of the sinkers to facilitate moving about the deck. The mines are laid at a speed of about 15 knots. They are

simply pushed overboard, alternately from starboard and port side.

Minesweeping.—A considerable number of detroyers, including some of the most recent types, are fitted for minesweeping. A large double fairlead is fitted aft, as shown in Plate 60 (V. 67–72). Minesweeping is carried out by half-flotillas in line abreast, the two ends of each sweep being towed by adjacent destroyers. A kite is fitted midway along the sweep, which is of $1\frac{1}{2}$ in. to 2 in. wire. The destroyers are 164 yards apart.

All torpedo boats, except those few which are used as despatch boats and tenders, are fitted for minesweeping and in war time are principally employed on minesweep-

ing duties.

Nomenclature.—German torpedo-boats and destroyers are designated by one of the letters A., B., D., G., S., T., V., as well as a number, e. g., G. 192. The letter A. is used as prefix for two classes of torpedo-boats built during the war, the first of which consisted of very small boats, capable of transport in sections by rail, whilst the second class is a much improved type. The letter D. is equivalent to Division Boat—a special larger type of vessel introduced in 1886 as leader of a "division" of smaller torpedo-boats. The letters B., G., S., V. are the initial letters of the firms which build destroyers, viz.: Blohm and Voss Works (Hamburg), Germania Yard (Kiel), Schichau Works (Elbing), Vulcan Works (Stettin and Hamburg). The A. and D. boats each form a separate numerical series. The B., G., S., and V. boats all belong to a single numerical series, which commenced with the oldest torpedo-boats, and was continued through all the destroyer programmes up to 1910–11., i. e., to G. 197. A fresh numerical series was then commenced with V. 1.

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Part III. Section 4.

Destroyers and Torpedo Boats.

Part III. Destroyers and Torpedo Boats.

In November 1910, torpedo-boats lettered "S."—up to S. 57 inclusive—were Section 4. re-lettered "T." whilst retaining their old number, e. g., T. 57. In 1914 this re-lettered "1. Whilst retaining their old humber, e. g., 1. 57. In 1914 this re-lettering was extended up to G. 113 inclusive, the letters "S." and "G." both being replaced by the letter "T." In 1916 the re-lettering was further extended up to G. 137. This is done in order to prevent confusion between the boats of the new and the old series, and will no doubt eventually be continued right up to G. 197.

Refits and Repairs (peace routine).—An annual refit is carried out by every destroyer which is regularly, though not necessarily continuously, in commission throughout the year. It is carried out during an interval in which the vessel is not in commission (i. e., when the crew is in barracks) at the dockyard to which the destroyer is attached for administrative purposes. The vessel is then docked and

A second docking is effected annually by every destroyer regularly in commission and the bottom is again coated.

A thorough overhaul is effected by every destroyer after 3 consecutive years' flotilla work. As each flotilla, as a rule, is actively employed for 3 consecutive years, this means that one flotilla of each group of 3 is withdrawn at the end of 3 years for this purpose. The destroyers are turned over to the dockyards without crews.

Searchlights.—In all destroyers up to and including those of 1913-14 programme (V. 25–S. 36) one 23-in. searchlight is carried on the platform above the fore-bridge. More recent destroyers carry two searchlights, one above the fore

Signals.—In peace time, under normal conditions, destroyers communicate Signals.—In peace time, distributions, destroyers communicate visually by seachlights, star signals, and the Night Signalling Apparatus, consisting of three vertical lights, red and white. But every endeavour is made to reduce of three vertical lights, led and to confine it to the use of hand flags, hand-flashing

ps, and megaphones.

In war time, communication between destroyers is almost entirely by megaphone, In war time, communication supplemented by whistle for helm signals, and shaded stern lights for speed signals.

Smoke-producing Apparatus.—All modern destroyers carry, aft on either Smoke-producing Apparatus. An inodern destroyers carry, aft on either quarter, a metal cylinder, about 2 feet in length, mounted on a sloping platform. quarter, a metal cylinder, about 2 feet in longen, mounted on a sloping platform. These two cylinders, which contain some chemical composition, are in connection These two cylinders, which contain some enclinear composition, are in connection with the compressed air service, and are used for developing a smoke-screen. The with the compressed all service, and are used for developing a smoke-screen. The apparatus is controlled from the after wheel-house. The smoke produced is greyish-In addition, the boilers are utilised to produce excessive smoke as required.

Speed (see Trials also).—Before the war, the cruising speed of destroyers was fixed as follows:-

(a) For the boats from T. 90 to T. 136 inclusive _____ 14 knots. (a) For the boats from T. 137 onwards______ 14 knots.

(b) For the boats from T. 137 onwards_____ 17 knots.

In turbine boats with two shafts, for speeds of 12 knots and under one shaft In turbine boats with two shares, to species of 12 knots and only is to be used, if possible, the other being allowed to run idle.

Steam Heating, &c.—Most, if not all, German T.B.'s and T.B.D.'s are fitted Steam Heating, &c.—Most, it not an, German T.B.'s and T.B.D.'s are fitted with steam heating installations, together with arrangements whereby one vessel can with steam heating installations, together with alrangements whereby one vessel can supply steam for heating one or more boats lying alongside. All German torpedocraft are also lined with either wood or lineleum to prevent sweating.

Steering Gear and Steering Positions.—All destroyers and torpedo-boats are fitted with a bow as well as a stern rudder. The bow rudder is situated below the fitted with a bow as well as a stern radder. The bow rudder is situated below the keel about 12 feet abaft the stem. It can be raised into a recess in the hull by means keel about 12 feet abatt the stem. It can be taked into a recess in the hull by means of a fine-pitched screw, and has to be so raised before the boat can be taken in tow. of a fine-pitched screw, and has to be so taked before the boat can be taken in tow. It is always used when manœuvering, as the steering capabilities are insufficient

There are two steering engines, one of which, the main, is forward, under the There are two steering engines, one of the main, is forward, under the break of the forecastle, and the second, or reserve, aft. The three steering positions

(1) on the bridge;
(2) under the break of the forecastle, with the main steering-engine;
(2) the after wheel-house, where fitted) with the main steering-engine;

(2) under the break of the forecastio, with the main steering-engine;
(3) aft (in the after wheel-house, where fitted) with the reserve steering-

DESTROYERS AND TORPEDO BOATS.

Part III. Section 4.

Destroyers and Torpedo Boats.

Nos. 1 and 2 are connected with the main steering gear by a system of rods and chains, fitted with bottle screws at intervals, carried along on both sides of the upper deck, on rollers, to the tiller.

No. 3 works a duplicate set of gear, also carried along the upper deck. Each of these positions can be connected up with the bow-rudder by special chain-and-rod gearing. When Nos. 1 and 2 are in use, the gear of No. 3 leading to both bow and stern rudders is disconnected, and vice versâ.

Submarine Attack.—Destroyers usually carry six large cylindrical depth charges, and are fitted to tow an explosive kite. A launching trough for depth charges is fitted on either quarter. The kite is towed from the minesweeping fairlead aft (see p. 7), where fitted.

Trials.—

44

Newly-built Destroyers.—The following are some of the trials carried out by newly-built destroyers in peace time:—

(1) Acceptance trial.

(2) Three hours' full power trial.

(3) Measured mile trials.
(4) Twelve hours' trial (? coal consumption trial).

(5) Storm trials.

With the exception of (5) all the above are carried out in the Baltic; the storm trials are carried out in the North Sea. The measured mile trials are carried out chiefly on the two-mile course near Neukrug in the Gulf of Danzig.

The measured mile trials, it is stated, are carried out entirely with naval ratings, and with the full equipment of stores, ammunition, and water, and the normal supply of coal, the vessels being structurally complete otherwise. Any deficiency in numbers of crew or in stores is made up with ballast.

The 12 hours' trial is carried out with the destroyer fully loaded at the start,

i. e., with all fuel, &c., and provisions for one month.

Storm trials are carried out by newly-built destroyers in the North Sea, between Cuxhaven and Heligoland, to test their seaworthiness. At least one destroyer of every batch delivered by a Yard is so tested. It is reported that the test has to be carried out at 17 knots in a gale for a few hours, the behaviour of the vessel being tested with the sea on the bow, beam, and quarter. The force of the wind is variously stated as 8-10 and 7; the latter is apparently the approximate average.

Other Vessels in commission, & c. (peace routine).

On first commissioning a three hours' trial is carried out, of which half-an-hour is at full speed with forced draught.

The boats of each series do a one hour's full power trial in the beginning of spring directly after commissioning for exercise. This is to be carried out by all the boats under similar (the most favourable) conditions of wind and weather, if possible.

Wireless Telegraphy.—In destroyers from V. 186 to S. 24, a wireless house, about 6 ft. by 4 ft., is fitted just abaft the fore funnel. In most destroyers from V. 25 onwards the wireless house is fitted on the starboard side under the bridge. The usual destroyer wireless set has a normal effective night range of about 200 miles.

The following detailed description of the destroyer series V. 1-6 is authentic, and this series may be regarded as typical of modern pre-war German destroyers.

V. 1-6.* the class to some him subtree out a

(See Plates 61 and 65.)

General Remarks.—These six destroyers form half of the 1911-12 programme, and were built at the Vulcan Works at Stettin.

Cost.—For average cost, see page 6.

Complement.-73.

General Dimensions, &c.

, fi .ps 0	between perpendiculars	223	ft.	1	ins.
Length	L. W. L. State and the state of best trained	230	"	3	"
	over all	233	"	1	"
Breadth,	extreme, at upper deck	24	16	11	"

^{*} V. 4 was lost on 31 May or 1 June 1916.



Part III.

Section 4

Destroyers

and

Torpedo

Boats.

Boats.

General Dimensions	, &c.—cont.	
Height of	freeboard amidships at centre line	3 ft. 1 ins.
Draught*	to bottom of keel1	7 " 7 "
placement	to bottom of rudder1 to bottom of rudder1 at load draught*1 at extreme draught	561 tons.
Tons per inch in Speed, designed		689 " about 9.2

Speed, designed ______ 32.5 knots. Fuel Stowage.

 $\begin{cases} (V. \ 1-4) & \text{if } tons. \\ (V. \ 5-6) & \text{if } (V. \ 5-6) &$

Hull.—

Material.—Siemens-Martin steel, tensile strength 35 tons per sq. in.

Vertical keel—25" plating, height under engine room 23 ins.

Flat keel—'31" plating, decreasing to '21" aft and '18" forward, width

3'8".

Vertical keel plates connected with double butt straps are double-riveted.

Angle-bar for vertical keel—upper 2·1" × 2·1" × ·23".

lower 2·9" × 2·5" × ·23".

Bulkheads—lower plates .16", upper plates ·12".

Frames—consist of angle-bar 2·4" × 1·6" × ·2" placed 19·7" apart, but aloser at after end.

Side and bottom plating—37" to 14".

Deck plating—'16", strengthened in wake of heavy weights.

2—22-pr. (8·8-cm.) Q. F., L/30 (1 on forecastle, 1 abaft deck-house aft).

2—machine guils.
4—19.7-in. torpedo tubes (1 on either side of deck directly abaft forecastle arc of training about 45°, i. e., from almost right ahead to about 40° before the beam; 1 tube directly abaft the second funnel and 1 directly before the beam, I tube directly abait the second funnel and 1 directly before deck-house aft, both in centre line, with all-round training). At least five torpedoes are carried, four in the tubes and one in At least nive torpedocs are carried, four in the tubes and a watertight holder the starboard side abreast second funnel.

Searchlights.-

1—23-in., on chart-house forward; 60 ampères and 48 volts.

1—23-In., on one...

Voice-pipes from bridge to engine-room, chart-house, wireless room, and steering positions forward and aft.

wireless Telegraphy.—The wireless room, which is situated directly abaft the first funnel, is insulated against heat and sound. funnel, is insulated against and Rudders.—A bow rudder is fitted which can be raised into a recess in the hull

n boat is to be towed, &c.

Steering Gear.—2 steam steering engines and 3 steering positions, one of which when boat is to be towed, &c. is on the bridge, and one at each steering engine.

Machinery:-

chinery:—
2 Curtis-A. E. G.-Vulcan turbines, in two compartments, one abaft the other. Each shaft is fitted with an ascent turbine.

