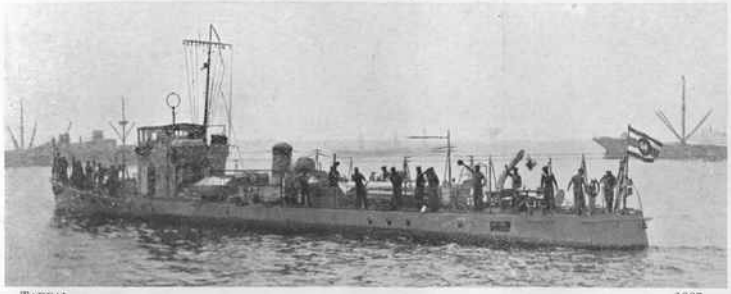
Coastal Torpedo Boats.



TAKBAI. 1937.

KANTAN (No. 7), **KLONGYAI** (No. 5), **TAKBAI** (No. 6) (Isikawazima Co., March 26, 1937). Displacement: 110 tons *standard*, 135 tons *full load*. Complement: 25. Dimensions: 131½ × 15½ × 4 feet. Guns: 1—3 inch, 2—20 mm. Tubes: 2—18 inch. Machinery: Geared turbines. 2 shafts. S.H.P.: 1,000 = 19 kts. 2 water tube boilers. Oil fuel: 18 tons.

Notes.—Above 3 completed June 21, 1937. 2 more projected.

Motor Torpedo Boats.

Added 1938, *courtesy Messrs. Thornycroft.*

4 *Thornycroft* type: Nos. **6** to **9** (1935). 16 tons. B.H.P. 950=40 kts. 2 M.G., 2 torpedoes, 2 D.C.
4 *Thornycroft* type: Nos. **2** to **5** (1922). 11 tons. 55 × 11 feet. B.H.P.: 750 = 37 kts. (40 kts. *extreme*). Petrol carried: 300 gallons *normal*, 500 *max.* 4 Lewis guns, 2 torpedoes, 2 D.C. Complement, 5.

Sloops (Training Ships).

MEKLONG. 1937.

TACHIN. 1937.

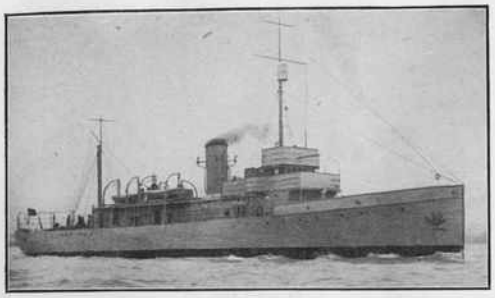
TACHIN (July 24, 1936), **MEKLONG** (Nov. 27, 1936), both by Uraga Dock Co. Displacement: 1,400 tons. Dimensions: 269 × 34½ × 10½ feet (*mean*). Guns: 4—4.7 inch, 2—20 mm. AA. Tubes: 4—21 inch (paired). Machinery: Triple expansion. 2 shafts. I.H.P.: 2,500 = 17 kts. Boilers: 2 water-tube. Oil fuel: 487 tons. Fitted for minesweeping. Complement (as training ships), 155.

Note.—Both delivered in June, 1937.

Despatch Vessel.

SAMET (ex-*Pi-Sua-Nam.*) Displacement: 165 tons. Dimensions: 100 × 20 × 8½ (*mean* draught) feet. H.P.: 210 = 9½ kts. Complement: 25.

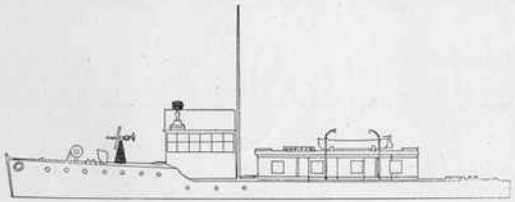
Training Ship.



CHAO PHYA. 1924 *Photo, by courtesy of Messrs. Thornycroft.*

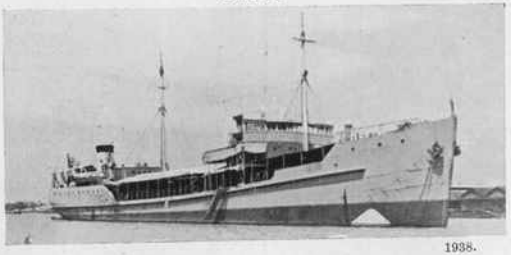
CHAO PHYA (ex-British Twin Screw Minesweeper *Harvant*, built by Eltringhams, S. Shields, Nov., 1918, purchased 1923 and reconstructed by Messrs. Thornycroft). Displacement, 710 tons. Dimensions: 220 × 28½ × 7½ feet. Machinery: Vertical triple expansion. Boilers: Yarrow, converted to burn oil. I.H.P. 2200 = 16 kts. Oil: 160 tons. Complement, 65.

Fishery Protection Vessels.



3 built in Royal Dockyard, Bangkok, 1936. (A fourth projected.) Displacement: 50 tons. Dimensions: 72 × 13 × 3½ feet. Guns: 1—37 mm. Machinery: Diesel. 2 shafts. B.H.P.: 150 = 9 kts. Fuel: 5 tons.

Oilers.



1938.

SUMUI (Hakodate Dock Co., April 18, 1936), and another projected. Displacement: 1,854 tons *standard*. Dimensions: 240 × 39 × feet. 2 Sulzer Diesel engines. B.H.P. 2,141 = 12 kts.

Minelayers.

1936.

