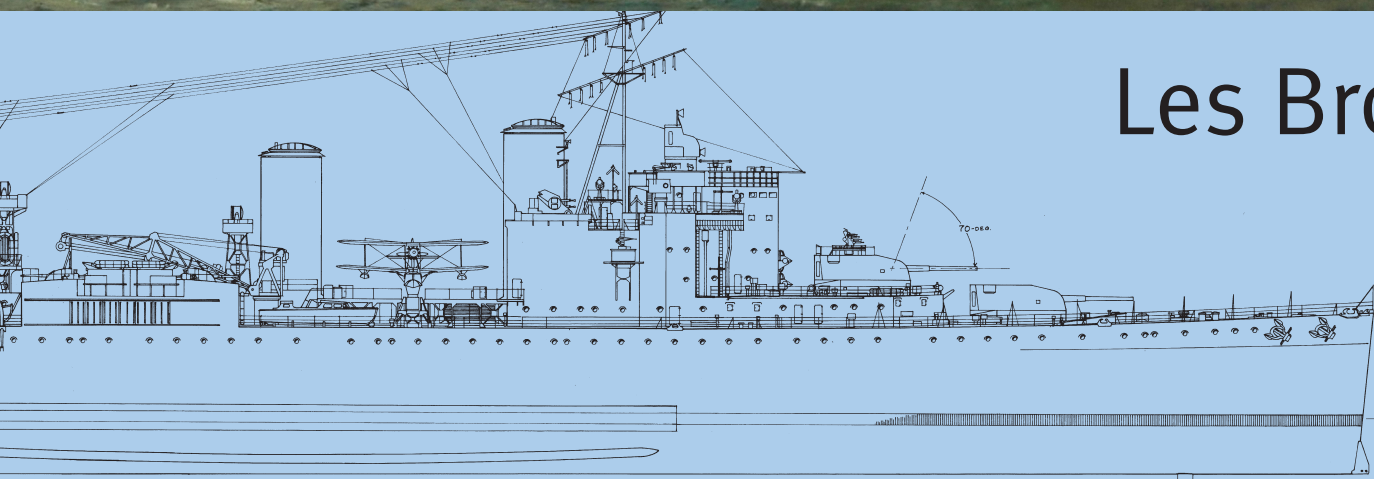
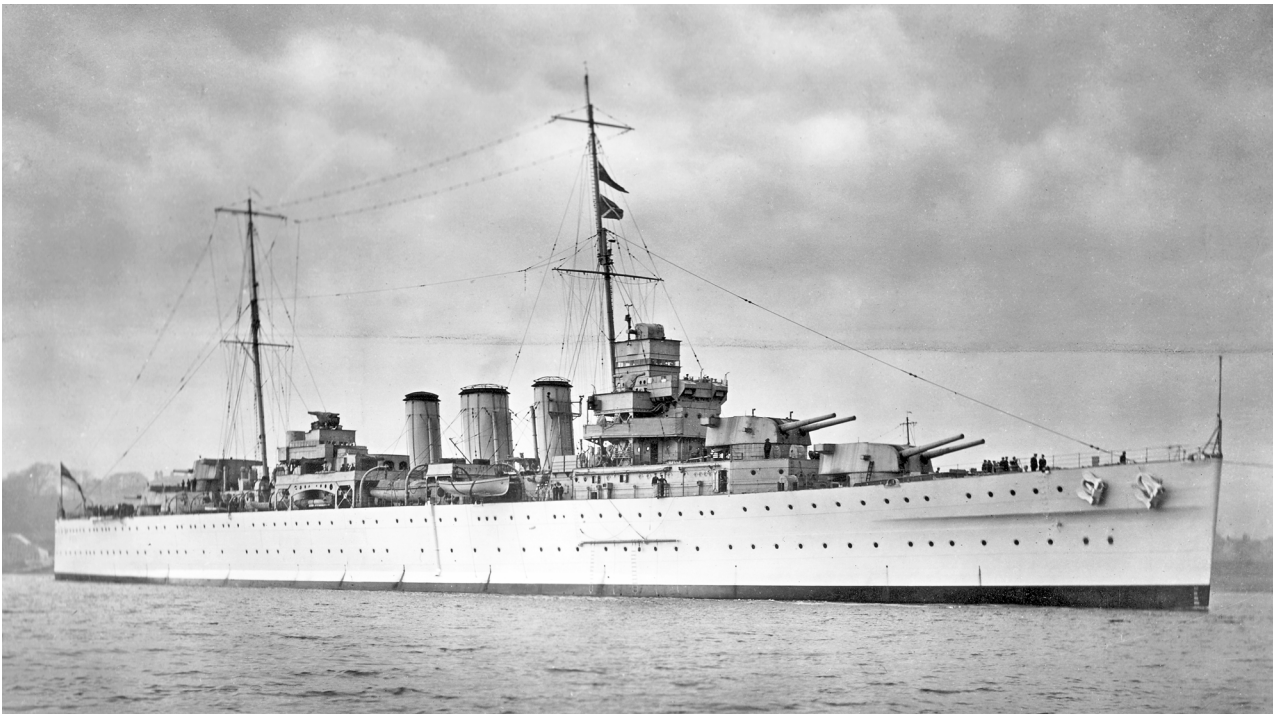