Designed S. H. P. 15,000. Pressure 272 lbs. per sq. in. Boilers:-

ers:—
3 Schulz-Vulcan, in separate compartments. The foremost boiler is doublehulz-Vulcan, in separate compartments. The foremost boiler is double-ended and fitted to burn oil only—heating surface 7,320 sq. ft. Centre ended and fitted to burn on only nearing surface 7,320 sq. ft. Centre and after boiler fitted to burn coal—total heating surface of these two * With 70 tons of coal and 20 of oil on board.

DESTROYERS AND TORPEDO BOATS.

Machinery and Boilers .- cont. Propellers:-

2 in number, bronze, 3-bladed.

Auxiliary Machinery.

2 air-pumps, vertical turbine-driven.

2 circulating pumps. 2 evaporators, capacity 18 tons in 24 hrs.

1 distilling apparatus, capacity 2 tons in 24 hrs. 2 main duplex feed-pumps_____ In engine-room.

1 auxiliary duplex feed-pump_____ 2 duplex suction pumps_____

2 electric fans.

3 duplex auxiliary feed-pumps.

1 ash-ejector fitted with bilge suction.

2 ash-ejectors.

1 oil-heating apparatus. 2 turbo-dynamos, 110 volts, for all purposes, each capable of supplying

current for all lighting purposes, except searchlight. When the searchlight is in use, both are required. One turbo-dynamo is fitted

in the fore and the other in the after engine-room.

Miscellaneous.-

3 feed tanks in boiler-room, and 1 overflow tank in engine-room, total capacity 19.5 tons.

Fresh water tanks—3 tons. Small hand-pump in galley. Living spaces are steam-heated and electrically lighted. Five portable coal stoves are fitted in various parts of the boat.



CERMAN NAVY PART HIS DISTRIBUTES AS MARRIED TORS

DESTROYERS

Fart III. Section 4.

TABULAR DETAILS.

DECLASSIFIED Authority E. 0 10501

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18 35 B

DESTROYERS.

Part III.
Section 4.
Destroyers.

					Hull			
Official	Where	Date of	Comple-	Length.		Designe	d Load.	
Number.	Built.	Launch.	ment.	(a) P.P. (b) L.W.L. (c) extreme.	Breadth (extreme).	Draught. Displacement.		Armament.
* (12 in No.) * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *		1916–17		Ft. Ins.	Ft. Ins.	Ft. Ins.	Tons (Eng.).	
(12 in No.) * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *		1916						
	.8.	IA	ET	I A	AJ	BU	AT	
B 112 B 111 B 110 B 109	Blohm & Voss, Hamburg.	1915		(c) 320 0†	32 0†	11 0†	1,300†	4—4.1" 2—m. 6—T.
G 104‡	Germania, Kiel.	1914		(c) 312 8	30 1	9 4	1, 250	3-4.1'2-m. 4-T.

[†] Approximate only.

DESTROYERS.

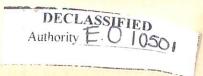
Part III. Section 4.

Destroyers.

	Machinery and Boilers.			Fuel S	Supply.		
No. of		Horse Power.	Speed.	(a) Coal	Endurance	General Remarks.	OFFICIAL
Pro-	(a) Engines. (b) Boilers.	(a)Designed. (b) Mean on trial.	(a)Designed. (b) Mean on trial.	(max.). (b) Oil.	at15 Knots (with deck cargo).	Marie Marie Control	Number.
		naT wet	Knots.	Tons.	Miles.		(12 in No.) * * * *
•••••	3				(4)	Station State	* * * * * * * * * * * *
	a) b = b (0) as & (2) (3) - B	10	1 1105-0			Orec Viendent po-	* * * * * * * * * * * * * * * * * * *
							* * * * * * * * * * * * * * * * * * *
2	TOTAL TOTAL		(a) 34, 0†	Oil only.		(See Plate 62. High forecastle separated from bridge. 3 funnels, the center one being much broader than the other two. 4.1" guns all on center line; 1 on forecastle, 1 between foremost and center funnels, 1 between center and after funnels, 1 aft abaft deckhouse. 2 tubes, one on either side,	B 112. B 111. B 110. B 109.
2	(a) Germania turbines. (b) 3 double ended.	(a) 24,000 (T.).	(a) 32. 0	(a) Nil (b) 345	3,000	directly abaft forecastle; 4 tubes, mounted in pairs on the center line abaft after funnel. See Plate 63. High forecastle extending to after edge of 1st funnel. 3 funnels of equal size, equi- distant, with slight rake. 2 masts (foremast just before 1st funnel, mainmast some way abaft 3d funnel). Bridge directly before 1st funnel. Deck-house between mainmast and stern. 1—4.1" on forecastle; 1—4.1" before and 1 abaft deck-house aft. Tubes between the funnels. 1 searchlight on top of chart- house. Standard compass on deck-	G 104. G 103. G 102. G 101.

106291—17——3

† Approximate only.



[‡] Originally building for Argentina.

DESTROYERS.

Part III. Section 4. Destroyers.

Destroyers-

OT.				1							Destroyers—
Official		Date		- 1914	Macal	Pare	Hull		.631	dion into a	Mashine
Number.	Where Built.	of Launch.	Comple- ment.	7	Lengtl		Breadth	De	signe	ed Load.	A
-		Launen.		(b) (c)	a) P. J L. W extre	P. L. me.	(extreme).	Drau	ght.	Displace- ment.	Armament.
(12 in No.)					Ft.	Ins.	Ft. Ins.	Ft.	Ins.	Tons	
▼ 100	Vulcan, Stettin.	1915	••••••	(c)	320	0†	32 O†	11	0†	(Eng.).	4-4.1"
B 98 B 97	Blohm & Voss,	1915		(c)	320	0†	32 0†	77	0.	Stander.	2—m. 6—T.
	Hamburg.							11	0†	1,300	4-4.1". 2-m. 6-T.
G 96											
G 94											
G 92	Germania,	1915–16									
G 90	Kiel.	1919–10	duil l	(c)	255	0†	••••••	•••••			3-4.1" 2-m.
G 87	the add mids	rabored d	OWY CANADA								6-T. (19.7").
G 86	a rotter pe a content pe a content pe	Path than grand 4 Ledgman	mail and a second			lia (34 db at				
	bia suffice of subsections emay or be	trada y hi-	eth so								* The state of the
V 84 V 83	an mula u anihnaizu	in one	nali liga 12 - vez lapi kiba								
V 82 V 81	orange in service in the service in	to the effects of the	die de								
V 80 V 79	Vulcan,	1915-16	dia disconsistent								
V 78	Stettin.	1919-10		(c)	255	0†				·····	3-4.1"
V 76	allegana sulf In so qui	surround and and and and and and and and and a	te dott								2—m. 6—T. (19.7").
V 74 V 73	vi) no maj	mea feat									
						Mari	1				
											Committee

† Approximate only.

continued.

0

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Part III. Section 4.

Destroyers.

Machinery	and Boilers.			ruer	Supply.					
(a) Engines. (b) Boilers.	(a) Designed.	(a) De (b) M	esigned. Iean on		at 15 Knots	Lance	General Remarks.	Official Number.		
	sud?	Kı	nots.	Tons.	Miles.					
		(a)	34.0†	Oil only.		Gener (see	ally resembles B. 109–112 above).	V 100.	. et a	
con the A		(a)	34.0†	Oil only.		Same abov	type as B. 109–112 (see ve).	B 98. B 97.	V 70.	
		(a)	34.0†	Oil only.		Raisec wate for t 2 funn than 2 mas abaf befo Bridge inte fore 1—4.1 1—4.1 2 tubb direc 4 tube the abaf 2 searc one	I forecastle (with break- er), cut away on both sides orpedo tubes. tels, the fore funnel higher in the after one. Its (foremast immediately it bridge, mainmast just ore after wheel-house). Its and forecastle in one; real between bridge and funnel. I on platform between I unnel and mainmast. I abaft after wheel-house. I abaft after wheel-house. I abaft forecastle.	G 96. G 95. G 94. G 93. G 92. G 91. G 90. G 89. G 88. G 87. G 86. G 85.	80 V 70 V 67 V 67 V 67 V 67 V 67 V 67 V 6	
		(a) :	34. 0†	Oil only.		in ha	aving a well-deck between eastle and bridge. Same ral type as V. 67–72 (see e 60).	V 84. V 83. V 82. V 81. V 80. V 79. V 77. V 76. V 75. V 74.	8 50 8 8 50 8 50 8 50 8 50 8 50 8 50 8	
	(a) Engines.	(a) Engines. (b) Boilers. (a) Designed. (b) Mean on trial.	(a) Engines. (b) Boilers. (a) Designed. (b) Mean on trial. (a) Designed. (b) Mean on trial. (b) Mean on trial. (c) Designed. (d) Designed. (d) Mean on trial. (d) Mean on trial.	(a) Engines. (b) Boilers. (a) Designed. (b) Mean on trial. (a) Mean on trial. Knots. (a) 34.0†	(a) Engines. (b) Boilers. (a) Designed (b) Mean on trial. (a) Designed (b) Mean on trial. (b) Oil. (c) Coal (max.). (b) Oil. (c) Coal (max.). (d) Oil oil. (e) Oil only. (a) 34.0† (a) Coal (max.). (b) Oil. (c) Oil only.	(a) Engines. (b) Boilers. (a) Designed. (b) Mean on trial. (a) Designed. (b) Mean on trial. (a) Designed. (b) Mean on trial. (b) Oil. (c) Coal (max.). (d) Oil. (d) Oil only. (e) Oil only. (f) Oil only. (g) Oil only. (h) Oil. (h) Oil.	(a) Engines. (b) Boilers. (c) Boilers. (a) Designed. (b) Mean on trial. (a) Designed. (b) Mean on trial. (b) Oil. (c) Oil only. (c) Oil only. (d) 34.0† (e) Oil only. (f) Oil only. (h) Oil only.	(a) Engines. (b) Boilers. (c) Boilers. (c) Boilers. (d) Designed. (e) Mean on trial. Knots. Tons. Miles. (a) See Plate 64. Raised forecastle (with breakwater), cut away on both sides for torped tubes. 2 funnels, the fore funnel higher than the after one after wheel-house. (a) 34.0† Oil only. (a) 34.0† Oil only. (b) In only. (c) Differ from G. 85–96 (see above) in having a well-deck between forecastle and bridge. Same general type as V. 67–72 (see Plate 60).	(a) Engines. (b) Boilers. (c) Designed. (c) Designed. (d) Mean on trial. (a) A 4.0† (d) Mean on trial. (a) 34.0† (d) Oil only. (a) 34.0† (d) Oil only. (e) Coal (max.). (with deck (cargo). (gsee above). (a) 34.0† (b) Inly. (a) 34.0† (c) Oil only. (b) Oil only. (c) Coal (max.). (gsee above). (a) 34.0† (b) Inly. (c) Coal (max.). (gsee above). (a) 34.0† (b) Inly. (b) Generally resembles B. 109-112 (see above). (b) Generally resembles B. 109-112 (see above). (c) Same type as B. 109-112 (see above). (c) See Plate 64. (a) Same type as B. 109-112 (see above). (b) Generally resembles B. 109-112 (see above). (c) Generally resembles B. 109-112 (see above). (d) 34.0† (d) Oil only. (e) Call (max.). (first) deck (cargo). (first) deck (cargo). (first) deck (cargo). (generally resembles B. 109-112 (see above). (generally resembles B. 109-112 (see above). (first) deck (cargo). (generally resembles B. 109-112 (see above). (general remarks. (general remarks. (general remarks. (h) Oil only. (see above). (generally resembles B. 109-112 (see above). (general remarks. (general remarks. (general remarks	



Part III. Section 4.

Destroyers.

Destroyers-

				Stort Sirpiffs	Hull	uticonts and the continue			
OFFICIAL	Where	Date	Comple-	Length.	Spire.	Designe	ed Load.		
Number.	Built.	Launch.	ment.	(a) P. P. (b) L. W. L. (c) extreme.	Breadth (extreme).	Draught. Displacement.		Armament.	
			, .	Ft. Ins.	Ft. Ins.	Ft. Ins.	Tons (Eng.).		
V 72 V 71		mous dia	analii del	and madeling to	y you pe	(1)			
V 70 V 69 V 68 V 67	Vulcan, Hamburg.	1915–16	ounds offy	(c) 255 0†	V migh	(0)		3-4.1" (or 22-pr.) 2-m. 6-T. (19.7").	
	fred beneath as feathbeneath	car care and	•						
\$ 66 \$ 65 \$ 64	material from	to talk to be a second to be a secon	had pleafe sed sin sed sed sin	ar Star D	10,01	(10)			
\$ 63 \$ 62 \$ 61 \$ 60	Schichau, Elbing.	1916		(c) 255 0†				3-4.1" 2-m. 6-T. (19.7").	
S 59 S 58		.54(0)[4(0)	dar I						
\$ 57 \$ 56 \$ 55 \$ 54		to the special section	nteri al		TOAR				
\$ 53	Schichau, Elbing.	1913-15	90†	(c) 250 0†				3—4.1" (or 22-pr.) 2—m. 6—T. (19.7").	
	•								

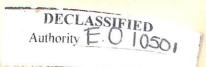
† Approximate only.

continued.