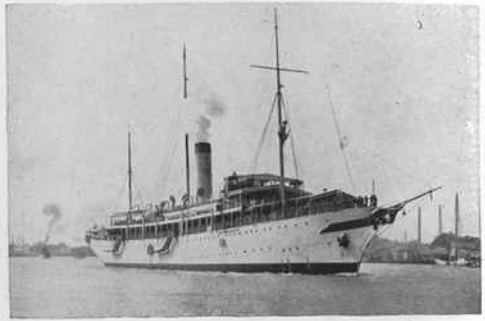
BANGRADIAN (No. 1), (1936), **NONSARAI** (No. 2), (July 22, 1936). Cant. Nav. Riuniti dell' Adriatico, Monfalcone. (A third vessel reported building at Cant. Nav. Riuniti, Ancona.) Displacement: 368 tons *standard*, 408 tons *full load*. Complement: 55. Length: Under 200 feet. Guns: 2—3 inch AA. Diesel engines of Burmeister & Wain type. Speed: 12 kts.

Transports.

1938.

PANGAN, SICHANG (Harima Co., Japan, Nov. 10, 1937). Displacement: 650 tons. Machinery: Diesel. Other details wanted. Completed in January, 1938.

Transports—*continued.*



1919 *Photo, J. Bailey, Esq.*

ANGTHONG (ex-*Maha Chakri*), (Kawasaki Co., Kobé, Japan, 1918). Displacement: 2,760 tons. Complement: 199. Length: 298 feet (*w.l.*), 335 feet (*o.a.*). Beam: 40 feet. Draught: — feet. Guns: Not known. Machinery (*see Notes*): 2 sets triple exp. 2 shafts. I.H.P.: *about* 3,400 = 15 kts. Boilers: 4 Kanpon, coal and oil burning. Oil fuel: 200 tons = 2,000 miles endurance.

Notes.—The hull of the old Royal Yacht *Maha Chakri* was sold to the Kawasaki Co. in 1917, but the engines and other fittings were removed, overhauled and renovated for installation in the above ship, which is now rated as a transport, and used also as Depot Ship for Submarines.

1921 *Photo, J. Bailey, Esq.*

CHANG (ex-*Vides Kichkar*, ex-*Buk*, ex-*Lycidas*, Ritson & Co., Maryport, 1902). 850 tons. 176 × 27½ × 10 feet. H.P.: 780 = 9 to 10 kts.

CUONG (ex-*Pra-Yom*). Displacement: 190 tons. Dimensions: 110 × 18 × 8 (*mean draught*) feet. H.P.: 225 = 10 kts. Complement: 30.

Also 3 steam lighters, re-named **KRAM, KUT, PAI** (ex-*Chen Thale, Han Thale, Leu Thale*), built by Hongkong and Whampoa Dock Co. in 1902. *About* 160 × 27 × — feet. 440 tons *gross*. I.H.P.: 330 = 8 kts. speed. Used for various purposes, including occasional surveying duties.

TURKISH FLEET.

Flags.

Ensign and Jack.

Pendant

President's Standard.

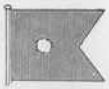
Commander-in-Chief.

Commander of Naval Base.

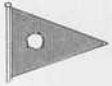
Or Amiral.*

Tüm Amiral.

Tuğ Amiral.


Commodore. †

Senior Officer (At Yardarm)


Senr. Officer (Subordinate)

*(Kor Amiral has three balls.) † Commodore 1st class has 3 balls, if Albay 2, and if Yarbay 1.

Büyük Amiral

Or Amiral

Kor Amiral.

Tüm Amiral.

Tuğ Amiral.

Albay.

Yarbay

Binbaşi.

Yüzbaşi and Ön Yüzbasi

Üstegmen.

Tegmen.

Astegmen.

Admiral of the Fleet	Büyük Amiral
(Non-existent in peacetime)	
Admiral	Or Amiral
Vice-Admiral	Kor Amiral
Rear-Admiral (Senior)	Tüm Amiral
Rear-Admiral (Junior)	Tuğ Amiral
Commodore	Tuğbay
Captain (Senior)	Albay
Captain (Junior)	Yarbay
Commander	Binbaşi
Lieutenant-Commander	Ön Yüzbaşi
Lieutenant	Yüzbaşi
Sub-Lieutenant	Üstegmen
Acting Sub-Lieutenant	Teğmen
Midshipman	Asteğmen

Minister of National Defence: Safvet Arikan
Under-Secretary for Navy: Rear-Admiral Hüsnü Gökdenizer.
Naval Attaché, London: Commander S. Çakir.

Mercantile Marine.

(From "Lloyd's Register," 1939 figures).
185 Vessels of 224,461 gross tonnage.

1 Inönü, 2 Inönü

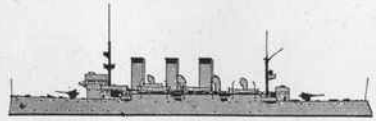
Colour of Ships: Grey.

Kemal Reis *class*

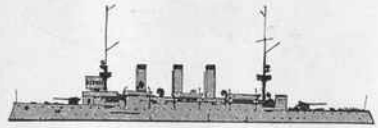
Erkin.

Aydin Reis.

Yavuz.


Mecidiye.

Tinaztepe. Zafer.


Hamidiye.

Adatepe Kocatepe.

Berk, Peyk.

Dumlupinar. Sakarya.

Atilay, Saldiray, Yildiray

Batiray

Gür.

TURKEY—Battle-Cruiser

YAVUZ (ex-German *Goeben*,) (Blohm & Voss, March, 1911).

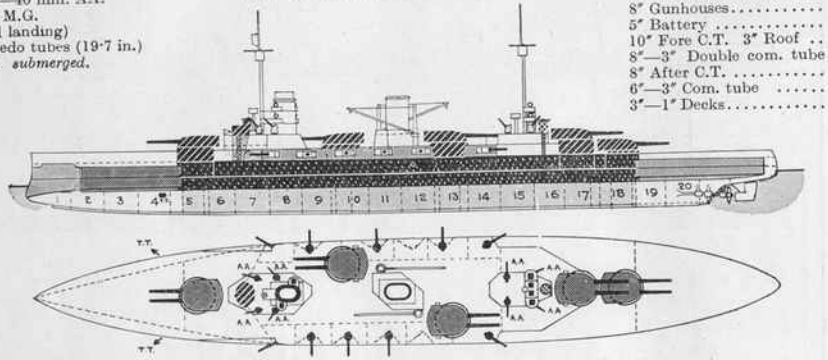
Standard Displacement, 23,100 tons. Complement, 1,300 (as Flagship).