COUNTY Class Cruisers



Les Brown



SHIPCRAFT 19

COUNTY class cruisers

Text by Les Brown

Colour artwork by Eric Leon

Plans by A D Baker III

CONTENTS

Design	1
Careers, Refits and Modifications	6
Model Products	17
Modelmakers' Showcase	26
Schemes	42
Plans	62
Selected References	64

Above: This starboard profile of *Berwick* clearly shows the original short funnels that proved impractical in trials. The original director control tower and rangefinder on the side of the bridge are also visible. In this era ships destined for the China Station adopted a characteristic livery of white hull and buff upperworks, as seen here.

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First published in Great Britain in 2011 by Seaforth Publishing, an imprint of Pen and Sword Books Ltd, 47 Church Street, Barnsley, South Yorkshire. S70 2AS

www.pen-and-sword.co.uk

And in the United States of America by
Classic Warships Publishing,
PO Box 57591, Tucson, Arizona 85732

www.classicwarships.com

British Library Cataloguing in Publication Data

A CIP data record for this title is available from the British Library

ISBN: 978-1-84832-127-4

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Typeset and designed by Stephen Dent

Printed and bound in China through Printworks International Ltd

Design

At the end of World War I there was a widespread belief, particularly in Great Britain, that the pre-war naval arms race had been a significant factor in provoking the war. Among the victorious powers there were plans to rebuild or expand their navies, so the prospect of another costly competition in warship construction was both alarming and unwelcome, especially to the economically exhausted British. However, the Royal Navy wished to maintain its position of dominance and so encouraged discussions to limit the growth of navies. Battleships were the main consideration because of their enormous size and cost but cruisers also formed a significant part of these discussions.

In 1919 the British Government proposed that future naval estimates should be based on the assumption that no major war would occur within ten years – the ‘ten year rule’, which was not abandoned until 1932. The British planned an international conference to discuss ‘Pacific and Far Eastern’ affairs, an area of the world that the United States considered as their sphere of influence. The United States therefore proposed a naval limitation conference, to be held in Washington in 1921, invitations being sent to just Great Britain, France, Italy and Japan, although other countries were invited to attend relevant parts of the negotiations. It was not possible to agree a limit on the total tonnage of cruisers for each country but a limit on the size of individual vessels was agreed – a maximum displacement of 10,000 tons with guns no larger than 8 inches in calibre.