Part III. Section 4.

Machinery and Boilers.		Fuel Supply.				Destroyer			
No. of	(a) Engines.	Horse Power.	Speed.	(a) Coal	Endurance at 15 Knots (with deck-	ardo /	General Remarks.	Official Number.	
Pro- pellers.	(b) Boilers.	(a) Designed. (b) Mean on trial.	(a) Designed. (b) Mean on trial.	(b) Oil.	(with deck- cargo).		.dugus.1		
		m.T.	Knots.	Tons.	Miles.				
2	N w N 1-8 m-2	,	(a) 34.0†	Oil only.	(s) = (0	See Pl Differ in h foree	ate 60. from G. 85–96 (see p. 17) aving a well-deck between castle and bridge.	V 72. V 71. V 70. V 69. V 68. V 67.	
2 .	Service Co.		(a) 34.0†	Oil only.		Same (see)	general type as V. 67–72 Plate 60).	(\$ 66. \$ 65. \$ 64. \$ 63. \$ 62. \$ 61. \$ 60. \$ 59. \$ 58.	
2 .	11-12-2 10-15 20-2 10-17-0		(a) 34.0†	Oil only.		Same ç (see I	general type as V. 67–72 Plate 60).	S 57. S 56. S 55. S 54. S 53 S 52. S 51. S 50. S 49.	

† Approximate only.



Destroyers.

Part III. Section 4.

Destroyers-

Destroyers.

				Firel Supply.	Hull	910	inti pale Ci	Makhin
Official	Where	Date of	Comple-	Length.	Breadth	Designe	d Load.	
Number.	Built.	Launch.	ment.	(a) P. P. (b) L. W. L. (c) extreme.	(extreme).	Draught.	Displace- ment.	Armament.
1914–15 PROGRAMME. V 48 V 47 V 46 V 45 V 44 V 43	Vulcan, Stettin.	1915	90†	Ft. Ins.	Ft. Ins.	Ft. Ins.	Tons (Eng.).	3—4. 1" or 22-pr 2—m. 6—T. (19.7").
G 42. G 41. G 40. G 39. G 38.	Germania, Kiel.	1915	90†	(c) 250 0†	A Pring	(0)		3—4.1" or 22-pr 2—m. 6—T. (19.7").
1913-14 PROGRAMME. S 36	Schichau, Elbing.	1913-14	90†	(c) 245 0†	10,48		640†	3—22-pr 2—m. 6—T. (19.7").

continued.

6

Part III. Section 4.

Fuel Supply. Machinery and Boilers. OFFICIAL Speed. Horse Power General Remarks. (a) Coal Endurance at 15 knots (with deck-No. of NUMBER. (a) Engines. (a) Designed. (b) Mean on trial. (a) Designed. (b) Mean on trial. Pro-(b) Oil. (b) Boilers. cargo). pellers. Tons. Miles. Knots. 1914-15 PRO-GRAMME. (V 48. V 47. V 46. Same general type as V. 67-72 (see Plate 60). Oil only (a) 34.0† (a) A. E. G. Vulcan V 45. V 44. turbines. V 43. (G 42. G 41. G 40. Same general type as G. 85-96 (see p. 17). Oil only (a) 34.0[†] G 39. (a) Germania turbines. G 38. G 37. (Raised forecastle (with breakwater), cut away on both sides for torpedo tubes.

2 funnels well forward, fore funnel higher than after funnel.

2 masts (foremast immediately abaft bridge, mainmast just before after wheel-house).

Interval between bridge and forecastle and between bridge and forecastle and between bridge and fore funnel.

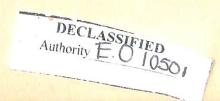
1—22-pr. on forecastle.

1—22-pr. on platform between after funnel and mainmast.

1—22-pr. abaft after wheel-house.

2 tubes, one on either side, directly abaft forecastle.

4 tubes, mounted in pairs, in the centre line, on twin turntables before and abaft midship gun. 1913-14 PRO-GRAMME. S 36. S 34. (a) Nil (b) 240† (a) 32.5 (a) $^{20,000}_{(T)}$. S 33. (a) Schichau turbines. S 32. ship gun.
1 searchlight above bridge. † Approximate only. D 2



Part III. Section 4.

Destroyers-

Destroyers.

				ringus sont	Hull	- vaoli	att ana chi	ridacti.	
Official	Where	Date	Comple-	Length.	12990	Designe	d Load.		
Number.	Built.	of Launch.	ment.	() 7.7	Breadth			Armament.	
		naunen.		(a) P. P. (b) L. W. I. (c) extreme.	(extreme).	Draught.	Displace- ment.	rollide (in 1) adding	
1913-14 PROGRAMME— cont.				Ft. Ins.	Ft. Ins.	Ft. Ins.	Tons (Eng.)		
Δ 30									
V 28	Vulcan, Stettin.	1914	90†	(c) 245 0†			640	3—22-pr	
1912-13 PROGRAMME. S 24	Schichau, Elbing.	1912-13	73	(c) 234 7	24 4	10 0	555	2—m. 6—T. (19.7"). 2—22-pr	
1911-12 PROGRAMME. G 11	Germania, Kiel.	1911–12	73	(c) 233 1	24 11	10 0	555	2—22-pr 2—m. 4—T. (19. 7").	

† Approximately.

continued.

Part III. Section 4.

Destroyers

	Machinery a	nd Boilers.		Fuel S	supply.			. 1
No. of Pro- pellers.	(a) Engines. (b) Boilers.	Horse Power (a) Designed (b) Mean on trial.	(a) Designed	(a) Coal (max.).	Endurance at 15 knots (with deck cargo).	men	General Remarks.	Official Number.
2	(a) A.E.G. Vulcan turbines.	(a) 20,000 (T)	(a) 32.5	(a) Nil (b) 240†	Miles.	Same (see	general type as S. 31–36 p. 21).	1913-14 PROGRAMME —cont. V 30. V 28. V 26. 1912-13 PROGRAMME
2	(a) Schichau turbines. (b).	(a) 15,000 (T)	(a) 32.5 (a) 32.5 (b) 35.6 (a) 32.5 (b) 33.1 (a) 32.5 (a) 32.5 (b) 34.0 (a) 32.5 (a) 32.5	(a) 132 + 20‡ (b) 55	1,700	Raise wal sid 2 fun 2 ma ma Bridg ala anc Wirel After ma 1—22 1—22 2 tu dir 1 tul bef 1 sear Stand	late 65. 2d forecastle (with breakter), cut away on both es for torpedo tubes. 1 nels. 1 sts (foremast by bridge, inmast abaft 2nd funnel). 2 gedirectly before 1st funnel; regeinterval between bridge 1 forecastle. 1 forecastle. 2 tess house abaft 1st funnel. 2 wheel-house well abaft inmast. 2 pr. on forecastle. 2 pr. abaft deck-house aft. 3 bes, one on either side ectly abaft forecastle. 3 be in centre line directly abaft forecastle. 3 be in centre line directly ore after wheel-house. 3 chlight above bridge. 3 chlight above bridge. 4 lard compass on after wheel-ise.	S 24. S 23. S 22. S 21. S 20. S 19. S 18. S 17. S 16. S 15. S 14. S 13. 1911-12 PRO- GRAMME. G 11.
2	(a) Germania turbines. (b) 3	(a) 15,000 (T)	(a) 32.5	$ \left.\begin{array}{c} (a) \ 136 \\ + \ 201 \\ (b) \ 53 \end{array}\right. $	1,620		ope:	G 10. G 9. G 8. G 7.

‡ Deck cargo.

106291—17——4



Part III. Section 4.

Destroyers-

Destroyers.

				ghtm21-11 Hull.					Seat	ilot nos -	himself.	
OFFICIAL Number.	Where Built.	Date	Comp		L	ength		1 . 17000	Designe	ed Load.		
NUMBER.	Bunt.	Launch.	men	t.	(b)) P. H L. W. extrem	T.	Breadth (extreme).	Draught.	Displace- ment.	Armament.	
1911-12 PROGRAMME —cont.					star.	Ft. 1	Ins.	Ft. Ins.	Ft. Ins.	Tons (Eng.).		
V 5*	11 3 Au no	1913	Senior (a)									
V 2	Vulcan, Stettin.	1911		73	(a) (b) (c)	223 230 233	1 3 1	24 11	10 0	561	2—22-pr. 2—m. 4—T. (19.7").	
1872 10 PROGRAMME 8 24.		1911										
1910-11								6.22 9. 8 50 9. 60 9. 60 9. 60 9. 60	or y			
PROGRAMME.	erith drive) e	Letter 65.										
G 197	book and the world box of hours of make	e for turpe sole or forest monet old		int	.1		1 (0)	\$.20 \$.20 \$.50	900 A	l (m) m	idhidak (a) - e aratidan	
G 195	Germania, Kiel.	1910–11	83		(a) (c)	232 242	11 10	25 11	10 6	638	2—22-pr. 2—m.	
G 192	mundated by the second	tipile all of the state of the				429		1 8 E			4—T. (19.7").	
V 190	ARBOLISMON Organist ov other really core	1911										
V 189 V 186	Vulcan, Stettin.	1911	83		(a) (c)	232 242	11 6	25 11	10 6	646	2—22-pr. 2—m. 4—T. (19.7").	
1 5 71					a Pring		1.2					

^{*} Built to replace two similarly numbered which were building for the German Navy, and which the Contractors were permitted to sell to Greece in 1912—delivery to the German naval authorities not having taken place.

continued.

Ø

Part III. Section 4.

Destroyers.

	Machinery	and Boilers.		Fuel	Supply.		
No. of.	(a) Engines.	Horse Power	Speed.	(a) Coal	Endurance		Official
Pro- pellers.	(b) Boilers.		(a) Designed. (b) Mean on trial.	(max.). (b) Oil.	at 15 Knots (with deck cargo).		Number.
		aoT	Knots.	Tons.	Miles.	See Plates 61 and 65.	1911-12
		nad) sal		l scl	19	Raised forecastle (with break- water), cut away on both sides for torpedo tubes to be	PRO- GRAMME
			$ \left\{ \begin{array}{c} (a) 32.5 \\ (b) 33.4 \\ (a) 32.5 \end{array} \right\} $	(a) 139 +20‡ (b) 68	1,830	trained forward. 2 funnels. 2 masts (foremast by bridge, mainmast abaft second fun-	GRAMME —cont. V 6.*
	2 22 pr	150 11 15	ot tre s		(0)	nel). Bridge directly before first funnel; a large interval between	V 5.*. (8)
2	(a) A. E. G. Vulcan turbines.	(a) 15,000 (T).	(a) 32. 5 (b) 33. 6			bridge and forecastle. Wireless house abaft 1st funnel. After wheel-house well abaft	V 3.
	(b) 3 Schulz- Vulcan.		(a) 32. 5	(a) 141 +201 (b) 54	1,730	mainmast. 1—22-pr. on forecastle. 1—22-pr. abaft deck-house aft.	V 2
			(a) 32.5 (b) 34.2			2 tubes, one on either side directly abaft forecastle. 1 tube in centre line directly	V 1.
	2 - 22-pt	30 000	01 11 8	0 fm		abaft 2nd funnel. 1 tube in centre line directly before after wheel-house.	8118
			To least 1			l searchlight above bridge. Standard compass on after wheel-house.	
	2 Clpt.	eta a lise	01-37-11-3	(I) 28	(6) - K-	Se citt sugared to	. 1910-11
						See Plate 65. Raised forecastle (with breakwater), cut away on both sides for torpedo tubes. 2 funnels. 2 masts (foremast by bridge,	PRO- GRAMME G 197.
2	(a) Germania turbines. (b) 4 Schulz	(a) 16,000 (T).	(a) 32. 5	(a) 168 +20‡ (b) 54	1, 260		G 196.
	Navy type.			111,21		1908-10 programmes, to enable 2 broadside tubes to be mount- ed there. Wireless house abaft 1st funnel.	G 193.
						After wheel-house well abaft	G 192.
						1—22-pr. abaft deck house aft. 2 broadside tubes, one on either	V 190.
2	19,10 S	80a (3) NE	u j	0.0		1 tube in centre line before 2nd funnel.	V 189.
	(a) A. E. G.	(a) 16,000	(a) 32. 5	(a) 160	1, 230	wheel-house. In G. 192 and 196 (? in other G	V 186.
2	Vulcan turbines. (b) 4 Schulz	(T).	(u) 32. 0	$\begin{array}{c c} (a) & 160 \\ +20 & 160 \\ (b) & 53 \end{array}$	1, 200	gallows on starboard side of stern, presumably for mining purposes.	V 180.
	Navy type.	(6)		ain		purposes. 1 searchlight above bridge. Standard compass on after wheelhouse.	V 168
	anafesquel é						
THE PERSON	THE REST OF THE PERSON	THE PARTY OF		t Deck c	9770		11

‡ Deck cargo.