Length (*w.l.*), 610¼ feet. Beam, 96 ft. 10 in. Draught (*max. load*), 26 ft. 11 in.

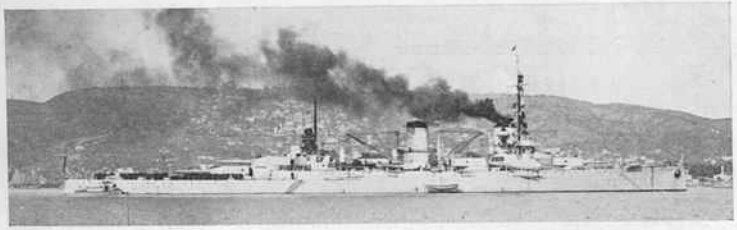
Guns:
10—11 in. 50 cal.
10—5·9 in. 45 cal.
4—3.5 inch A.A.
12—40 mm. AA.
4 M.G.
(1 landing)
Torpedo tubes (19·7 in.)
2 *submerged.*

Anti-Torp. Pro. :—
2″—1″ deep H.T. Steel B.H., between extreme barbettes : Minute internal subdivision.

Armour (Krupp) :
10½″ Belt (amidships) tapers to 6″ at top and 5″ below
3¾″ Belt (bow and stern)
9″—8″ Barbettes .....
8″ Gunhouses.....
5″ Battery .....
10″ Fore C.T. 3″ Roof ..
8″—3″ Double com. tube
8″ After C.T. .....
6″—3″ Com. tube .....
3″—1″ Decks.....

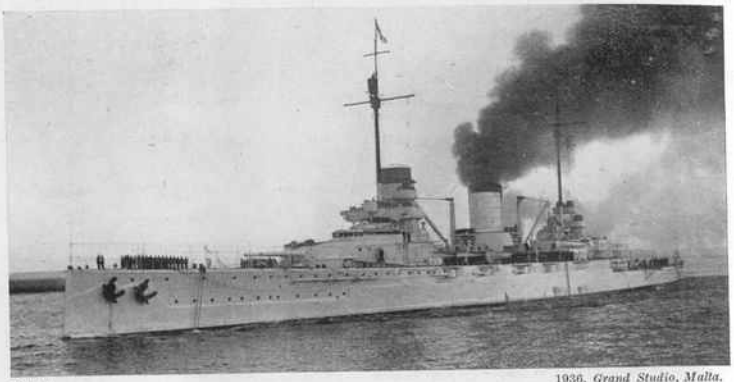


Machinery : Parsons turbine, 4 shaft, direct drive. Boilers : 24 Schulz-Thornycroft (German "Marine Type.") Designed H.P. : nominally 52,000 = 25·5 kts. Coal : *normal* about 1,000 tons ; *maximum* 3,050 tons + 200 tons oil.



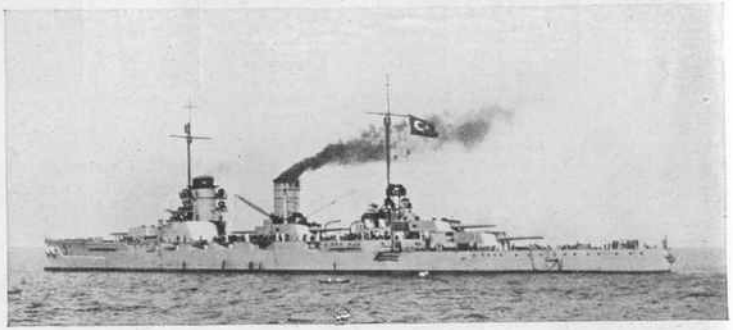
1934 *Photo, Official.*

Engineering Notes.—Endurance is *(a)* 5,350 miles at 10 kts., *(b)* 2,370 miles at a continuous *max.* sea-going speed of 23 kts. She made 26·8 knots on Trials for 6 hours, and 27·1 kts. for 4 hours, on Mar. 17, 1930.



YAVUZ

1936, *Grand Studio, Malta.*



General Notes.—Laid down, August, 1909, by Blohm & Voss, Hamburg, under 1909 German Navy Programme, as a sister to German *Moltke*. Completed, July, 1912. Transferred to the Turkish Navy in 1914, and during the war was twice mined, striking 5 mines in all. A contract was signed in December, 1926, with the Chantiers de St. Nazaire (Penhoët), for the repair and refit of this battle-cruiser at Ismid ; the work was considerably delayed owing to a floating dock proving unequal to her weight and completion was not reached till 1930. She was again refitted in 1938.

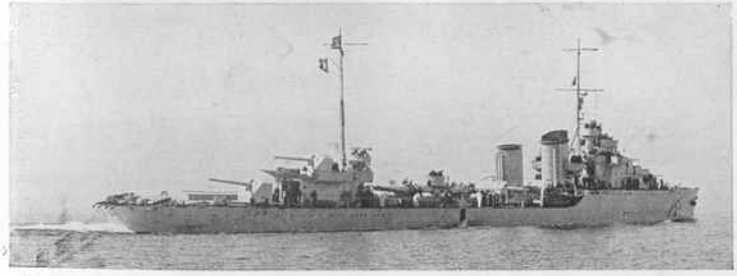
Destroyers. (*Torpedo Muhribi*)

2 *Vickers-Armstrongs*: ***Demirhisar, Sultanhisar.***
2 *Denny*: ***Gayret, Muavenet.***
Displacement: 1,360 tons. Dimensions: 312 (*pp.*), 323 (*o.a.*) × 33 × 8½ feet (*mean*). Guns: 4—4·7 inch, 6 smaller. Tubes: 8—21 inch. Machinery: Parsons geared turbines, 2 shafts. S.H.P.: 34,000 = 34·5 kts. Boilers: 3, of 3-drum type, 300 lb. working pressure. Oil fuel: 450 tons. Complement: 150.