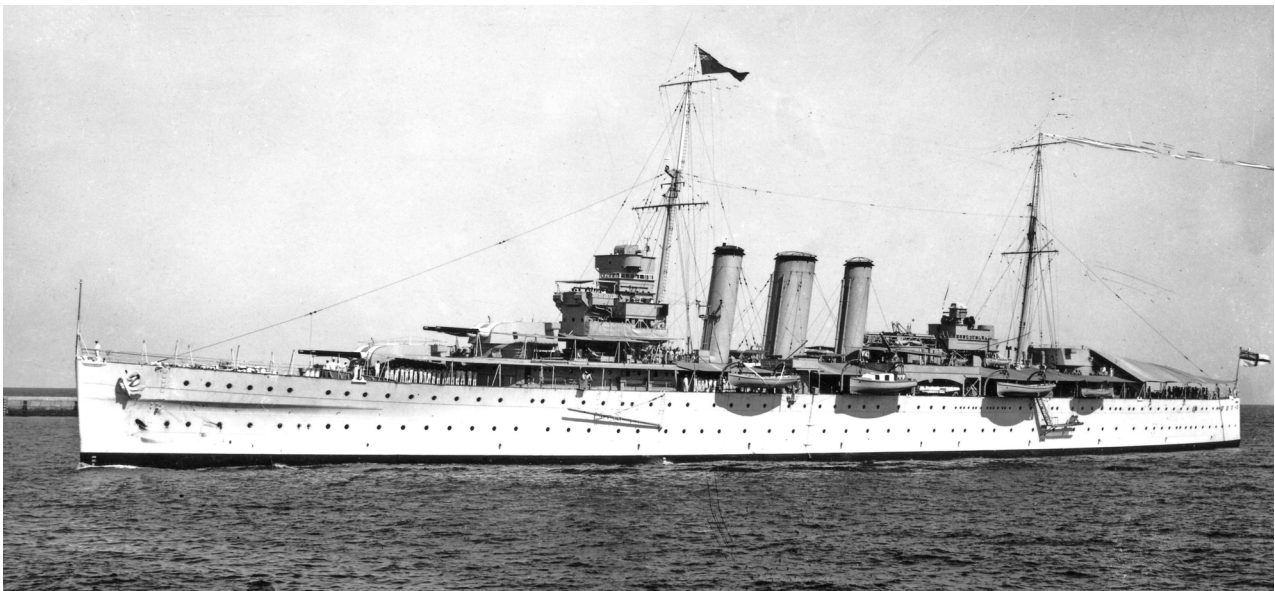
A conference held in Geneva in 1927

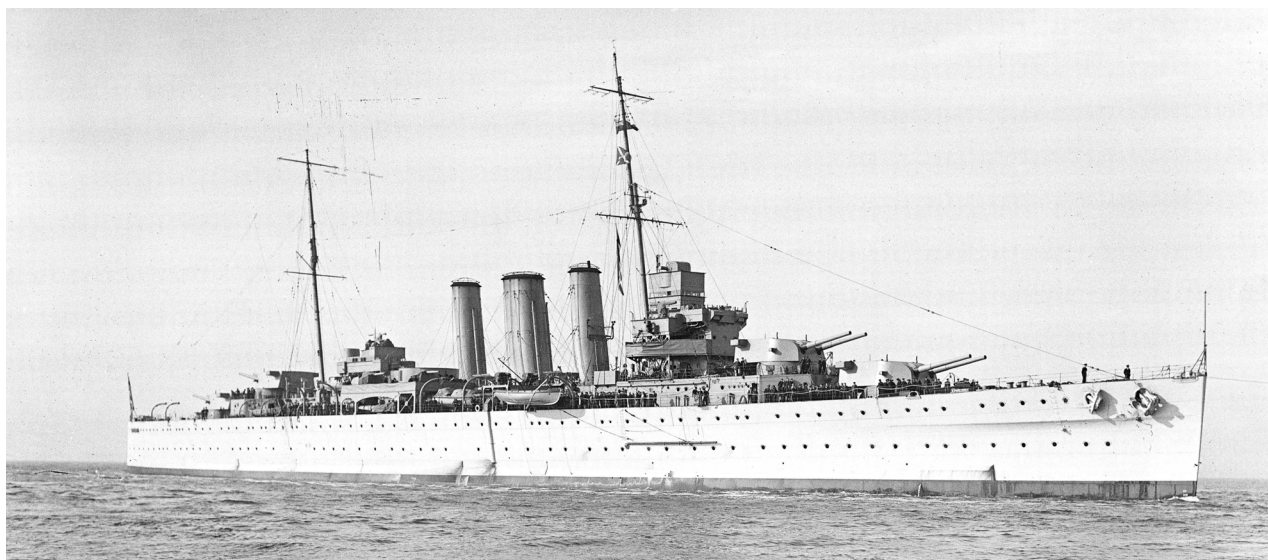
again attempted to agree a total tonnage but failed. The London Treaty of 1930 defined two different types of cruiser: ‘heavy’ cruisers with guns larger than 6.1 inches and ‘light’ cruisers with guns smaller than 6.1 inches. The total tonnage for each type was also agreed; in the case of Great Britain this was 146,800 tons for ‘heavy’ cruisers and 192,200 tons for ‘light’ cruisers. To comply with this agreement, the number of ‘County’ class cruisers (‘A’ cruisers) to be built was reduced, as was that of their smaller half-sisters, *York* and *Exeter* (‘B’ cruisers).

