|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Table XVII.—*Particulars of British Dreadnought Cruisers.* | | | | | | | | | | | | | | | |
| **vessel.** | **Date of Launch. |** | **Hull.** | | | | | **speed.** | **Horse Power.** | **Machinery.** | | | **Armament (including machine guns).** | **Heavy Guns where Mounted.** | **Thickest Armour.** | **Cost (ex­cluding guns).** |
| **Material.** | **Length.** | **Breadth.** | **Mean**  **Draught.** | **Load Dis­placement.** | **No. of Screws.** | **Engines.** | **Boilers.** |
| **Invincible** | **1907** | **Steel.** | **Ft.**  **53θ"o** | **Ft.**  **78∙S** | **Ft. 26\*0** | **Tons.**  **17,250** | **Knots.**  **20'5** | **41,00c** | **4** | **Turbines.** | **Yarrow** | **8—12\* 16—4r 5m.** | **Barbettes** | **7'** | **£**  **1,678,995** |
| **Inflexible** | **1907** | **tt** | **S3θ\*o** | **78∙5** | **2Ö‘O** | **17.250** | **25Ό** | **41,000** | **4** | **rt** | **Babcock ’& Wilcox** | **8—1≡' 16-4’ 5m.** | **ff** | **7'** | **1,6.58,2 2Q** |
| **Indomitable .** | **1907** | **ff** | **5300** | **78\*5** | **20\*0** | **17,2so** | **25'0** | **41,000** | **4** | r, | **8—1≡' 16 : l 5m.** | **fl** | *r* | **x,671,880** |
| **Indefatigable .** | **1909** |  | **555Ό** | **8o,o** | **26\*5** | i8,75o | **25\*0** | **43.o∞** | **4** | >, | **» »** | **8—ι≡r 16—4’ 5m.** |  | **7’** | **1,440,826** |
| **Australia . New Zealand .** | **1909** | **ff** | **5S5'o** | **8o‘o** | **26'5** | **18,750** | **2s0** | **43,∞o** | **4** | t> | **>> »** | **8—12\* 16—4· sm.** |  | **7'** | **1,449,826** |
| **1909** | **ff** | **SSS\*o** | **80'0** | **26\*5** | **18,750** | **≡50** | **43.∞O** | **4** | » | **Yarrow** | **8—12\* x6—4\* sι∏.** | m | **7'** | ***1*,440,8 26** |
| **Lion**  **Princess Royal** | **1910** | **1»** | **660\*0**  **6δo\*o** | **88∙5**  **88∙5** | **28'O**  **28\*0** | **26,350**  **26,350** | **28'0**  **28\*0** | **70,0∞**  **7010∞** | **4**  **4** |  |  | **f,** |  |

Aires,” built in 1895 for the Argentine Republic, is 396 ft. in length and of 4800 tons displacement, her machinery developing 13,300

H. P. with open stokeholds, and giving her a speed of 23∙2 knots. She is protected by a complete deck 1½ in. to 3 in. thick, and carries a powerful armament of quick-firing guns, consisting of two 8-in., four 6-in., six 4∙7-in., twenty-two smaller guns and five torpedo tubes. Her normal coal supply is 350 tons, and she can stow 1000 tons in her bunkers. Rather smaller than the “ Buenos Aires,” but of still later build (1901), is the Chilean cruiser “ Chacabuco" (fig. 98, Plate XV.). She is a characteristic Elswick cruiser in design and general appearance, being heavily armed, fast and of moderate displacement. Her dimensions are: displacement 45oc tons, length 360 ft., breadth 46 ft. and draught 18 ft. She carries an armament of two 8-in. Q.F. guns, mounted on the middle line forward and aft, and protected by well-armoured gun-houses, ten 4·7-in. Q.F. guns in shields on the broadsides and nineteen smaller guns, including machine-guns. She is protected by a strong armoured deck 1¾ in. thick on the flat to 4½ in. on the slopes, and by the 1000 tons of coal which forms her normal supply. Her engines develop nearly 16,000 H.P., and her speed is 23 knots.