Note—All 4 ordered 1939.

ADATEPE. 1932 *Photo, Official.*

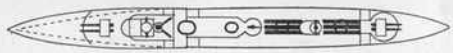
2 *Ansaldo* boats: ***Kocatepe*** (Feb. 7, 1931) and ***Adatepe*** (March 19, 1931). Built at Sestri Ponente,
Displacement: 1,250 tons (*standard*).
1,650 tons (*full load*).
Dimensions: 321½ (*pp.*) 328¾ (*o.a.*) ×30½ ×9½ feet (*mean*).
Guns: 4—4·7 inch, 50 cal., 2—40 m/m AA. and 2—20 mm. AA.
Tubes: 6—21 inch in triple mountings.
Parsons geared turbines. S.H.P. 40,000=38 kts.
3 Thornycroft boilers with superheaters.
Oil, 360 tons. Complement, 149.
These boats are of Ansaldo design and are named after mountains near Smyrna associated with Turkish military glories.

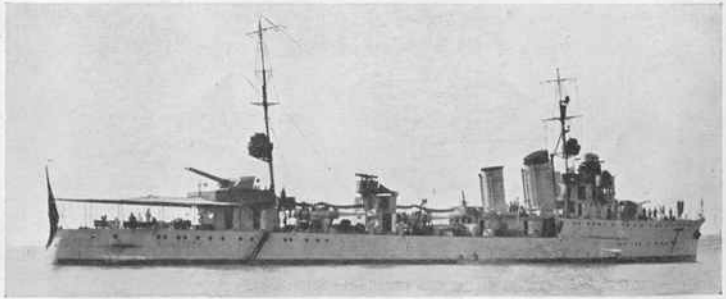


KOCATEPE. 1935.

ZAFER. 1933 *Photo, Official.*

2 *C.N. del Tirreno* boats: ***Tinaztepe*** (July 27, 1931). ***Zafer*** (Sept. 20, 1931). Built at Riva Trigoso.
Displacement: 1,206 tons (*standard*).
1,610 tons (*full load*).
Dimensions: 307 (*pp.*), 315 (*o.a.*) × 30½ × 10¾ feet.
Guns: 4—4·7 inch, 50 cal., 2—40 m/m AA., 2—20 mm. AA.
Tubes: 6—21 inch in triple mountings.
Parsons geared turbines. S.H.P. 35,000=36 kts.
3 Thornycroft boilers with superheaters.
Oil: 350 tons. Complement, 149.
These boats are of Italian design and generally resemble the Italian "Turbine" class.





TINAZTEPE. 1933 *Photo, Official.*

Submarines.

4 *Vickers-Armstrongs (Barrow)*: ***Burak Reis, Murat Reis, Oruç Reis, Uluç Ali Reis*** (all 1940). Ordered March, 1939. Displacement: 683/856 tons. Dimensions: 193 (*pp.*), 201½ (*o.a.*) × 22¾ × 10½ feet (*mean*), 11⅝ feet (*max.*). Guns: 1—3 inch, 1 M.G. Tubes: 5—21 inch (4 bow, 1 stern). H.P.: 1,550/1,300 = 13·75/9 kts. Fuel: 40 tons.

4 "Ay" Class.

SALDIRAY 1939

3 *Germania* type: ***Atilay*** (May 19, 1939), ***Yildiray*** (Aug. 26, 1939), (both built at Istanbul), ***Saldiray*** (Germania, Kiel, July 23, 1938). All laid down 1937. Displacement: 934/1,210 tons. Dimensions: 262½ × 21 × 14 feet. Guns: 1—4 inch, 1—20 mm. AA. Tubes: 6 (4 bow and 2 stern). 2 sets Burmeister & Wain Diesels. H.P.: 3,500 = 20/9 kts. Diving limit: 55 fathoms. Complement: 44.

1939, *Dr. E. Gröner.*

1 *Germania* minelaying type: ***Batiray*** (Germania, Kiel, March 28, 1939). Displacement: 1,044/1,357 tons. Dimensions: 282 × 22½ × 14 feet. Other details as above, except Complement: 47. 40 mines carried.

1935, *courtesy of Capitán M. Mille.*

1 *German* design: ***Gür*** (Echavarrieta y Larrinaga, Cadiz, 1932). Purchased 1934 and delivered in Jan. 1935. Displacement: 750/960 tons. Dimensions: 237½ × 20½ × 13½ feet. Armament: 1—4 inch, 1—20 mm. AA. guns, 6—21 inch tubes (4 bow, 2 stern). 14 torpedoes carried. 2 sets M.A.N. Diesels. H.P. 2,800/1,000, speed, 20/9 kts. Radius: 6,400 miles at 9½ kts. on *surface;* 1,880 miles at 18½ kts. on *surface;* 101 miles at 4 kts. *submerged.* Diving limit, 44 fathoms. Complement: 42.

Note.—Many of the parts for this submarine were made in the Netherlands.

DUMLUPINAR. 1936, *Grand Studio.*

1 *Bernardis* minelaying type: ***Dumlupinar*** (4 March, 1931). Built by Cantiere Navale Triestino, Monfalcone. Displacement: 920/1,150 tons. Dimensions: 223 × 19 × 14 feet. Armament: 1—4 inch gun, 1 M.G., 6—21 inch tubes (4 bow, 2 stern). 48 mines carried. Machinery: M.A.N. Diesels H.P.: 3,000 = 17·5 kts. *on surface.* Electric motors of 1,400 H.P. = 9 kts. *submerged.* Complement: 47. 40 mines carried.

1 *Bernardis* type: ***Sakarya*** (Cant. Nav. Triestino, Monfalcone, Feb. 2, 1931). Displacement: 610/940 tons. Dimensions: 196 (*p.p.*) × 22½ × 13 feet. Guns: 1—4 inch, 1—20 mm. AA. Tubes: 6—21 inch. M.A.N Diesels. H.P.: 1,600 = 16 kts. *surface.* Electric motors. H.P.: 1,100 = 9·5 kts. *submerged.* Radius: 4,000 miles at 10 kts. Complement: 41.