When the Admiralty first started their discussions after World War I regarding the future need for cruisers, it was assumed that the cost of cruisers required for trade protection in distant places would be provided by the relevant colonies, hence the cruisers were initially referred to as ‘Colonial Cruisers’. The thirteen heavy cruisers comprising the resulting ‘County’ class fell into three sub-groups – the *Kent* class (*Berwick*, *Cornwall*, *Cumberland*, *Kent*, *Suffolk*, *Australia* and *Canberra*); the *London* class (*Devonshire*, *London*, *Shropshire* and *Sussex*); and the *Norfolk* class (*Dorsetshire* and *Norfolk*). As suggested by their names, *Australia* and *Canberra* were funded by Australia, the only part of the Empire to fulfil the expectations of the Admiralty.

These ships were designed under the Director of Naval Construction (DNC) Sir Eustace H Tennyson d’Eyncourt, initial design being by Charles Lillcrap, later to become DNC himself, with the detail design team led by William Berry, successor to d’Eyncourt as DNC. Being designed to the maximum dimensions allowed by the treaty, many felt the ‘County’ class were too

Cornwall in 1933 displaying the colours normally worn on the China Station – white hull and buff funnels. The awning over the quarterdeck, the boats hanging over the side, ready for lowering, the ship’s boom and the accommodation ladder are all clearly visible. By this date the ship has a HACS on the after superstructure and a Type SIII catapult.





Kent in 1928 as completed, with no aircraft or catapult. The HACS aft has yet to be fitted. (National Maritime Museum N1757)

large and expensive and that Great Britain would be better served by more, smaller cruisers, but the high freeboard with good seaworthiness proved very valuable. The main parameters as defined for the class were that the design was to include eight 8in guns and have a speed of 33 knots.

Preliminary calculations, for what was to become the *Kent* class, showed that little weight would be available for protection and hence the speed requirement was lowered

to 31 knots. This reduced the power required by 25 per cent and the weight of machinery by approximately 400 tons. It was eventually decided that within the same weight allowance slightly more power could be provided, giving an extra ½ knot of speed. The resulting vessels were 630ft overall (590ft between perpendiculars) with a beam of 68ft 3in.

The 'County' class featured a new design of forward superstructure incorporating the navigating bridge, wheelhouse, signalling and compass platforms and gunnery director in a single block. This rationalised the separate armoured conning tower and myriad of decks and mast platforms of previous designs. Deleting the fire control equipment from the mast enabled the heavy tripod masts to be replaced by lighter pole masts which were sufficient for signalling yards and the spread of wireless antennae.

In addition to the 8in guns, the armament included four 4in HA guns, two multiple pom-poms and two quadruple torpedo tubes. The protection for the main magazines was 4in on the sides with 3in elsewhere; the secondary magazines receiving one inch less. Machinery spaces were protected by a 1½in deck and 1in sides and bulkheads. The weight of armour was slightly in excess of 10 per cent of the displacement.

The *Kent* class were all completed in 1928, including the two ships funded by Australia, even though they had not been laid down until a year later than the others. The Australian ships had minor differences, including an additional light pole on the mainmast and taller funnels. The first group had external torpedo bulges but these were omitted in later ships, improving the lines and hence the speed.

The *London* class had a slightly increased length between perpendiculars, 595ft, with a reduced beam of 66ft, resulting in an increase in speed of ¼ knot. Other small changes were made to the design including moving the two forward



Officers stand watch on the bridge of *Suffolk* in 1933. (via Hugh Williams)