S 168*..... S 167*.....

S 166*.....

S 165*.....

V 164.....

▼ 163.....

V 162.....

Schichau,

Vulcan, Stettin.

1910-11

1909

83

Part III. Section 4.

Destroyers.

								Destroyers—
				Page Supply	Hull		moltail has a	Alachine .
OFFICIAL	Where	Date	Comple-	Length.	D M	Desi	gned Load.	Armament.
Number.	Built.	Launch.	ment.	(a) P. P. (b) L. W. I. (c) extreme.	Breadth (extreme).	Draugh	Displace- ment.	Armament.
1909-10 PROGRAMME.	caid bina way on box	pto 01 and forecastle a cent a	Place	Ft. Ins	Ft. Ins.	Ft. In	Tons (Eng.).	
V 185 V 184	third we re	ergion sol s framend hos als	rades tutti tuti tutti t	81 81 6	(AE)			
V 183 V 182	Vulcan, Stettin.	1909-10	83	(c) 242 6	25 11	10	2 626	
V 181 V 180	official states	reat bearing is occord in troub brocker	brig double Alver		(52)	8 1	000 of (n) h	2—22-pr. 2—m. 4—T. (19.7").
. V .	natio etchouse att etther aide e	pe, en fores pe, en fores p, abatt di x, cuecon	All	102 4 201 102 4	0.52	(1)		turbines (th 3 Schull Vulcau.
S 179 S 178	Schichau, Elbing.	1910	83	(c) 243 5	25 11	10	2 625	2—22-pr.
S 176	selmios selmios se ma se	to after whe shindst also ord compe et house.	ideal rional ideal rional rional					2—m. 4—T. (19.7").
G 175	Germania, Kiel.	1910	83	(b) 241 2	25 11	10	2 643	
TRO- OBAMME, O LET	his did di y	nice to h.	(See P) Palso	(c) 242 10			043	2—22-pr. 2—m. 4—T. (19.7").
1908-09 PROGRAMME.	abind yil hi	diff.obeque obe, dia (foregna	not 1					
G 173	San' (anne) others tak in edween ban	rinda renna girornia d'incressor	tum mbinti o	12, f 300 fm	No ax	6)	(4) 18 000	
G 172	Germania, Kiel.	1908-09	83	(a) 234 7 (c) 242 10	25 11	THE REAL PROPERTY.	2 625	2—22-pr
G 169	onest at its	da seport se	P beautiful and the					2—m. 3—T. (17.7"). 5 torpedoes.

2—22-pr... 2—m. 3—T. (17.7"). 5 torpedoes. * Built to replace four similarly numbered which were building for the German Navy and which the contractors were permitted to sell to Turkey in 1910, delivery to the German naval authorities not having taken place.

(c) 242 6

(c) 243 5

25 11

25 11

9 10

9 10 .

603

2—22-pr. 2—m. 3—T. (17.7"). 5 torpedoes.

continued.

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Part III. Section 4.

Destroyers.

	Machinery a	Machinery and Boilers.		Fuel S	Supply.		
No. of	(a) Engines.	Horse-Power.	Speed.	(a) Coal (max.).	Endurance at 15 knots	General Remarks.	Official Number.
Pro- pellers.	(b) Boilers.	(a) Designed. (b) Mean on trial.	(a) Designed. (b) Mean on trial.	(b) Oil.	(with deck cargo).	Lannelt	HUMBER.
		las. Fon	Knots.	Tons.	Miles.		1909-10 PRO- GRAMME.
. 2	(a) A.E.G. Vulcan turbines. (b) 4-Schulz Navy type.	(a) 16,000 (T).	(a) 32. 5 (a) 32. 5 (b) 32. 15 (a) 32. 5 (b) 32. 2 (a) 32. 5 (b) 32. 2 (a) 32. 5 (b) 32. 6 (a) 32. 5 (b) 32. 7	(a) 148 +20‡ (b) 40	1, 300	(See Plate 66. Raised forecastle, with breakwater. 2 funnels. 2 masts (stump foremast by bridge, mainmast abaft 2nd funnel). Bridge directly before 1st funnel; as in 1908-09 programme, interval between bridge and forecastle is so small as not to admit of a torpedo tube being carried there as customary in earlier boats. After wheel-house abaft main-	V 185. V 184. V 183. V 182. V 181. V 180.
2	(a) Melms and Pfenniger turbines. (b) 4-Schulz Navy type.	(a) 16,000 (T).	(a) 32. 0 (a) 32. 0 (a) 32. 0 (b) 33. 0	$\begin{cases} (a) & 148 \\ +20 \\ (b) & 50 \end{cases}$	1, 460	mast. 1—22-pr. on forecastle. 1—22-pr. abaft deck house aft. 2 broadside tubes, one on either side, abaft 1st funnel. 1 tube in center line abaft 2nd funnel.	s 178. s 176.
2	(a) Parsons turbines (modified). (b) 4-Schulz, Navy type.	(a) 16,000 (T).	(a) 31.5	(a) 189 +20‡ (b) 47	1, 240	1 tube in center line before after wheel-house. 1 searchlight above bridge. Standard compass directly abaft mainmast, in some cases on after wheel-house.	G 175. G 174.
3 (G. 173 has 2.)	† (a) Parsons turbines. Note.—G. 173 has Zoelly turbines. (b) 4-Schulz.	(a) 14,000 (b) 16,400 (a) 14,000 (T). (a) 14,000 (T). (a) 14,000 (T).	(a) 30. 0 (b) 32. 9 (a) 30. 0 (a) 30. 0 (b) 33. 7 (a) 30. 0 (b) 33. 8	$ \begin{cases} (a) & 159 \\ +20 \ddagger \\ (b) & 40 \end{cases} $	1, 260	(See Plate 66. Raised forecastle. 2 funnels. 2 masts (stump foremast by bridge, mainmast abaft 2nd funnel). Bridge directly before 1st funnel; interval between bridge and forecastle is so small as not to admit of a torpedo tube being mounted there as customary in	PRO- GRAMME. G 173. G 172. G 170. G 169. S 168.*
2	(a) Schichau turbines. (b) 4-Schulz.	(a) 14,000 (T).	(a) 32.0	(a) 150 +20‡ (b) 40	1, 200	earlier boats. After wheel-house abaft mainmast. 1—22-pr. on forecastle. 1—22-pr. abaft after wheel-house. 1 tube between funnels.	S 167.* S 166.* S 165.*
2	(a) A.E.G. turbines. Note.—V. 164 has A.E.G. Vulcan turbines (b) 4-Schulz.	(a) 14,000 (T)-	$ \left\{ \begin{array}{l} (a) \ 30. \ 0 \\ (b) \ 34. \ 4 \\ (a) \ 30. \ 0 \\ (b) \ 33. \ 0 \\ (a) \ 30. \ 0 \\ (b) \ 32. \ 2 \end{array} \right. $	$ \begin{cases} (a) & 150 \\ +20 \\ (b) & 40 \end{cases} $	1, 200	1 tube abaft 2nd funnel. 1 tube before after wheel-house. 1 searchlight above bridge. Standard compass fitted on after wheel-house.	V 164. V 163. V 162.
	† In two engi	ne rooms; three	e shafts, exce	ept G. 173,	which has t	two shafts. ‡ Deck car	go.



Part III. Section 4.

28

Destroyers-

脑

10

Destroyers.

			Punt Supple			Hull. gradiet l'on e				lost fina en	nin elk	
Official	Where	Date	Comple	-	Lei	ngth.		become	De	signe	d Load.	
Number.	Built.	of	ment.	Cit	Manhadi Mari 16	Legit (s	В	readth				Armament.
		Launch.			(a) P (b) L (c) E	.P. .W.I. xtreme.	(ex	treme).	Drau	ght.	Displace- ment.	emballing
01-6061	1				olin' F	t. Ins.	Ft	. Ins.	Ft.	Ins.	Tons	
1907-08	The state of the s										(Eng.).	
PROGRAMME.			18/10/84									
V 161	with hear		entail Jaw					0.55				
V 188.	Permunol	els.	2 man					5 .58				
eer v b	S finds sea	anian jen		908		201 (1004	in l	82.15		000	W (100 to.	0.30,6 (6)
V 160	if he coulon	gliowith a	esbirth Jon			01	10	32.50		*		arsin/ swintur
V 159	n headan n madi as vist	outh hetma	detail .					32.6	4			adstanta pupp # (9)
V 158	tamentara of star des	at their a	arms					320.7				
V 157	am theta o	er bouts, wheol-hous	TOTEA :					82.0				
V 156	Vulcan, Stettin.	1907-08		XII	(a)	228 0 236 7		25 7		2	545	2—15-pr 2—m.
V 155 V 154	ton such	tinds of	Alle Alle Bottel &			05 A		93.0	(1)			3—T. (17.7"). 5 torpedoes.
V 153	din no suo . Isuana Italia dhall It		abie					53.0				torpedoes.
V 152	Description	Also Totales es	inut									
0 178	subject or	on monday	orba (1001	NO.	4:10	10	000	(w)	mosaid in Pageoni
V 151	directly ate	ind compass	brank]			78 (8)						nonidan Dellitorn
V 150		nort-femily	otto]									Navy Cype
PRO-	,											
1906-07									-	100	1 / 100	
PROGRAMME.		go m. forocamilo	ouist.					30, 0		001		
S 149	Troubsen's	quutte) se	2 000			691		0.00		000		round but a
S 148	in not owner	the stream of	activ Subject			00.18		0.00		000	1 (0) 8	Total Collection of the Collec
S 147	the segment when the	and Investory	four					× 300		000	l-tall.	Studyesh (Sent
S 146	of and alm	refer to he h	atom .	1								
S 145	have there of	s) med in	Bath A	00		eat		0.00		reio		
S 144	Schichau, Elbing.	1906-07	80	1	(a) (c)	229 8 231 0		25 7		3 10	520	1—15-pr.
S 143	Diving.	Mada 31	129 I 1 mod 1	1								3—4-pr. 2—m
S 142	alterne Looker	Lag Trade										3—T. (17.7"). 5 torpedoes.
S 141	popur mita	S'Autin -	ind The					0 Jus 1 July				0.2 2.4
S 140	AR DESIGNATION OF THE PERSON AND PARTY OF THE PERSON A	mediach ab	Dune I					0.00		000	is a	Professional Communication of the Communication of
S 139		Sharton to				116-11		7.16			-100	Associated and Associ
S 138			hade own t			e per s		nza ,ar				eman kan s
				1				177		1223 - 1	men anipe	ann at a

continued.

Part III. Section 4.

Destroyers.