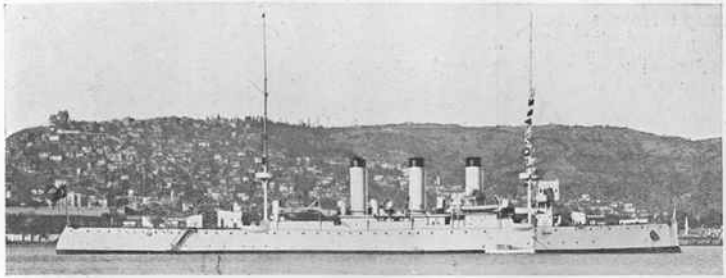
2 Inönü Class.

BIRINCI INÖNÜ 1936, *Grand Studio.*

2 *Fijenoord* type: ***Birinci Inönü*** (February 1, 1927, ***Ikinci Inönü*** (March 12, 1927). Built by Fijenoord Co., Rotterdam. Displacement: 505/620 tons. Dimensions: 192½ × 19 × 11½ feet. 2 sets M.A.N. Diesels. H.P.: 1,100 = 13·5/8·5 kts. Guns: 1—3 inch, 1—20 mm. Tubes: 6—17·7 inch (4 bow, 2 stern). Complement: 29.

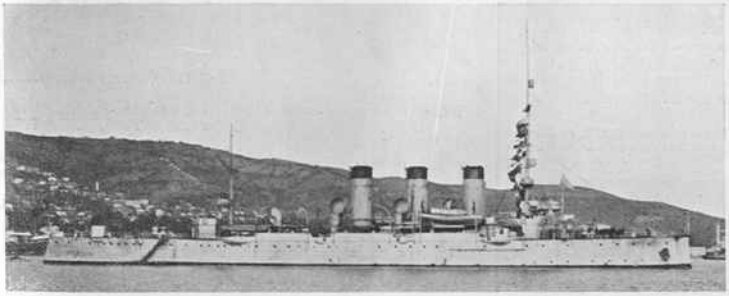
Note.—These two names refer to the first and second Turkish victories gained at Inönü, in Asia Minor.

Old Cruisers (*Muhafazali Kruvazōr*).



1932 *Photo, Official*

HAMIDIYE (ex-*Abdul Hamid*, Armstrong, Sept., 1903). 3830 tons. Complement, 302. Dimensions: 368 × 47½ × 16 feet (*mean* draught). Guns: 2—5·9 inch, 45 cal. Krupp, 8—3 inch 50 cal. (Krupp). Armour: 4″ Deck. Machinery: 2 sets 4-cylinder triple expansion. 2 screws. Boilers: Cylindrical. Designed H.P.: 12,000 = 22 kts. (*forced* draught). Present best speed about 16–18 kts. Coal: 750 tons. Endurance: 5,000 miles at 10 kts. At present serves as Training Ship for Naval Cadets, but is fitted for minelaying.

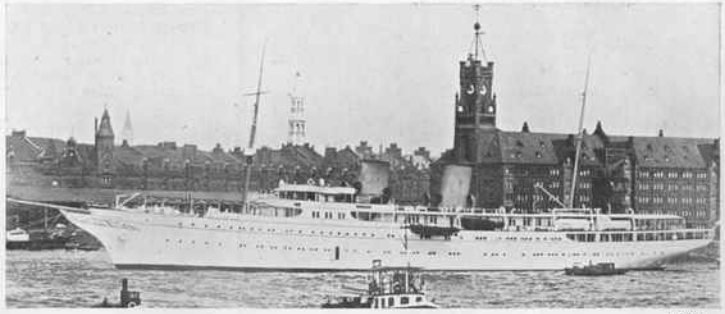


1932 *Photo, Official.*

MECIDIYE (ex-Russian *Prut*, ex-Turkish *Medjidieh*, July 25, 1903). 3,500 tons. Complement: 330. Dimensions: 330 × 42 × 17½ feet (*max.* draught). Guns (as re-armed): 6—5·1 inch (Vickers), 4—3 inch, 50 cal. (Schneider), 2 M.G. Deck, 1″. H.P.: 12,000 = about 18 kts. now. Babcock and Wilcox boilers. Coal: 600 tons. Endurance: 4,700 miles at 10 kts. Built by Cramps, Philadelphia. (Refitted and reboilered 1930.)

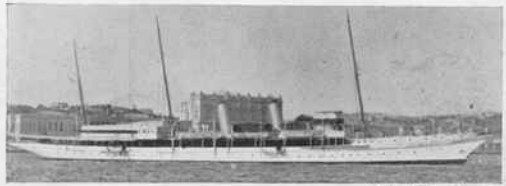
Notes.—Mined and sunk in Black Sea, April, 1915. Salved, repaired and re-fitted at Nikolaieff for Russian Navy, 1915–16. Seized by Austro-German Armies at Sevastopol, 1918, and returned to Turkish Navy.

Yachts.



1938.

SAVARONA (Blohm & Voss, 1931). Displacement: 5,710 tons. Dimensions: 349½ (*w.l.*), 408½ (*o.a.*) × 53 × 20½ feet (*mean*). Guns: 2—3 pdr. Machinery: 6 geared turbines. 2 shafts. S.H.P.: 10,750 = 21 kts. 4 watertube boilers, 400 lbs. working pressure. Oil fuel. Radius: 9,000 miles at 15 kts. Equipment includes Sperry gyro-stabilisers. Is probably the most sumptuously fitted yacht afloat. Complement: 79.



1937 "*Yavuz.*"

ERTUĞRUL (Armstrong, 1903). 964 tons. Dimensions: 260 (*pp.*) × 27⅔ × 11½ feet. Guns: 8—3 pdr. Machinery: Triple expansion by Hawthorn Leslie. H.P.: 2,500 = 21 kts. Boilers: Cylindrical.

Note.—Above yachts are not part of Turkish Navy in peace time, but come under Public Works Department.