BUILDING DATA

Name	Builder	Laid Down	Launched
Kent class			
<i>Berwick</i>	Fairfield, Govan	15 September 1924	30 March 1926
<i>Cornwall</i>	Devonport Dockyard	9 October 1924	11 March 1926
<i>Cumberland</i>	Vickers Armstrong, Barrow	18 October 1924	16 March 1926
<i>Kent</i>	Chatham Dockyard	15 November 1924	16 March 1926
<i>Suffolk</i>	Portsmouth Dockyard	30 September 1924	16 February 1926
<i>Australia</i>	John Brown, Clydebank	26 August 1925	17 March 1927
<i>Canberra</i>	John Brown, Clydebank	9 September 1925	31 May 1927
London class			
<i>Devonshire</i>	Devonport Dockyard	16 March 1926	22 October 1927
<i>London</i>	Portsmouth Dockyard	23 February 1926	14 September 1927
<i>Shropshire</i>	Beardmore, Dalmuir	24 February 1927	5 July 1928
<i>Sussex</i>	Hawthorn Leslie	1 February 1927	22 February 1928
London class			
<i>Dorsetshire</i>	Portsmouth Dockyard	21 September 1927	29 January 1929
<i>Norfolk</i>	Fairfield, Govan	8 July 1927	12 December 1928



funnels and the two aft turrets aft. This group was completed in 1929.

The final two ships adopted a new design of turret for the primary armament. This turret was being designed for the smaller six-gun 'B' cruisers and was intended to reduce weight but actually increased it when finally built. The predicted weight saving was used to increase protection, resulting in the ships actually being slightly overweight when completed. Virtually identical to the *London* class, the rake of stem was slightly increased resulting in an increase in overall length. These ships were completed in 1930.

Propulsion was by means of four shafts,

generally driven by two sets of Parsons turbines, through single reduction gears. *Berwick*, *Australia* and *Canberra* were fitted with Brown-Curtis, rather than Parsons, turbines. The turbines powering the wing shafts were located in the forward engine room and the eight boilers required were divided equally between two boiler rooms. The initial design included relatively short funnels but trials soon proved these to be impractical and hence their height was increased by 15ft, the two Australian ships having the height of their funnels increased by 18ft.

Weight saving measures included the use of 'high tensile' steel in the hull struc-

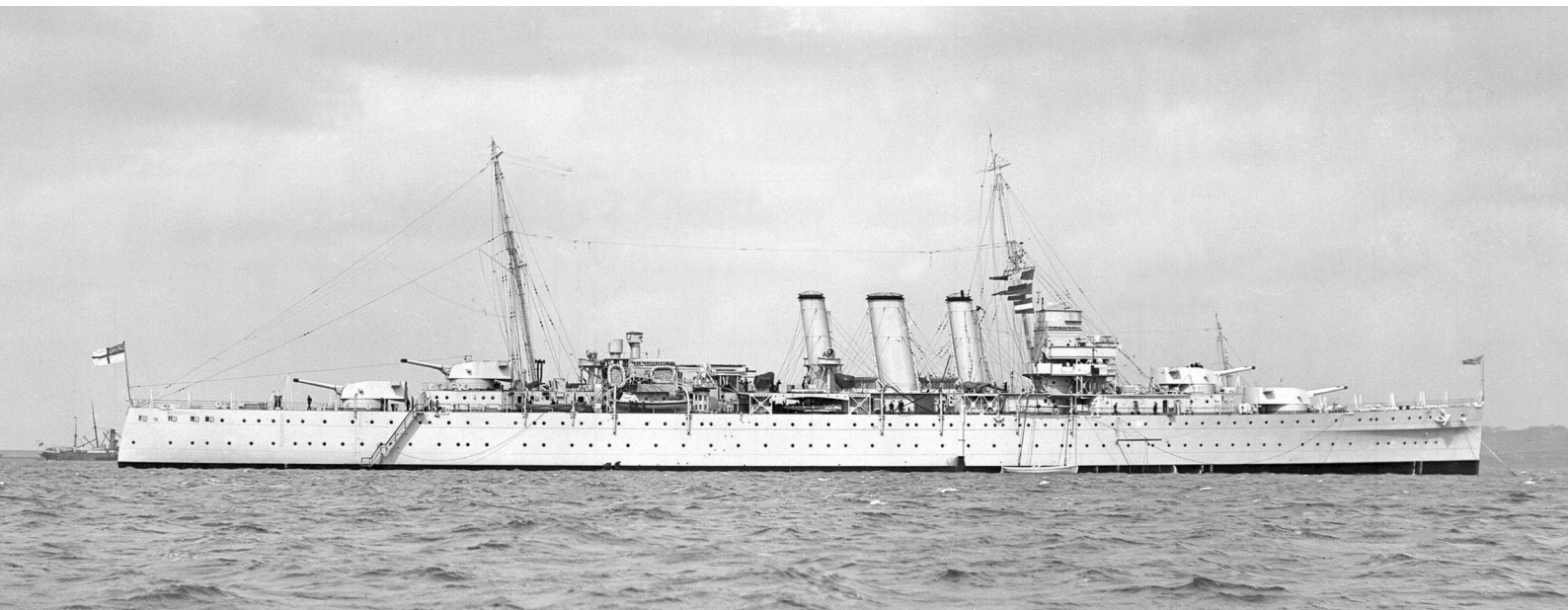
Canberra in July 1928 shows the additional pole topmast on the main. Like the other *Kents*, the RAN 'Counties' also had their funnels raised, but to a slightly greater height than their RN sisters. (Wright & Logan Collection)