	Machinery	and Boilers.	* .tu/ff	Fuel Supply.			
No. of	(a) Engines.	Horse Power.	Speed.	(a) Coal (max.).	Endurance at 15 Knots	General Remarks.	PICIAL MBER.
Pro- pellers.	(b) Boilers.	(a) Designed. (b) Mean on trial.	(a) Designed. (b) Mean on trial.		(with deck cargo).	Laurell	
		uoT sal	the sale	1 July 1		190	07-08
	up-bE		Knots.	Tons.	Miles.		RO- MME.
	endergrad of	$\begin{pmatrix} (a) & 10,250 \\ (T). & \\ (b) & 12,000 \end{pmatrix}$	(a) 30.0 (b) 32.1	(a) 165 +20‡. (b) Nil	1, 575	V 163	1.
		(a) 10, 250	(a) 30.0			See Plate 67. Raised forecastle, with break- water. 2 funnels.	
	A A A A A	(a) 10, 250 (a) 10, 250	(a) 30.0 (a) 30.0	0. 709.	(o) 1	2 masts (stump foremast by bridge, mainmast abaft 2nd funnel).	8. BAL 7
	valouped 6	(a) 10, 250	(a) 30.0 (a) 30.0			funnel; a large interval between bridge and forecastle.	
2	(a) Vertical triple expansion.	$\begin{cases} (a) & 10,250 \\ (a) & 10,250 \end{cases}$	(a) 30.0 (a) 30.0	150	1,450	After wheel-house abaft main- mast.	
	Note—V. 161 has A.E.G.	(a) 10, 250	(a) 30.0	(a) 158 +20‡. (b) Nil	1, 400	1—15-pr. abaft after wheel- house.	
	turbines. (b) 4 Schulz.	(a) 10, 250	(a) 30.0 (a) 30.0			1 tube directly abaft forecastle. 2 tubes, in centre line, between funnels.	
		(a) 10, 250	(b) 31.55			1 searchlight above bridge. Standard compass fitted just before after wheel-house.	
	10 to 100		(b) 31. 12	0 702		V 150	0. ABL T
	Associated a second	(a) 10, 250	(a) 30. 0 (b) 31. 4	0. 100	10)	190	06-07
	04						RO- MME.
						See Plate 67. Raised forecastle, with breakwater. S 148	TROUTE
						2 funnels. 2 masts (stump foremast by bridge, mainmast abaft 2nd	
			la is	202	(6)	funnel). Bridge directly before fore funnel; a large interval S 145	081 T
- V (43 - 14	14pt 15 148			(a) 190	2,500	between bridge and fore- castle. 1—4-pr. at either end of	i. SRI T
2	(a) Vertical triple	(a) 10,000	(a) 30.0	(a) 150 +15‡. (b) Nil	2,000	bridge. 1—4-pr. before mainmast (on platform in some cases). S 143	. Sec. T
	expansion. (b) 4 Schulz.					1-15-pr. on platform abaft s 141	
						1 tube directly abaft forecastle. 1 tube between funnels. S 140).
						1 searchlight above bridge. Standard compass on platform directly abaft mainmast. S 138	
					7,544	La La fille	
	3 1 8 10	1 3	1 35	‡Deck ca	rgo.	guild I	E 2
The state of the s							



30

Part III. Section 4.

Destroyers-

Destroyers.

					ploq	oB back		Hull.		end	loth have go	orbitat M
Official	Where	Date	Comp	ole-	L	ength.	T	hano	D	esigne	d Load.	Armament.
Number.	Built.	Launch.	men	t.	(b)	P.P. L.W.I. extreme.	1	Breadth extreme).	Dra	ught.	Displace- ment.	Almament.
1905-1906 PROGRAMME. T 137		1907	80		(a)	Ft. Ins. 224 9		Ft. Ins.	4	Ins. 9 10	Tons (Eng.). 560	1—15-pr3—4-pr.
GRAMME, (V 161.			The second secon		-1	165 +201 Nil	-	0.00	(a)	000	(n) T)	2—m. 3—T. (17.7"). 5 torpedoes.
V 189.	e, with brea	alm alm	Russes wat 2 (unt					30.0	(d)		To (a)	
T 136	Germania,	1906	68		(a)	207 0		23 0	(v)	7 7 005,0	480	4—4-pr 2—m. 3—T. (17.7"). 5 torpedoes.
T 135041.V	Kiel.	1906		00	(a)	207 0		23.00	(6)	1962 (0 7 (0557) 1978: 1	480	1—15-pr. 2—4-pr. 2—m.
V 150.	buft Timecas stre line, ce beldge,	directly es, in con in immels blight ab-	Page J			Nil	1	30.00 30.00 31.65	(a)	250	(a) I	3—T. (17.7"). 5 torpedoes.
T 134	octor of	1906 1906	68		(a) (a)	207 0 207 0		23 0 23 0		7 7	480	4—4-pr. 2—m. 3—T. (17.7").
Т 132.001		1906	68	3	(a)	207 0		23 0	(3.5)	7 7	480	5 torpedoes.
1904-1905 PROGRAMME. T 131	sent dire.	To ole forested and old old old old old old old old old ol	Cantas)									
T 129 T 128 T 127	Schichau, Elbing.	1905	60	0	(a)	207 8	3	23 0		7 7	480	3—4-pr 2—m. 3—T. (17.7"). 5 torpedoes.
Ţ 126*	tsommun du medad	er, betoes neut er er pr. on b transi.	derid ober fr color elfer Fr elem			100	Carried Carrie				140	o torpeddes.
1903-1904 PROGRAMME.	paryent francest charge treatment of charges of charges to treatment	osto repital organiza da	edut f edut f edut f erase I densité									
T 123 T 122 T 121 T 120	Schichau, Elbing.	1904	6	0	(a)	205 1		23 0		7 7	465	2—m. 3—T. (17.7").
T 120												5 torpedoes.

^{*} Sunk November 1905; raised May 1906 in two portions.

continued.

Part III. Section 4.

Destroyers.

		Machinery	and Boilers.		Fuel S	Supply.	
	No. of Pro- pellers.	(a) Engines. (b) Boilers.	Horse Power. (a) Designed. (b) Mean on trial.	(a) Designed.	(a) Coal (max.).	Endurance at 15 knots (with deck cargo).	Number.
	3	(a) Parsons turbines. (b) 4 Schulz-Thornycroft.	(a) 10,000 (T) (b) 13,800 (T)	Knots. (a) 30.0 (b) 33.0	Tons. (a) 165 + 15‡ (b) Nil.	Miles.	See Plate 67. Same as T. 132–134 (see below), but has— 1—4-pr. at either end of bridge.
CONTRACTOR OF THE PERSON OF TH		wall (1 to 6)	(est.)				1—4-pr. between funnel and mainmast on platform. 1—15-pr. on platform abaft mainmast. 1 tube directly abaft forecastle. 1 tube before 2nd funnel. 1 tube abaft mainmast.
The second secon		104, 40 PB	(a) 6,000	(a) 27.0 (a) 27.0	K 106	to TM	See Plate 66. Raised forecastle, with breakwater. 2 slightly raking funnels. 2 masts (stump foremast by bridge, mainmast abaft 2nd funnel). Bridge directly before 1st fun-
	2	(a) Vertical triple expansion. (b) 3 Schulz.	(a) 6,000	(a) 27.0	(a) 129 + 15‡ (b) Nil.	1, 280	nel; a large interval between bridge and forecastle. 1—4-pr. at either end of bridge. 2—4-prs. on platforms in centre line abaft mainmast. 1 tube directly abaft forecastle. 2 tubes, in center line, between
			(a) 6,000 (a) 6,000 (b) 6,500	(a) 27.0 (a) 27.0 (b) 29.0			funnels. 1 searchlight above bridge. T. 135 has 1—15-pr. in place of 2—4-prs. on platform abaft mainmast. T 133. T 132.
	2	(a) Vertical triple expansion. (b) 3 Schulz-Thornycroft.	(a) 6,500 (a) 6,500 (b) 6,600 (a) 6,500 (a) 6,500 (a) 6,500 (a) 6,500	(a) 27. 0	(a) 113 + 15‡ (b) Nil.	1, 640	(Low forecastle, about 2½ feet above upper deck level, with raised platform at break. 2 slightly raking funnels. 2 masts (stump foremast by bridge; mainmast abaft 2nd funnel). Bridge directly before 1st funnel; a large interval between bridge and forecastle. 1—4-pr. on either side abreast the bridge. 1—4-pr. abaft mainmast. 1 tube directly abaft forecastle. 2 tubes, in center line, between funnels. 1 searchlight above bridge.
	2	(a) Vertical triple expansion. (b) 3 Schulz-Thornycroft.	$ \left\{ \begin{array}{l} (a) \ 6,500 \\ (b) \ 6,800 \\ (a) \ 6,500 \\ (b) \ 6,600 \\ (a) \ 6,500 \\ (b) \ 6,800 \\ (a) \ 6,500 \\ (b) \ 6,750 \end{array} \right. $	(a) 27. 0 (b) 28. 3† (a) 27. 0 (b) 27. 0† (a) 27. 0 (b) 27. 1† (a) 27. 0 (b) 27. 01†	(a) 113 + 15‡ (a) 113 + 51‡ (a) 113 + 15‡ (a) 113 + 15‡	1,890 1,890 1,890 1,890	Same type as T. 126-131 (see above). T 123. T 122. T 121. T 120.

† Mean of three hours' trial.

106291—17——5

‡ Deck cargo.



[§] Reported to have been damaged beyond repair.

Part III. Section 4.

Destroyers-

Destroyers.

				March Lack	Hull	. 70	bitting to	
OFFICIAL NUMBER.	Where Built.	Date of	Comple- ment.	Length.	D _w . 3.3	Designe	d Load.	
		Launch.	ment.	(a) P. P. (b) L. W. I. (c) extreme.	Breadth (extreme).	Draught.	Displace- ment.	Armament.
1902-1903 PROGRAMME.				Ft. Ins.	Ft. Ins.	Ft. Ins.	Tons (Eng.).	
Т 114	Schichau, Elbing.	1902	56	(a) 201 2	23 0	7 7	413	3—4-pr
1901-1902 PROGRAMME.	iner children							2—m. 3—T. (17.7″). 5 Torpedoes.
T 113	- Februari Estavi							
T 111	Germania, Kiel.	1901-02	56	(a) 207 8	22 0	7 7		
T 109	Tal into						394	3—4-pr
.46170	uland to him halo all sprid hungarethica serred palat	Adding in the control of the control	A STATE OF THE STA					estronic de la companya de la compan
1900-1901 PROGRAMME.	coming and com-	of a ballo of a 1 year of a second one						
T 107	Schichau, Elbing.	1901	56	(a) 200 2 (c) 210 0	23 0			
T 103 T 102		drenth thenth the		(c) 210 0	20 ()	7 7	394	3-4-pr. 2-m. 3-T. (17.7"). 5 Torpedoes.
1899-1900 PROGRAMME.	Marini Ma Marini Marini Ma Marini Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma Ma							Control of the Contro
T 101	Schichau,	1900-01	56	(a) 200 c				
T 98	Elbing.		egen.	(a) 200 2 (c) 210 0	23 0	7 7	394	3-4-pr. 2-m. 3-T. (17.7").
								5 Torpedoes.

continued.

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Part III. Section 4. Destroyers.

	Machinery	and Boilers.		Fuel S	Supply.		
No. of	(a) Engines.	Horse Power.	Speed.		Endurance at 15 knots		Official Number.
Pro- pellers.	(b) Boilers.		(a) Designed. (b) Mean on trial.	(b) Oil.	(with deck cargo).	isopind	
		n-2 201 1077	Knots.	Tons.	Miles.		1902-1903 PRO- GRAMME.
2	(a) Vertical, triple expansion.	(a) 6, 200	(a) 26.0	(a) 98 + 10‡ (b) Nil	1,350	Same type as T. 126–131 (see above).	T 114.
2	(a) Vertical, triple expansion. (b) 3 Thornycroft.	(a) 6,000	(a) 26.0 (a) 26.0 (a) 26.0 (a) 26.0 (a) 26.0 (a) 26.0 (b) 29.1	(a) 110 + 10‡ (b) Nil	1,840	Low forecastle, about 2½ ft. above upper deck level, with raised platform at break. 2 slightly raking funnels, rather far apart. 2 masts (stump foremast by bridge, mainmast abaft 2nd funnel). Bridge directly before 1st funnel, a large interval between bridge and forecastle. 1—4-pr. on either side nearly abreast bridge. 1—4-pr. abaft mainmast. 1 tube directly abaft forecastle. 2 tubes, in centre line, between funnels.	PRO-GRAMME. T 113. T 112. T 111. T 110. T 109. T 108.
2	(a) Vertical, triple expansion. (b) 3 Thornycroft.	(a) 5, 400	(a) 26. 0 (b) 28. 3 (a) 26. 0 (a) 26. 0 (b) 28. 9 (a) 26. 0 (a) 26. 0 (a) 26. 0	(a) 92 + 10‡ (b) Nil	1,300	Low forecastle, about 2½ ft. above upper deck level. 2 raking funnels, rather far apart. 2 masts (stump foremost by bridge, mainmast abaft 2nd funnel). Bridge directly before first funnel; a large interval between bridge and forecastle. Sternpost slopes outwards from deck to waterline. 1—4-pr. on either side, abreast bridge. 1—4-pr. abaft mainmast. 1 tube directly abaft forecastle. 1 tube before and 1 tube abaft second funnel.	1900-1901 PRO- GRAMME. T 107. T 106. T 105. T 104. T 103. T 102.
2	(a) Vertical, triple expansion. (b) 3 Thornycroft.	(a) 5, 400	(a) 26.0 (a) 26.0 (a) 26.0 (a) 26.0 (a) 26.0 (b) 28.0 (a) 26.0	(a) 92 + 101 (b) Nil	1, 300	(Same type as T. 102-107 (see above); but T. 97, which before the war was used as the Emperor's despatch boat, may differ slightly, and probably still has one mast only, abaft forecastle.	1899-1900 PRO-GRAMME. (T 101. T 100. T 99. T 98. T 97 (Sleipner). T 96.

