from stem to stern, without depriving the guns of that command of the horizon already described, and as it moreover renders a flying deck unnecessary, it gets over the objections which have been raised against the low freeboard and other features in the 'Devastation,' 'Thunderer' and ‘ Fury.’@@l These structures furnish also most luxurious accommodation for officers and seamen. The step in advance has therefore been from 14 in. of armour to 24 in., from 35-ton guns to 8o-ton guns, from two guns ahead to four guns ahead, from a height of 10 ft. for working anchors to 20 ft., and this is done without an increase in cost, and with a reduction of nearly 3 ft. in draught of water, &c.”

The dimensions of the “ Inflexible” were: length 320 ft., beam 75 ft., mean draught 26 ft. 4 in., and displacement 11,880 tons, and her speed was 14 knots. The dimensions of the “Ajax” and “ Agamemnon,” begun in 1876, were; length 280 ft., beam 66 ft., mean draught 24 ft. 9 in., and displacement 8660 tons. They carried four 12½-in. guns; their citadels were 104 ft. long, protected with 18-in. armour, their turrets being protected by 16-in. armour; and their speed was 12 knots. The “ Edinburgh ” and “ Colossus,” begun three years later, were of the same type, but were built of steel and were of 9480 tons displacement. Their citadels were longer, and their speed was 14i knots. Compound armour, adopted

in these two ships for the first time, gave them a great advantage in defensive power.

The "Collingwood,” begun in 1880, was the first of the battleships of a new type known as the “ Admiral ” class. In these vessels the main armament consisted of four heavy guns mounted in pairs on the middle line of the ship, in fixed heavily protected gun-positions called barbettes, one at each end of the ship; this main armament was supplemented by a secondary armament of lighter and more rapid-firing guns mounted on the broadsides between the barbettes. This arrangement of the armament, which is illustrated in fig. 52, continued, with small modification, to be adopted in the battleships of the British navy down to 1903.

The principal features of the “ Collingwood ” were: length 325 ft., beam 68 ft., mean draught 27 ft., displacement 9500 tons. She carried 18-in. armour on her sides, 16-in. on bulkheads, 11½-in. on barbettes and 12-in. conning towers. Her armament consisted of four 12-in. 45-ton guns, six 6-in. guns, and a number of smaller guns. Her speed was 16½ knots, and she carried 900 tons of coal, with capacity for 1200. She was followed two years later by the “ Rodney,” “ Howe,” “ Benbow,” “ Camperdown ” and “ Anson,” which were of the same type, but larger. These six ships con­stitute what is known as the "Admiral ” class. A good idea of their

general appearance is obtained from fig. 53 (Plate XII.), which repre­sents the “Camperdown.” The " Victoria ” @@2 and the “ Sans Pared,” built a few years later, were, with the “ Benbow,” the only ships of the British navy built to carry 110-ton guns, the former having them in pairs in a turret heavily armoured, and the latter singly in barbettes.

Among the last of the battleship designs undertaken by Sir N. Barnaby was that of the "Trafalgar ” and “ Nile," which was completed by Messrs. F. K. Barnes and H. Morgan after his retire- ment. These vessels, laid down in January and April 1886, were the largest ships then built for the British navy. They were 11,940 tons displacement, 345 ft. long, 73 ft. beam, and 28 ft. 10 in. mean draught; had engines of 12,000 I.H.P. and a speed of 16¾ knots. Their armour-protection consisted of a belt 230 ft. long and 20 in. thick, with bulkheads 18 in. and 14 in. thick. Above the belt was an armoured redoubt of 18-in. compound armour which enclosed the turret bases. The turrets themselves had 18-in. armour, and between the turrets was an octagonal battery of 3 in. to 5 in. of steel containing the 4∙7-in. Q.F. guns. The thickness of the pro- tective deck was 3 in. The disposition of armament originated in the “ Collingwood ” was adopted in these vessels, but the heavy guns were placed in turrets instead of in barbettes. The armament

consisted of four 13∙5-in. 67-ton B.L. guns, six 4∙7-in. Q.F., eight 6-pdrs. Q.F., twelve 3-pdrs. Q.F., besides boat guns and six torpedo tubes. They carried 900 tons of coal at normal displacement, and had stowage for 1100 tons.

Sir Nathaniel Barnaby retired from office in 1885. During his term of office there were built for the British navy upwards of twenty armoured battleships of various classes, in addition to a much larger number of cruisers of all sizes. The fight for supremacy between the gun and the armour plate had begun in earnest when Sir N. Barnaby took office, the increased weight of projectile and penetrative power obtained by the concentration of the armament into a few heavy guns being followed by the concentration of the armour into a short belt. The con- centration of guns and armour reached a limit in the “ Inflexible ” and her immediate successors; the later ships of Sir N. Barnaby’s design carried a secondary battery of lighter guns in addition to the heavy main armament, and had much longer water-line belts. These changes, combined with the

@@@1 The “ Fury ” was modified and renamed “ Dreadnought ” before being launched.

@@@2 The “ Victoria ” was accidentally rammed and sunk by the “ Camperdown ” during the Mediterranean manœuvres of 1893.