DESIGN CHARACTERISTICS

	<i>Kent</i> class	<i>London</i> class	<i>Norfolk</i> class
Displacement	9750-9870t (standard) 13,400-13,540t (deep)	9830-9850t (standard) 13,315t (deep)	9925-9975t (standard) 13,425t (deep)
Length (oa)	630-633ft	630-633ft	633-635.4ft
Length (pp)	590ft	595ft	595ft
Beam	68.3ft	66ft	66ft
Power	80,000shp	80,000shp	80,000shp
Speed	31.5 knots	32.25 knots	32.25 knots
Armament (as built)	4 x twin 8in/50 calibre Mk VIII guns (Mk I mountings for <i>Kent</i> and <i>London</i> classes, Mk II mountings for <i>Norfolk</i> class) 4 x 4in/45 calibre QF Mk V AA guns 4 x 2pdr pom-poms 2 x quadruple 21in torpedo tubes		

No aircraft facilities were included in the initial design but when trials revealed that the weight-saving measures had been successful, the support for a catapult, but not the catapult itself, was included.

Devonshire, of the second (or *London*) group, in 1929/30, showing her 'as-built' configuration with rangefinders either side of the bridge. The searchlights either side of the third funnel (moved from the after superstructure) was a recognition feature of this group. (Wright & Logan Collection)





Shropshire as in 1929. Note the base for aircraft catapult but no catapult at this date (even the later ships completed without one). (*National Maritime Museum N8314*)

London as in February 1937 after her major refit. The principal changes were the fitting of a heavy EIVH catapult for the Walrus amphibian, and the doubling of the HA armament with the addition of four extra single 4in AA guns. Only two years later the ship was taken in hand for a radical reconstruction intended to be the prototype for all the later 'Counties'. (*Wright & Logan Collection*)

ture and aluminium for non-structural members and fittings. Additionally, fir was used for the wooden decks instead of the usual teak. Stability was high, resulting in 'stiff' ships which made good gun platforms.

The primary armament comprised eight 8in 50cal Mk VIII guns in either twin Mk I or Mk II mountings, the former for the first two groups and the latter for the final pair, *Dorsetshire* and *Norfolk*. Both mountings had a maximum elevation of 70° and an intended rate of fire of 12 rounds a minute, a figure never achieved in practice. They were very complicated and each exceeded the original estimated weights by about 50 tons, the Mk I weighing 205 to 210 tons and the Mk II approximately 220 tons. The Mk II had a combined cordite and shell handling room whereas in the Mk I the shell handling room was located above the cordite handling room. This did however result in a larger base, approximately 14ft in diameter.

The *Kent* and *London* classes were fitted with a director control tower forward and another aft and a 12ft rangefinder either

side of the upper bridge. The forward control towers of *Dorsetshire* and *Norfolk* had power training and an integral rangefinder.