‡Deck cargo.



Length.

(a) P. P. (b) L. W. I. (c) extreme.

(a) 200 2 (c) 210 0

Date

of

Launch.

1899-1900.

Comple-

ment.

Where

Built.

Hull.

Breadth

(extreme).

Ft. Ins. Ft. Ins. Ft. Ins.

23 0

Designed Load.

Draught.

Displace-ment.

Tons. (Eng.).

394

OFFICIAL

NUMBER.

1898-1899 PROGRAMME. T 95..... T 94.....

T 92.....

T 91.....

T 93 Schichau, Elbing.

Part III. Section 4.

Destroyers.

Destroyers-

Armament.

0

continued.

Part III. Section 4.

		Machinery a	nd Boilers.	.HoW	Fuel S	Supply.				Destroyers.
No	o. of	(a) Engines	Horse Power.	(18)	(a) Coal (max.).	Endurance at 15 Knots (with deck-	General R	emarks.	Official Number.	
1	ro- lers.	(b) Boilers.	(a) Designed. (b) Mean on trial.	(a) Designed. (b) Mean on trial.	(b) Oil.	(with deck- cargo).	al mună			
			line, Ton	Knots.	Tons.	Miles.			1898-1899 PRO- GRAMME.	
								Jahreth	T 95.	
	2	(a) Vertical, triple expansion. (d) 3 Thornycroft.	(a) 5, 400	(a) 26. 0	(a) 92+ 10‡ (b) Nil.	1,300	Same type as 7 p. 33).	Γ. 102-107 (see	T 93.	
		(a) 3 Thorny eroft.							T 91.	
		and the Second		10,00	or so	1	pr mai			
		- Japan								
					1-85.49					
		a dapart			0.0					
		y-italpid 8								
			en joh							
									2A	
			e _{ni} h	4 4 1	0,16				De la constante de la constant	
		beautique d								
				Band.	ar yar gall	afod Allian				
					‡ Deck					

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Part III.
Section 4.
Torpedo
Boats.

TORPEDO

				Magnet Suit	Hull		nd lan gr	intrody in the control of
OFFICIAL	Where Built.	Date	Comple-	Length.	Breadth	Designe	d Load.	Armament.
Number.	Built.	Launch.	ment.	(a) P. P. (b) L. W. I. (c) extreme.	(extreme).	Draught.	Displace- ment.	
V 108*				Ft. Ins.	Ft. Ins.	Ft. Ins.	Tons (Eng.).	
V 107* V 106* V 105*	Vulcan, Stettin.	1914		(c) 201 1	20 4	6 1	318	2—13-pr 4—T. (17. 7").
DIVISIONAL.	ngoren i	an Milita	entt 1	On a second con-	0.00	0118		
iD 10	Thorny- croft, Chiswick.	1898	60	(c) 210 0	19 4	7 7	349	5—4-pr
D 9	Schichau, Elbing.	1894	59	(c) 196 10	25 3	12 2	374	3—4-pr. 2—m. 1—S. T. (17.7"). 2—T. (17.7"). 5 torpedoes.
D 8 D 7	} "	1891	49	(c) 195 10	23 0	11 6	344	3—4-pr 2—m. 1—S. T. (17.7"). 2—T. (17.7"). 5 torpedoes.
D 6	} "	1888-89	49	(c) 190 0	23 0	11 6	315	3—4-pr 2—m. 1—S. T. (17.7"). 2—T. (17.7"). 5 torpedoes.
D 4 D 3	}	1887	49	(c) 181 5	21 8	10 6	295	3—4-pr. 2—m. 1—S. T. (17.7"). 2—T. (17.7"). 5 torpedoes.
D 2 (late Alice Roosevelt). D 1	} "	1886	46	(c) 183 0	21 8	9 9	226	3-4-pr. 2-m. 1-S. T. (17.7"). 2-T. (17.7"). 5 torpedoes.

*Originally building for Holland.

BOATS.

Part III. Section 4. Torpedo Boats.

	Machinery an	nd Boilers.	Jack	Fuel Supply.		
No. of	Company (Horse Power.	Speed.	(a) Coal	General Remarks.	Official Number.
Pro-	(a) Engines.(b) Boilers.	(a)Designed. (b) Mean on trial.	(a) Designed. (b) Mean on trial.	(max.). (b) Oil.	Name of the second seco	
		et l'ank	Knots.	Tons.	(See Plate 68. Short high forecastle. Considerable interval between fore-	V 108. V 107.
2	(a) A. E. G. Vulcan turbines.	(a) 5, 300 (T.).	27:0		castle and bridge. 2 raking masts; foremast close abaft bridge, mainmast well aft.	V 106. V 105.
	(b) 3 (2 coalburning, 1 oil).				2 raking funnels.	DIVISIONAL,
2	(a) Triple expansion. (b) 3 Thoruy-croft.	(a) 5, 500	(a) 26.0	(a) 79	See Plate 69. 2 raking funnels, with mast between; stump foremast on forecastle. Turtle-back forecastle, with raised superstructure at break on which are mounted 2—4-pr. guns.	D 10.
2	(a) Triple expansion. (b) 3 locomotive.	(b) 4, 040	(b) 24. 5	(a) 105	Anish and anish an	D 9.
2	(a) Triple expansion. (b) 2 locomotive.	(a) 4,000	(a) 26.0	(a) 75	Turtle-back forecastle. 2 raking funnels. 1 mast abaft 2nd funnel. In some of these vessels there is a stump foremast also. High bridge before fore funnel.	D 8.
2	(a) Triple expansion. (b) Schulz. (a) Triple expansion. (b) Locomotive.	(a) 3, 600	(a) 23. 0	(a) 90	2—4-prs. on forebridge. 1—4-pr. on couning tower aft. In D. 8 the 2 tubes are on the middle line abaft after conning-tower. Searchlight mounted above forebridge.	D 6. D 5.
2		(a) 2, 500	(a) 21. 0	(a) 65		D 4. D 3.
2		(a) 1,800	(a) 21. 0	(a) 55	2 pole masts, 1 funnel; deck house abaft the mainmast. Other details as for D. 1. 1—4-pr. mounted on either side just before bridge. 1 mast and 1 funnel; 2 conning towers, 1 before funnel, the other abaft mast, bridge before funnel, with a searchlight projector on port side. Turtleback forecastle.	D 2 (late Alice Roosevelt).



Part III. Section 4. Torpedo Boats.

Torpedo

The state of the s			1					
				Tun'l Jungan	Hull		Dolf Dina-g	griftmit/
Official Number.	Where Built.	Date of '	Comple-	Length.	Breadth	Designe	d Load.	Armament.
	Dunt.	Launch.	ment.	(a) P. P. (b) L. W. I. (c) extreme.	(extreme).	Draught.	Displace- ment.	Palipun
anr v		adday.	Notes that	Ft. Ins.	Ft. Ins.	Ft. Ins.	Tons (Eng.).	
1st CLASS.		end lowers			I was		(245.).	
A 29	The same of the sa	to flav sin						Televina de la company
A 28				May 23/2				a Landon San Carlo
A 27								
A 26			District March	Large Instruction	0.000	003		eta bata
A 25	-707	Chy Te h	enters (In			互传出		(IDB) TOP 2
A 24	ser limite	Mar Stone	A					
A 23		THE REAL PROPERTY.		(10)				
A 22	Vulcan, Hamburg.	1915-16		(c) 170 0†			200†	2—22-pr.
A 21								2—22-pr. 1—T. (17.7"). 2 torpedoes.
A 20								
A 19	Distr Stede	tionir I		THE STREET				
A 18		terminal land	mercy and the		0.002	, 60×	10)	Mighally (see
A 17								inmical control
A 16		(plib)		- 9	HYPE			
A 15	Transport of the				N makes			
	THE REAL PROPERTY.					7 000	for 7	Ship of the control o
								business to a
A 14								
A 12				C. Harris	0.02	V 4 08 5	(0)	dout in .
A 11								time street
A 10	the marks	red green	nr, anjown	ign op				
A 9		,		9				
A 8	Vulcan, Hamburg.*	1915	29	(c) 142 0†		8 2†	95†	1—4-pr.
A 7	Then state	Singara Comment	MALTIN BACK					2—T. (17.7"). 2 torpedoes.
A 5	ALL THE REAL PROPERTY.	A CONTRACTOR	The Total Design					
A 4								
A 3				THE REAL PROPERTY.				
A 1								

^{*} Some of these boats were sent in sections by rail from Hamburg to Antwerp and there put together. † Approximate only.

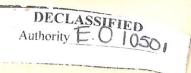
Boats—continued.

Part III. Section 4. Torpedo Boats.

	Machinery a	nd Boilers.		Fuel Supply.		
No. of Pro- pellers.	(a) Engines. (b) Boilers.	Horse Power. (a)Designed. (b) Mean on trial.	(a) Designed.	(a) Coal (max.).	General Remarks.	Official Number.
		7 - 9-1 (H) 5 6	Knots.	Tons.	Me allevier colorated to the state of the st	1st CLASS. (A 29. A 28. A 27.
and al	ano mila di mana nominana pina ngga kasa k		(a) 28.0†	Oil only.	High forecastle. 1—22-pr. on forecastle. 1—22-pr. aft.	A 26. A 25. A 24. A 23. A 22. A 21. A 20. A 19. A 18.
	The state of the s					A 17. A 16. A 15.
1	(a) Reciprocating.		20.0†	(a) 27	See Plate 69. Turtle-backed forecastle with bridge close abaft it. 1 raking funnel; 2 masts. A small conning tower is fitted below bridge. 1—4-pr. on platform abaft mainmast. 1 tube between funnel and foremast. 1 tube between funnel and mainmast. Standard compass on pedestal close before funnel.	A 13. A 12. A 11. A 10. A 9. A 8. A 7. A 5.
Salmer or C	Markota in the				the state of the s	A 4. A 3. A 1.

106291—17——6

† Approximate only.



Part III. Section 4. Torpedo Boats.

Torpedo

				1		Fur		Hull	1	Charle Nome	and the second
		Date			1 - 1	494	1	nui	1.	A STATE OF THE PARTY OF THE PAR	With 1960s
Official	Where	of	Comple-	I	ength	1.			Design	ed Load.	
Number.	Built.	Launch.	ment.	1	,\ D 7	D		eadth	To have	L	Armament.
				(b)	a) P. I L. W extre	I.I.	(ext	reme)	Draught.	Displace- ment.	risklad (de la
				(c)	CAUC	me.	-				
1st CLASS—					Ft.	Inc	F+	. Ins.	Ft. Ins.		
T 89	Germania,	1897-98	24	(a)				. 111s.	9 6	Tons (Eng.).	
T 88	Kiel.	100, 00	21	(4)	101	-	1	.0 0	9 6	152	1—4-pr. 2—T. (17.7").
											4 torpedoes.
	•	LU L									
Т 87											
T 86											
T 85	Schichau,	1897	0.4		150	_					
Т 84	Elbing.	1897	24	(a)	152	7	1	6 6	7 3	152	1-4-pr., on after con-
Т 83		coltraine	for con for	18 1		ny fili	1		(6)	1	ning tower. 1—S. T. 17.7" in bow. 2—17.7" T.
T 82			pir. alt.	-							4 torpedoes.
T 81											
T 80											
Т 79											
Т 78	Schichau, Elbing.	1894–95	24	(a)	152	7	1	6 6	7 3	150	
Т 77	Bioling.									150	1—4-pr., on after con- ning tower.
Т 76											2-17.7" in bow.
Т 75											4 torpedoes.
Т 74	Schichau,	1895	24	(a)	152	7	10	6	7 3	740	
97 A	Elbing.	Minmono	bank makey	THE STATE OF						143	1—4-pr. on conning tower aft.
a a			fone of uni	Phy C					'		tower aft. 1—S. T. 17.7" in bow. 2—17.7" T.
MA BENEFIT	Shapper are	tesis origin	ing an each	m C		(a	1	2011	100000		4 torpedoes.
Т 73	Take Ring	du Laprili	to between	m I							, min
T 72			omalé and								
T 71											
T 70	Schichau,	1893	21	(a)	152	7	16	6	7 3	167	
T 68.	Elbing.									107	1—4-pr. on conning tower aft.
T 67				Liu ai		Man		7/4			1—S. T. (17.7") in
T 66	The Tree										2—T. (17.7"). 4 torpedoes.
										9713	

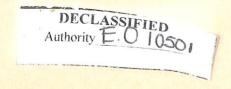
Boats—continued.