Motor Torpedo Boats.

DOGAN. 1940, "*Yavuz*."

3 *S.V.A.N.* Type: **DOĞAN, MARTI, DENIZKUŞU.** Built at Venice, 1926. Purchased 1931. 32 tons. Dimensions: 69 × 13¾ × 4 feet. **2**—18 inch torpedoes, **1**—3 inch gun, **1** M.G., **8** D.C. Machinery: Isotta-Fraschini motors. H.P.: 1,500 = 34 kts. Complement: 10.

Mine Sweepers.

ISA REIS *Added* 1937 "*Yavuz*."

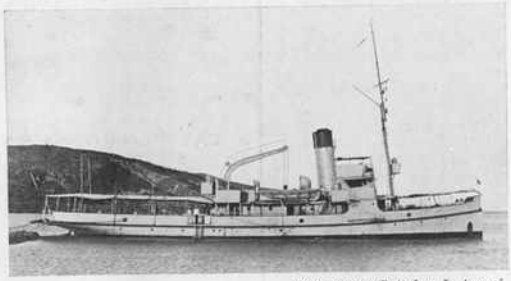
3 *La Seyne* type: **KEMAL REIS** (Feb., 1912), **HIZIR REIS** (Feb., 1912) and **ISA REIS** (Dec., 1911). 413 tons. Dimensions: 154¼ × 25¾ × 4¼ feet. Guns: **3**—3 inch., **2**—3 pdr., **2** M.G. H.P.: 850 = 14 kts. Refitted, 1923. The **2** forward guns, shown above in sponsons, are now mounted on forecastle in *Isa Reis*.

Minelayers.

SIVRIHISAR (April 10, 1940), **YÜZBASI HAKKI** (1940). Built by John I. Thornycroft & Co., Ltd., Southampton. Displacement: 350 tons (375 tons *full load*). Dimensions: 172 × 26 × 5¾ feet. Guns: **1**—3 inch. Mines: **40.** Machinery 2 sets Atlas Polar Diesels. B.H.P.: 1,200 = 15 kts.

Photo wanted.

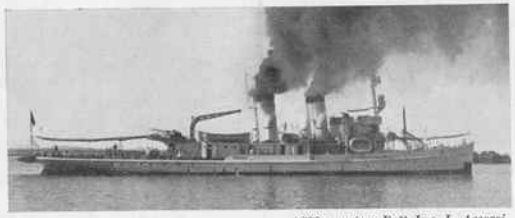
ATAK (Göleük, 1938). Displacement: 500 tons. Dimensions: 144½ × 26¼ × 11¾ feet. H.P.: 1,025 = 13 kts. Carries **80** mines.



1938, *courtesy Dott. Ing. L. Accorsi.*

NUSRET (ex-*Yardim*, ex-*Nusret*, Germania, Kiel, 1912). Displacement: 365 tons. Dimensions: 132 × 22 × 8½ feet. Guns: **2**—57 mm. Can carry **25** mines. H.P.: 1,200 = 15 kts.

Note.—This vessel laid the minefield in the Dardanelles on which *H.M.S. Irresistible* and *Ocean*, and the French battleship *Bouvet*, were lost on March 18, 1915.



1938, *courtesy Dott. Ing. L. Accorsi.*

UYANIK (ex-*Intibah*, ex-*Warren Hastings*, Port Glasgow, 1886). Iron. 616 tons *gross*. Dimensions: 202 × 30 × 12 feet. H.P. 1670 = 12 kts. 2 screws. Carries 50 mines.

Note.—Completely refitted in 1933. Originally a Salvage Tug.

Gunboats (*Muhribi*).

PEYK. *Added* 1940, "*Yavuz*."

PEYK. *Added* 1939, *courtesy Dott. Ing. L. Accorsi.*

BERK (ex-*Berkisatvet*) (1907), **PEYK** (ex-*Peykisevket*) (Nov., 1906). Built at Krupps' Germania Yard, Kiel. 775 tons. Dimensions: 262½ × 27⅝ × 9½ feet. Guns: **2**—3·9 inch, **4**—6 pdr. Designed H.P.: 5,100 = 22 kts. Coal: 240 tons. **25** mines carried. Complement: 105.

Note.—*Berkisatvet* was mined and had her stern rebuilt during the Great War. *Peykisevket* was torpedoed by British Submarine *E* 11, August, 1915, but was beached and salved. Both ships refitted extensively, 1937–39.

Submarine Depot Ships.

DALGIC. Reported to have been laid down at Ismit in 1938 or 1939. Particulars wanted.

1938, *courtesy Dott. Ing. L. Accorsi.*

ERKIN (ex-N.D.L. liner *Trier*), (Weser, Bremen, 1923). Purchased in July, 1936. Displacement: 16,800 tons. 9,415 tons *gross*. Dimensions: 458½ × 57½ × 28 feet. Machinery: Triple expansion. I.H.P.: 4,200 = 12·5 kts.

Surveying Vessel.

1937, *"Yavuz."*

AYDIN REIS (St. Nazaire, June, 1912). Refitted in 1925. 502 tons. Dimensions: 178½ × 27½ × 8 feet. No Guns. Boilers: Babcock. H.P.: 1,025 = 14 kts.

Diving Tender.

1937, *"Yavuz."*

AKIN (ex-*Rasit*, ex-*Cow-Whale*), (Smith's Dock Co., 1915). Ex-Admiralty whaler, purchased 1926. Displacement: 336 tons. Dimensions: 139¾ × 25 × 6½ feet. Machinery: Triple expansion. 1 shaft. H.P.: 1,000 = 12 kts. Coal: 60 tons. Complement: 26. Fitted with deep sea diving apparatus, with which a depth of 115 fathoms has been reached.

Motor Launch.

Photo, Messrs. J. I. Thornycroft & Co.