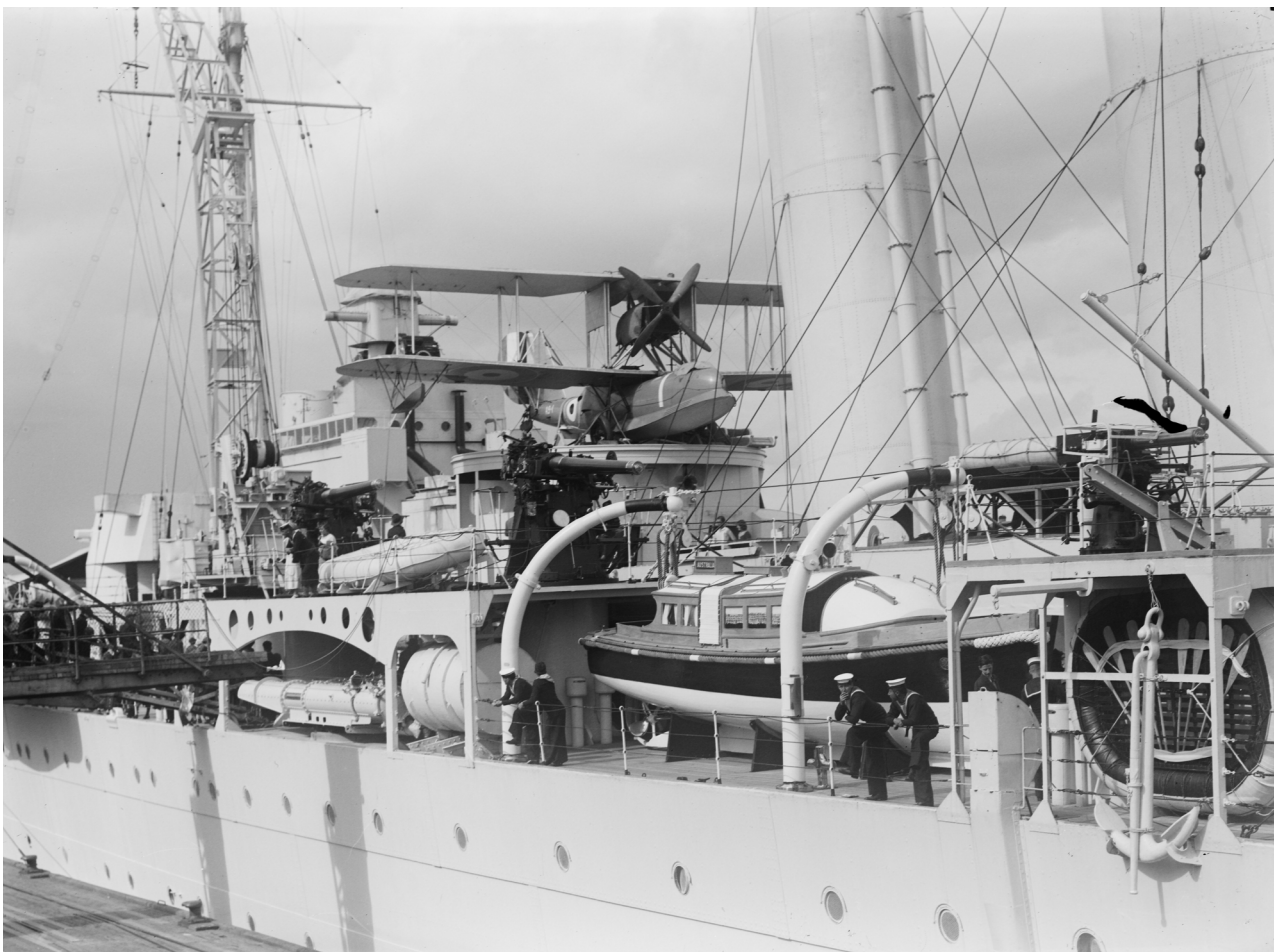
Anti-aircraft defence was provided by just four single 4in 45cal Mk V guns on HA mountings, either Mk III or IV. Control was provided from a single High Angle Control System (HACS) Mk I, the director being located aft, although this was only fitted during build to *Shropshire*, *Sussex*, *Dorsetshire* and *Norfolk*, the others receiving theirs during suitable refits. Multiple pom-poms were specified for the ships but unavailable during build and hence all ships were initially fitted with four single 2pdr pom-poms.

Torpedo armament comprised two sets of quadruple torpedo tubes Mk II to fire 21in torpedoes. Originally intended to fire the Mk V torpedo, it was discovered during trials that the tubes were located too high above the waterline. The problems were initially resolved by strengthening the torpedo and changing the angle of entry into the water but the later ships adopted the Mk VII torpedo with its heavier warhead.





Dorsetshire in July 1930. The last pair were completed with a DCT and consequently the tall tower at the back of the bridge was omitted.
(Wright & Logan Collection)



Some ships carried an aircraft even before a catapult was fitted, although operation was somewhat restricted since the seaplane had to be lowered into the sea for take-off. This is a Seagull III aboard HMAS *Australia*. The ship was eventually fitted with a catapult in September 1935.