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Part III.
Section 4.
Torpedo
Boats.

		Machinery a	and Boilers.		Fuel Supply.		
-	No. of	(a) Engines.	Horse-Power	Speed.	(a) Coal	General Remarks.	Official
	Pro- pellers.	(b) Boilers.	(a)Designed. (b) Mean on trial.	(a) Designed. (b) Mean on trial.		Anore duine to	Number.
			T ROLL	Knots.	Tons.		1st CLASS—
	1	(a) Triple expansion. (b) Thorny-croft-Schulz.	(a) 1,800	(a) 25.0	(a) 30 (b) 7	1 mast between 2 funnels, which are far apart. Turtle-back to fore con- ning tower which is just before fore funnel. After conning tower abaft after funnel.	T 89. T 88.
	gainanniag 8°0 in	.the bereint	FAY	1 1	2.4	Tax kropt the postsulated	T 87.
1		wod T g					Т 86.
	1	(a) Triple expansion.	(a) 1,800	(a) 25	(a) 30*	1 mast between 2 funnels which are far apart, rounded stem, turtle back to	T 85.
		(b) Thornycroft.				before fore funnel After copping	T 83.
						tower abaft after funnel.	T 82.
							(T 81.
							T 80.
			The Light Control				T 79.
100	1	(a) Triple expansion.	(a) 1,800	(a) 25	(a) 30*	1 funnel, 2 conning towers. The training tubes are fitted with powder im-	т 78.
1		(b) 2 Locomotive.				pulse only.	т 77.
		Torpello					Т 76.
							T 75.
	1	(a) Triple expansion. (b) Thornycroft.	(a) 1,800	(a) 26	(a) 30*	1 funnel, 2 conning towers. The training tubes are fitted with powder impulse only.	T 74.
e pel	innes	a application	10.51		E 15 T.	Mark There are a second	Т 73.
oi	1784	T S + of S S					T 72.
		alaqui7 -					T 71.
	1	(a) Triple	(a) 1,800	(a) 22	(a) 30*	1 mast aft, 1 funnel rounded stem, par-	T 70.
	-	expansion. (b) 2 Locomotive.				tial turtle back to fore conning tower. After conning tower abaft mast.	T 69.
							T 68.
							T 67.
							T 66.
			* N B _S	ome of these	hoats have	been fitted to burn oil fuel	

^{*} N. B.—Some of these boats have been fitted to burn oil fuel.



Part III. Section 4. Torpedo Boats.

Torpedo

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				Fact.	Hul		oft ban gro	sident/
Official Number.	Where	Date	Comple-	Length.	Speed	Designe	ed Load.	
NUMBER.	Built.	Launch.	ment.	(a) P. P. (b) L. W. I. (c) extreme.	Breadth (extreme).	Draught.	Displace- ment.	Armament.
INC CLASS				Ft. Ins.	Ft. Ins.	Ft. Ins.	Tons	
2nd and 3rd CLASSES.							(Eng.).	
T 40								
Т 39								
T 38	gationapo pro-	formal, to	I the top		88 (n)	1,800		
Т 36	other than	galaurs da sus am	and Aire				ovi	
T 35			100	•				
Т 34		1887	16	(a) 131 3	14 9	5 11		
Т 33	Elbing.				11 0	9 11	84	1—4-pr. on conning tower aft.
Т 31								1—S. T. (13.8") in bow. 2—T. (13.8").
T 30								2—1. (13.8″).
T 29								
T 27.								
. De T								
.80 T	mura besima maia maia.	ianusi, to	dig he	7 77 (0)	45.01	000 1 6		
T 25		THAT IS NOT	Jacken Steel					
T 24							•	
Т 22								
T 21								
T 20	Schichau,	1885–86	16	(a) 100 10				
Т 16	Elbing.	1000 00	10	(a) 123 10	15 9	6 6	84	1—4-pr. on conning
T 15								1—S. T. (13.8") in
T 14								2—T. (13.8″).
F 11	min leder	Total Comment	Flor amind	r mineral	10 (6)			
86.78	NECTON !	Best Single	DANCE MARKET			Sim , hie		UT AND THE STREET
BA T	eta Atubiga	strania	alista a l				1000	
	idinasia est	world by the state of the state	all mile					
		Laure He	PA ABYL THE					
		Or Francisco	ve beset la		art de la			
						Contract of		

Boats—continued.

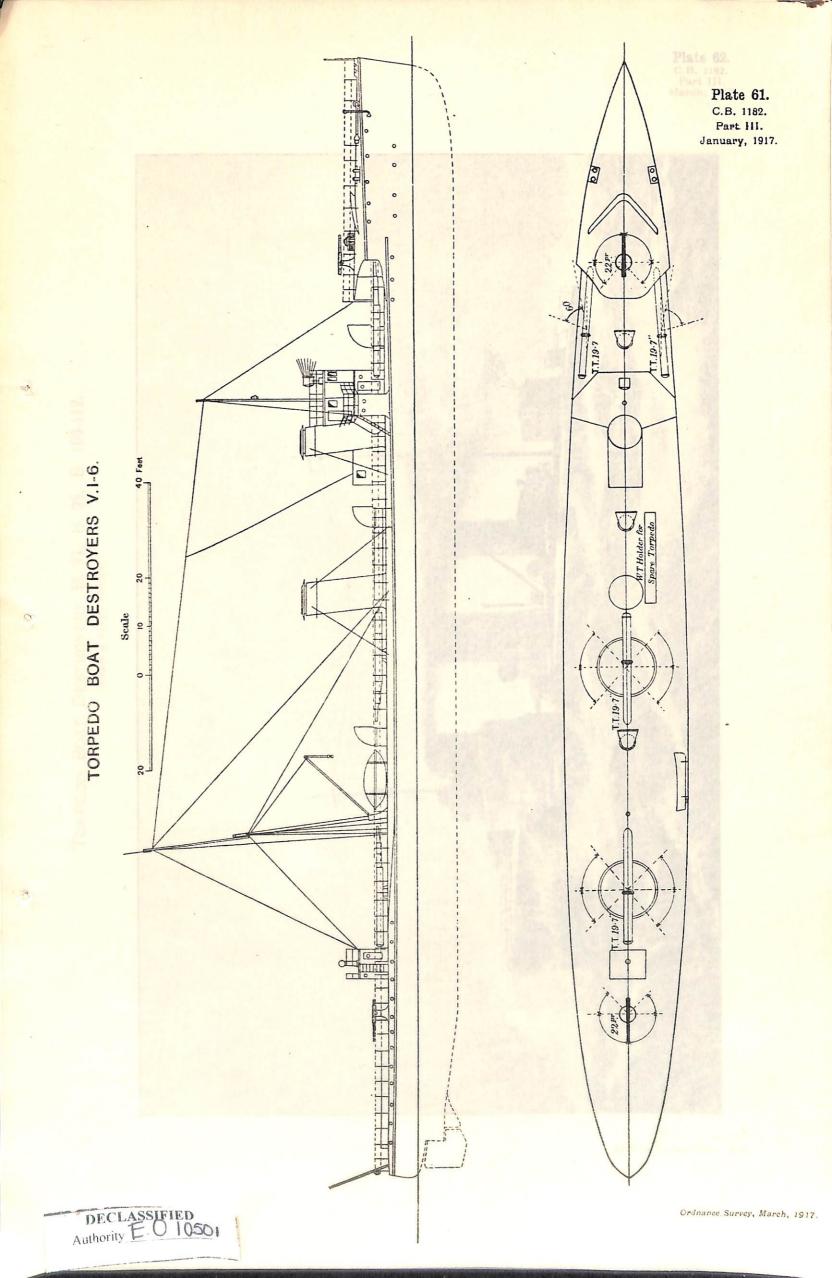
Part III.
Section 4.
Torpedo
Boats.

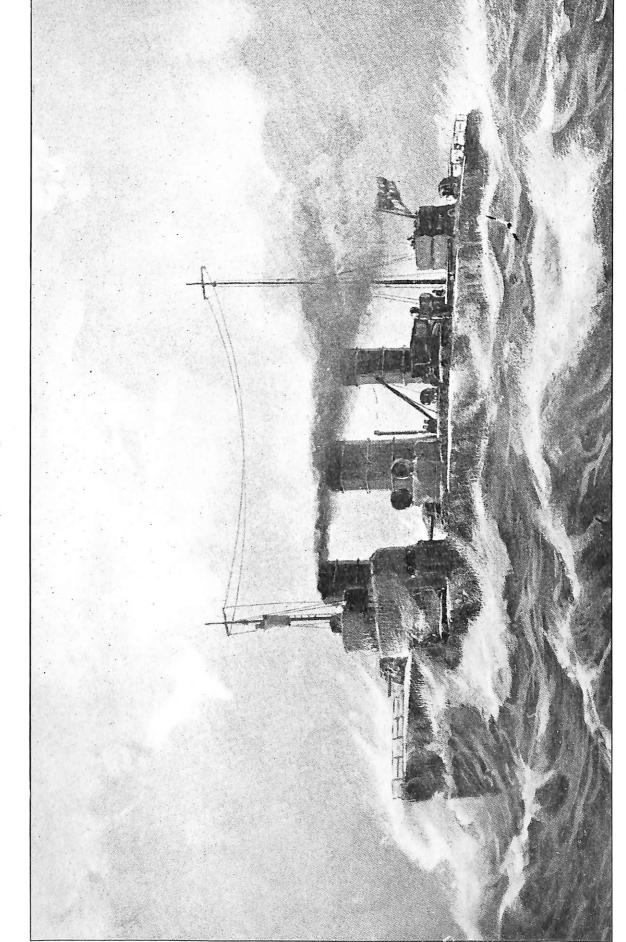
No. of Propellers. (a) Engines. (b) Boilers. (a) Designed. (b) Mean on trial. (b) Moan on trial. (c) Triple expansion. (b) 1 Locomotive. (a) Designed. (b) Mean on trial. (b) Oil. (a) Tons. Tons. (b) Oil. (a) Triple expansion. (a) Designed. (b) Mean on trial. (b) Oil. (a) Tax at at; 1 funnel, large, raking; deck flat with rounded edges, and partially turtle-backed forward to conning tower abaft mainmast. (b) 1 Locomotive. (c) Triple expansion. (d) 1 mast at; 1 funnel, large, raking; deck flat with rounded edges, and partially turtle-backed forward to conning tower; there is an after conning tower; there is an after conning tower; there is an after conning tower abaft mainmast.		Machinery a	nd Boilers.		Fuel Supply.		
Triple expansion. (a) 1,000 (a) 20 (a) 34*					(max.).	General Remarks.	Official Number.
2nd and CLASSE (T 40.	pellers.	(b) Bollers	(b) Mean on trial.	(b) Mean on trial.	(b) Oil.		
1 (a) Triple expansion. (b) 1 Locomotive. 20 (a) 26 † 1 mast aft; 1 funnel, large, raking; deck flat with rounded edges, and partially turtle-backed forward to conning tower; there is an after conning tower abaft mainmast. T 24. T 22. T 21. T 20. T 16. T 15. T 14. T 13.	1	sion	(a) 1, 000				T 39. T 38. T 37. T 36. T 35. T 34. T 33. T 31. T 30. T 29. T 28.
	1	gion	1,000	20	(a)[26	† 1 mast aft; 1 funnel, large, raking; deck flat with rounded edges, and partially turtle-backed forward to conning tower; there is an after conning tower abaft mainmast.	T 24. T 22. T 21. T 20. T 16. T 15. T 14.