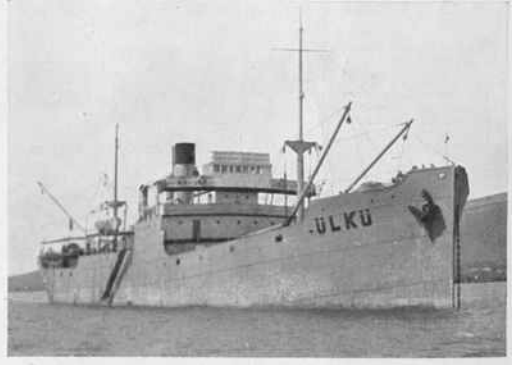
1 *Thornycroft* type: **MÜLÂZIM HAYATI** (ex-*No.* 14), (1911). Dimensions: 62 × 11 × 2½ feet. Guns: 2 M.G. 140 H.P. Thornycroft petrol motor = 11 kts. Bullet-proof steel over conning position and engines.

Oiler.

1938, *courtesy Dott. Ing. L. Accorsi.*

GÖLCÜK (Gölcük Dockyard, Ismit, Nov. 4, 1935). Displacement: 1,255 tons. Deadweight capacity: 750 tons. Dimensions: 185 × 31½ × 10 feet. Machinery: B. & W. Diesel. H.P.: 700 = 12·5 kts.

Collier.



1938, *courtesy Dott. Ing. L. Accorsi.*

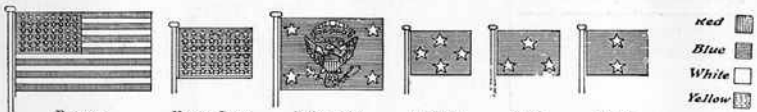
ULKU (ex-*Shandon*, 1919). Built at West Hartlepool. Purchased in 1934. Displacement: 7,233 tons, 3,069 tons *gross*. Dimensions: 331 × 46¾ × 21¾ feet (*mean*). Machinery: Triple expansion. H.P.: 1,750 = 10 kts. 3 cyl. boilers. Deadweight capacity: 5,150 tons.

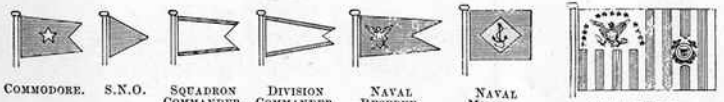
UNITED STATES NAVY.

UNIFORMS.

Note.—Lieutenants, junior grade, have 1½ stripes. Chief Warrant Officers one stripe broken with blue. Line Warrant Officers have one half stripe broken with blue. Staff Warrant Officers under Chiefs have no sleeve mark. Engineers same as Line Officers (interchangeable). Other branches than executive wear no sleeve star, but have following badges of branch over top stripe.

FLAGS.





Commander in Chief: Franklin D. Roosevelt.
Secretary of the Navy: Colonel W. Franklin Knox.
Assistant Secretary of the Navy: Lewis Compton.
Under Secretary of the Navy: James Forrestal.
Chief of Naval Operations: Admiral Harold R. Stark.
Asst. Chief of Naval Operations: Rear-Admiral Robert L. Ghormley.
General Board: Rear-Admirals W. R. Sexton, J. W. Greenslade, C. E. Courtney, A. W. Johnson, F. J. Horne, E. J. King.

Personnel U.S.N. and Marine Corps: 180,564 officers and men. Reserves: Officers, 15,806, Men, 55,078. Total on duty in Sept. 1940 (including Reserves called up) was 239,281 officers and men.
Naval Attaché, London: Captain Alan G. Kirk.

Principal Guns in the U.S. Fleet.

(Officially revised, 1929.)

Built at Washington Gun Factory, proved at Indian Head, Dahlgren, Va., and Potomac Range.

	Notation.	Nominal Calibre.	Mark or Model.	Length in Calibres.	Weight of Gun.	Weight of A.P. Shot.	*Service* Initial Velocity.	*Maximum* penetration firing capped A.P. direct impact against K.C. armour. 9000 yards	6000 yards	3000 yards	Muzzle Energy.
		inch.			tons.	lbs.	ft. secs.	in.	in.	in.	ft-tons.
HEAVY		16	II	50	128	2100	2800	...	...	...	...
		16	I	45	105	2100	2600	...	...	...	98,531
		14	IV	50	81	1400	2800	...	...	...	76,087
		14	I	45	63½	1400	2600	18	...	...	...
		12	VII	50	56·1	870	2900	11·0	13·9	17·5	50,783
		12	VI	45	53·6	870	2700	10·6	13·3	16·6	44,020
		12	V	45	52·9	870	2700	9·8	12·3	15·5	44,020
MEDIUM		8	IX	55	19·7	250	3000	...	...	...	16,240
		8	VI	45	18·7	260	2750	4·4	6·1	8·6	13,630
		8	V	40	18·1	260	2500	4·0	5·3	7·5	11,264
		6	XII	53	10	105	3000	...	...	...	6,551
		6	VIII	50	8·6	105	2800	2·3	3·2	5·2	5,707
		6	VI	50	8·3	105	2600	2·2	2·9	4·7	4,920
		6*	IX	45	7·0	105	2250	2·1	2·5	3·8	3,685
		6*	IV. VII	40	6·0	105	2150	2·1	2·4	3·6	3,365
		5	VII	51	5·0	50	3150	1·4	1·8	3·4	3,439
		5	VI	50	4·6	50	3000	1·4	1·7	3·2	3,122
		5	V & VI	50	4·6	60	2700	1·6	2·0	3·5	3,032
		5*	II, III, IV	40	3·1	50	2300	1·4	1·7	2·6	1,834
LIGHT and AA.		4◎	IX	50	3·0	33	2900	...	...	..	1,926
		4◎	VIII	50	2·9	33	2800	1·2	1·5	2·6	1,794
		4◎	VII	50	2·6	33	2500	1·2	1·4	2·2	1,430
		4◎	III,IV,V,VI	40	1·5	33	2000	...	1·2	1·7	915
		3§	X	50	1·15	13	2700	...	...	...	657
		3	V, VI, *S-A*	50	1·0	13	2700	...	0·8	1·2	658
		3◎	II, III	50	0·9	13	2700	...	0·8	1·2	658

(There are a 6 inch, 47 cal.,* a 5 inch, 38 cal., 1932, and a 5 inch 25 cal. AA.)