In the matter of armoured cruisers also Elswick has taken a leading place—among the cruisers built by this firm being the “Esmeralda” (second), of 7000 tons, in 1895 for Chile; the "O’Higgins,” of 8500 tons, in 1896 for the same state; the "Asama” and “ Tokiwa,” of 9700 tons, in 1897 for Japan; and the “ Idzumo ” and “ Iwate,” in 1899, also for Japan. The “ Idzumo ” (fig. 99, Plate XXIII.) is 9750 tons displacement, 400 ft. long, 68 ft. 6 in. beam, 24 ft. 3 in. draught. She has 16,000 H.P. and a speed of 22 knots; is protected by a complete belt of Krupp steel 7 in. thick, tapering to 3½ in, at the ends, a 2½-in. steel deck with a citadel above it 5 in. thick, and carries an armament of four 8-in. Q.F., fourteen 6-in. Q.F., twelve 12-pdrs., seven smaller guns and four torpedo tubes. The 8-in. guns are in pairs in 6-in. barbettes and hoods, while of the 6-in. guns ten are in 6-in. casemates and four in shields. She carries, with bunkers full, 1300 tons of coal.

*United States.—*In the United States navy the proportion of “ protected ” cruisers is smaller than in the British navy, as the “ armoured ” type established itself at an earlier date. The “ Philadelphia,” begun in 1888, may be taken as an example of the U.S. protected cruiser. She is 4345 tons in displacement and 327 ft. long, has twin screws and a horse-power of 8800, giving her a speed of 19∙6 knots. She is protected by a steel deck 2½ in. to 4 in. thick, and carries twelve 6-in. B.L. guns (later converted to Q.F.), seven­teen smaller guns and five torpedo tubes.

The “ Columbia ” and “ Minneapolis ” are very fast armoured cruisers laid down in 1891. On a displacement of 7350 tons they carry one 8-in., two 6-in., eight 4-in. and twelve 6-pdr. and a number of smaller guns. They are protected by heavy steel decks and thin side armour. The “ Columbia ” developed 18,500 LH.P. and 22·8 knots on trial, while the “ Minneapolis ” reached 20,860

I. H.P. and 23 knots; these powers and speeds were at that date the highest recorded for such vessels. The “ Columbia ” crossed the Atlantic at 18∙4 knots in 1895, but the type has not been repeated in America although followed for a little while by France. The “ Brooklyn ” (fig. 84, Plate XXII.), begun in 1893, is of the “ armoured ” type. She is of 9215 tons displacement and 400 ft. long, has twin screws and develops 16,000 horse-power with forced draught, giving a speed of 21 knots. She is protected by a steel belt for two-thirds of her length 8 ft. broad and 8 in. to 3 in. thick, and a complete steel deck 6 in. to 3 in. thick. She carries eight 8-in. B.L. guns in pairs in 15-in. barbettes—disposed one forward, one aft and one on each beam-twelve 5-1n. Q.F. guns in 4-in. shields, twenty smaller guns and five torpedo tubes. Her normal coal stowage is 900 tons, and she can stow 1650 tons in her coal spaces.

In 1903-1904 there were launched six armoured cruisers of the “ California" class, of 13,700 tons, and in 1904-1905 three of the “ St Louis ” class, of 9700 tons. The former are vessels 502 ft. in length, 70 ft. beam and 26 ft. 6 in. draught, have machinery de­veloping 23,000 indicated horse-power, and a speed of 22 knots. The latter are 424 ft. in length, 66 ft. beam and 23 ft. 6 in. draught, with engines of 21,000 indicated horse-power, and the same estimated speed, namely, 22 knots. Both classes have fourteen 6-in. Q.F. guns, but the larger vessels have in addition four 8-in. guns in two 6½-in. turrets, besides a heavier battery of smaller Q.F. guns. The “ California ” class are completely belted with armour having a thickness of 6 in. over half the length amidships and 3½ in. to the ends, and a battery of 5-1n. armour enclosing the 6-in. Q.F. guns, and extending to the upper deck. The “ St Louis ” class have only a water-line belt for about one-half the vessel’s length, with a similar battery above it, the whole of the armour being 4 in. thick of Krupp quality. The “ California ” class cornes between the English “ Cressy ” and “ Drake ” classes. The "St Louis” class is practically the English “ Monmouth,” with about a knot less speed, bow- plating omitted and a 4-in. battery added.