* N. B.—Some of these boats have been fitted to built on

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TORPEDO BOAT DESTROYERS B. 97, B. 98, B. 109-112. (From a rough sketch).

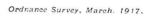


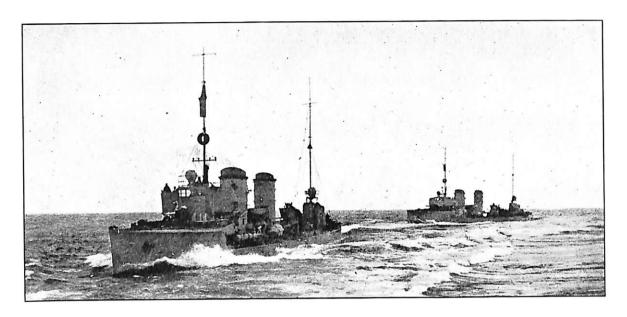


Plate 63. C.B. 1182. Part III. March, 1917. TORPEDO BOAT DESTROYERS G.101-104. 60 Feet Originally building for ARGENTINA. Scale 30 Ordnance Survey, Marc DECLASSIFIED Authority E. O. 1050

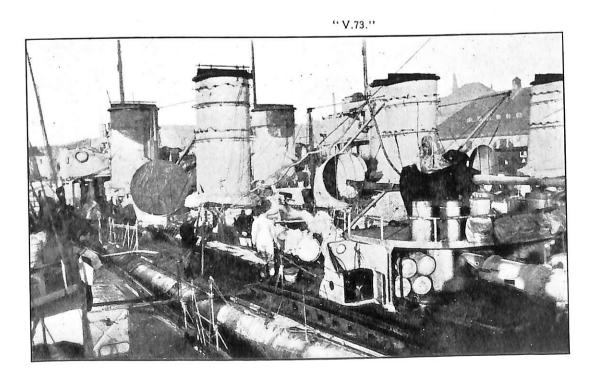
NEW GERMAN TWO FUNNEL DESTROYERS.

Built during the War.

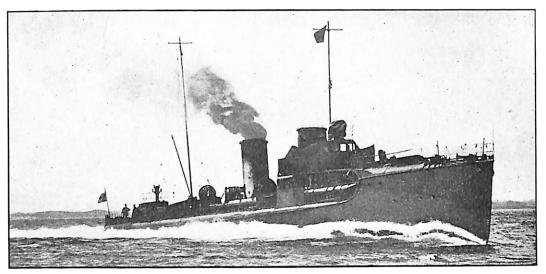
(Oil fuel only).



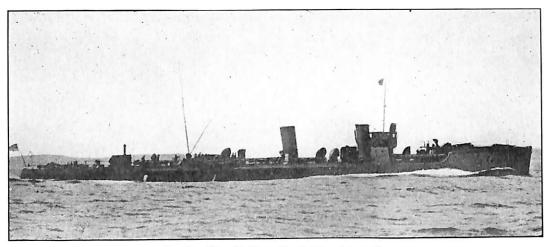
"G" BOATS.
(Bridge and Searchlight Platform raised since date of photograph).



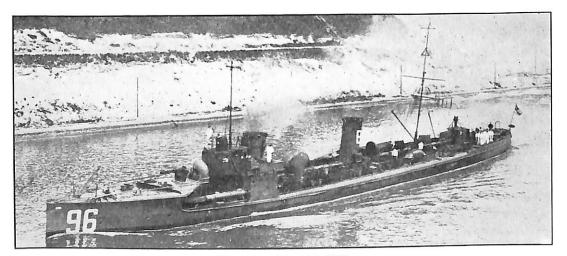
"V" OR "S" BOATS.



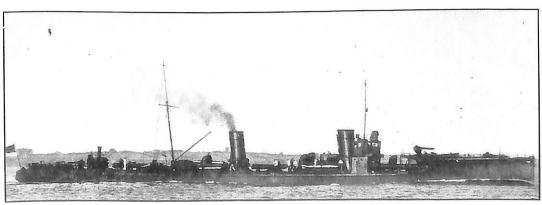
G. 8. (S. 13-24. G. 7-11. V. 1-6.



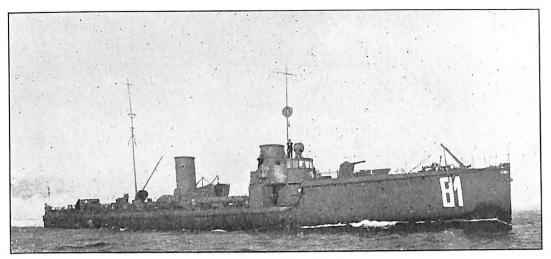
G. 7. (S. 13-24. G. 7-11. V. 1-6).



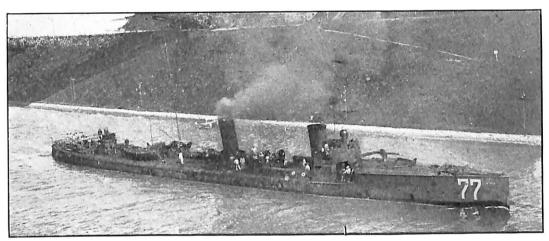
G. 196. (G. 192-197).



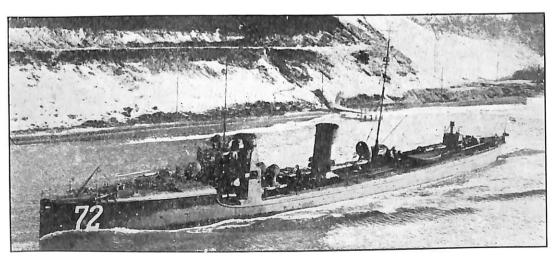
V. 186. (V. 186-191)



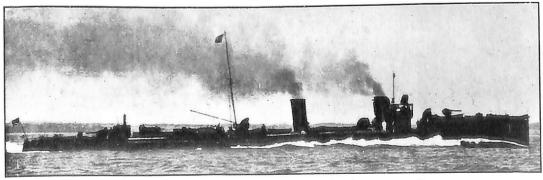
V 181 (V 180-185).



S. 177 (S. 176-179)

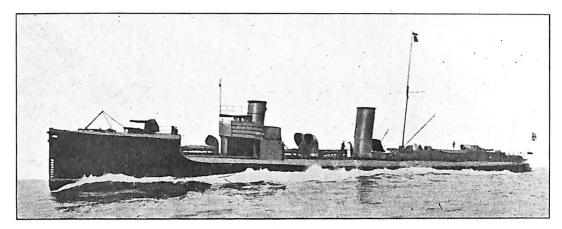


G. 172. (G. 169-173). (S. 165-168). (V. 162-164).

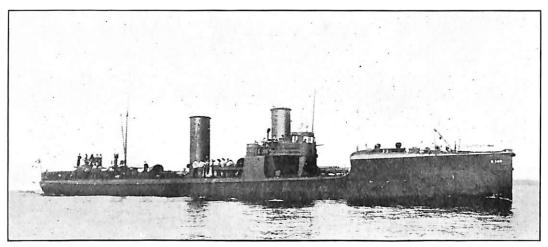


G. 170. (G. 168-173). (S. 165-168). (V. 162-164).

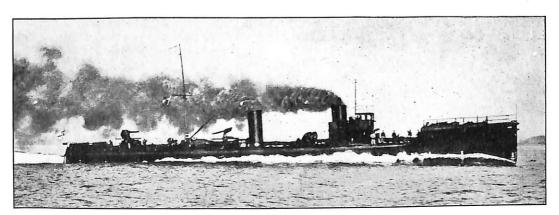




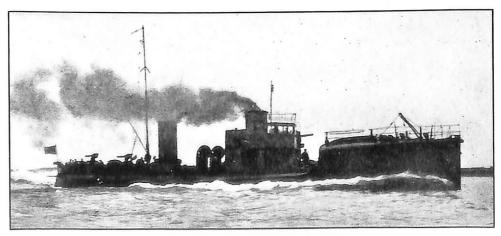
V. 151. (V. 150-161).



S. 149. (S. 138-149).



T. 137.

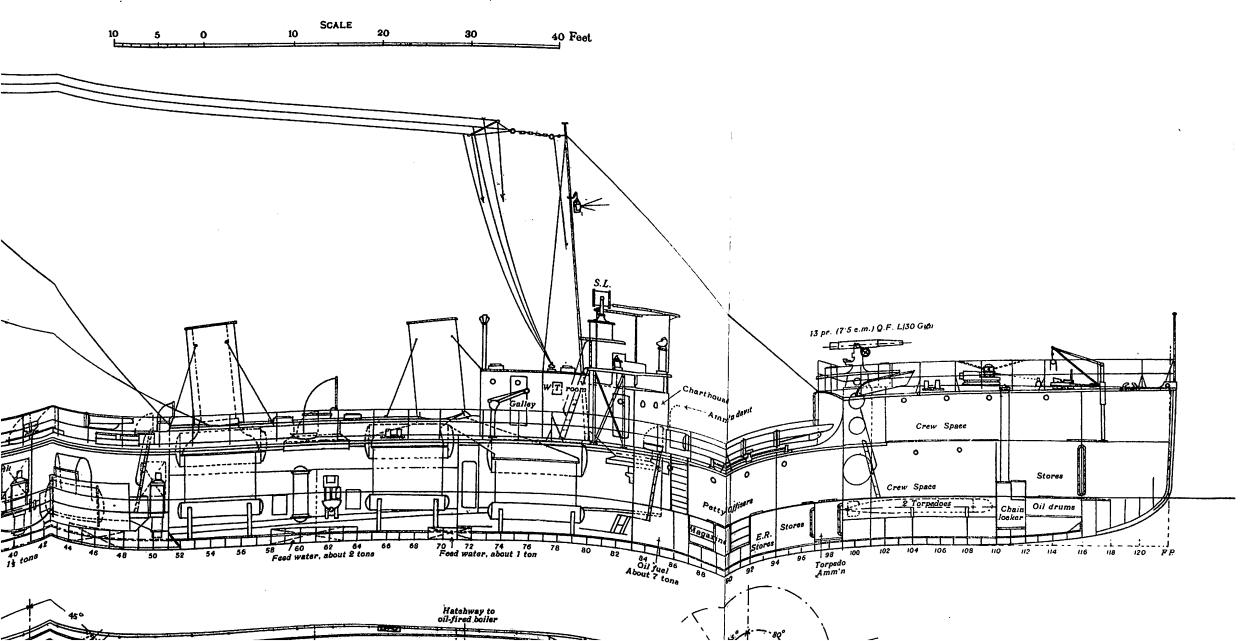


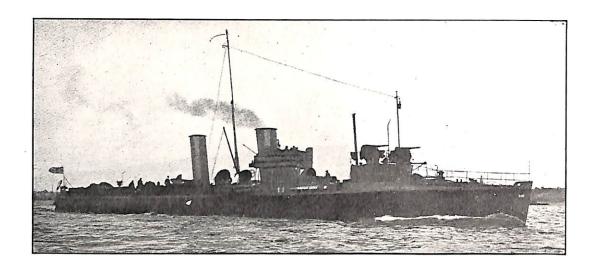
T. 134. (T. 132-134, & 136).



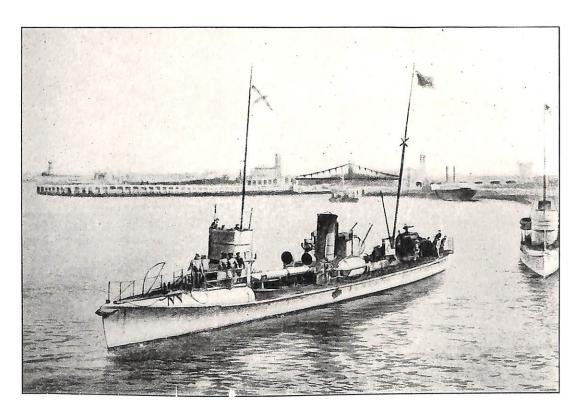
TORPEDO BOATS (V. 105-108).

(Originally building for Holland).





D. 10.



Note:—In some of these Boats the Funnel has a Bell-Mouthed Top.

. 1.—14 Class.