In 1903 two larger armoured cruisers, the “ Tennessee ” and “ Washington,” were laid down. The speed of 22 knots was retained, but the armament consisted of four 10-in., sixteen 6-in., twenty-two 14-pdrs., twelve 3-pdrs., &c., with four 21-in. submerged torpedo tubes. The side armour was slightly reduced in thickness, but spread over a greater area, giving 5 in. uniformly on the belt and 3 in. forward and aft; the citadel and casemates remain 5 in. thick, but the protection of the heavy guns is increased to 9 in.; in addition, the 14-pdr. battery on the upper deck is protected by 2-in. plating. The displacement is 14,500 tons. Two similar vessels, “ North Carolina ” and “ Montana,“ were laid down in 1905, but up to 1910 the United States had not proposed to lay down any cruisers corresponding in power and speed to the “ Invincible.”

*Germany.—*Germany for many years built a number of small cruisers of moderate speed for service on distant stations, &c., and subsequently a series of very successful third-class and second-class cruisers of increasing power and speed. Seven vessels of the “ Gazelle ” class were launched in 1898-1900. The "Gazelle ” was of 2558 tons, 6370 LH.P. and 19½ knots speed; the “ Niobe,” a sister vessel, was of the same displacement, and the five later vessels were of 2608 tons; several developed nearly 9000 I.H.P. and obtained 21¾ to 22¼ knots speed. The “ Undine,” “Arcona ” and “ Frauenlob,” laid down in 1901, were of 2656 tons displacement; these were all sheathed with wood and coppered. Seven vessels of the “ Hamburg ” class were laid down in 1902-1904, of 3200 tons displacement, having the same protection as the preceding vessels and carrying the same armament at a higher speed, machinery of 10,000 I.H.P. being provided for 22 knots. The highest speed reached was 22∙6 knots by the “ Lübeck,” which was fitted with Parsons turbines of 13,500 H.P. and driven by eight screws on four shafts. Four vessels of the “ Königsberg ” class, laid down in 1905, are of 3350 to 3500 tons displacement. They retain the same protection— a deck ∙8 in. to 2 in. in thickness and the same armament—ten 4·1-in., fourteen smaller guns and two submerged torpedo tubes; but their machinery has been varied to admit of trial of various types of turbines and reciprocating engines. The “ Königsberg,” “ Stutt- gart ” and “ Nürnberg ” are fitted with engines of 13,200 I.H.P. for 23∙5 knots; while the “ Stettin ” is fitted with Parsons turbines of 15,500 H.P., and attained 24∙0 knots on trial. The next two vessels, “ Dresden ” and “ Emden,” of 3592 tons, laid down in 1906, have the same protection as before, but twelve 4∙1-in. guns are carried instead of ten, and a still higher speed is aimed at. The “ Dresden ” is fitted with Parsons turbines of 16,000 H.P., and the “ Emden,” with reciprocating engines of 15,000 I.H.P., to give a speed of 25 knots. Four later vessels are of 4230 to 4280 tons displacement, and are fitted with machinery of about 25,000 H.P. for a speed of 25 knots, as follows: the “ Kolberg ” with Schichau turbines, the "Mainz ” with A.E.G. (modified Curtis) turbines, the “ Cöln ” with Zoelly turbines and the “ Augsburg ” with Parsons turbines. Two vessels of the same type were in 1910 under construction, in which a further increase of speed was contemplated; the displacement is increased to 4800 tons and the H.P. to 30,000; one of these, the vessel to replace “ Bussard,” was to have Schulz turbines. Thus in these second-class cruisers Germany was carrying out the greatest series of experiments on turbines which had been attempted, no less than five different types of large power being tested in comparison with reciprocating engines.

Besides the foregoing very fast vessels, in 1897-1898 Germany built five larger second-class cruisers of the “ Hertha ” class. They