*=Brass cartridge case. § Anti-aircraft gun.

All guns use nitro-cellulose.

Naval Appropriation.

1938–1939 $546,866,494. 1939–1940, $943,360,249. 1940-41 $1,867,451,208.

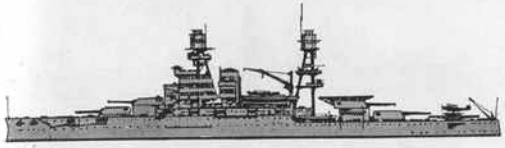
Mercantile Marine.

("Lloyd's Register," 1939, figures.)

Total *gross* tonnage, including Great Lakes and Philippines, 3,375 vessels of 12,003,028 tons.

NEW YORK.
(TEXAS, Platform above foretop).

ARKANSAS.



PENNSYLVANIA.
(ARIZONA similar, but shorter funnel)

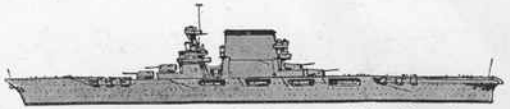
OKLAHOMA.

NEVADA.

NEW MEXICO *class*.

MARYLAND and CALIFORNIA *classes*.

WYOMING.



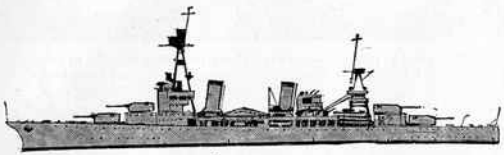
SARATOGA (with thick vertical stripe down middle of funnel).
LEXINGTON (with platform around funnel near top.)

RANGER.

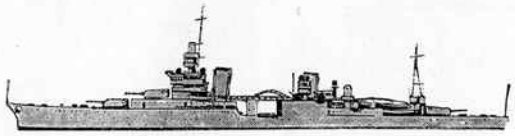
YORKTOWN.
(ENTERPRISE same but without Y on funnel.)

WASP.

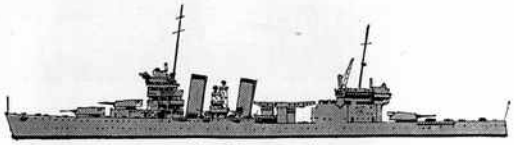
LANGLEY.



PENSACOLA.
(SALT LAKE CITY similar, with topmast abaft maintop.)

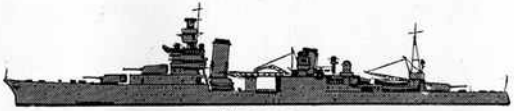


INDIANAPOLIS.



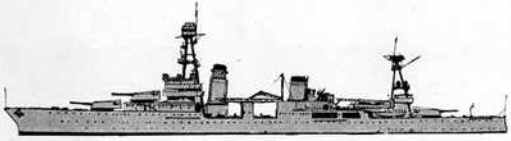
NEW ORLEANS *class.*
(Some have thinner funnels).

CHESTER. HOUSTON. AUGUSTA. CHICAGO. LOUISVILLE.

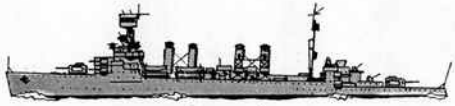


PORTLAND.

WICHITA.



NORTHAMPTON.



OMAHA *class.*

BROOKLYN *class.*
Also HELENA, ST. LOUIS, with mainmast and superstructure immediately abaft 2nd funnel.

FARRAGUT *class*, 348–355. (Part sketch, DEWEY)

GRIDLEY *class*, 380, 382, 386–393.

(Some have S.L. platform between T.T.)

Flush Deckers.

(HAMILTON has had 1st funnel removed; DAHLGREN has had 3rd and 4th funnels combined in one large casing.)

PORTER *class*, 356—363.

(Some have clinker screen to forefunnel.)

MAURY *class*, 397–408.

Light Mine Layers.

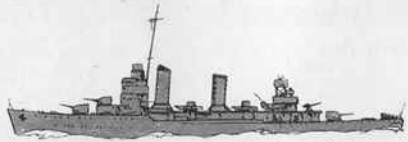
MAHAN *class*, 364–379.

(Some lack clinker screen to fore funnel).

SIMS *class*, 409–420.

CONNOR. STOCKTON.

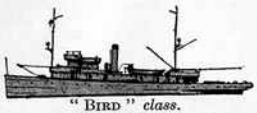
DUNLAP, 384. FANNING, 385.



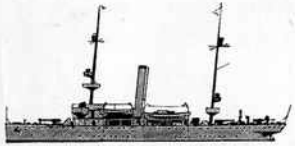
BENSON *class*, 421—444 (earlier units).

SOMERS *class*, 381, 383, 394–396.

BENSON *class*, 421—444, (later units).



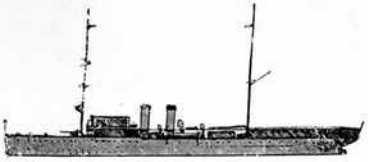
"Bird" *class.*
(*Minesweepers.*)



Asheville *class.*

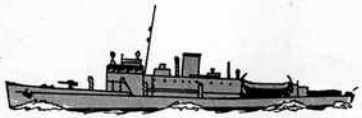
Charleston, Erie

Eagle boats.



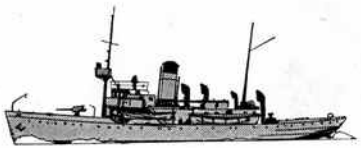
Isabel.

Pamlico



Active *class.*

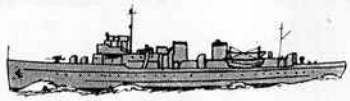
G. W. Campbell *class.*
(Seaplane carried aft in some.)



Algonquin *class.*

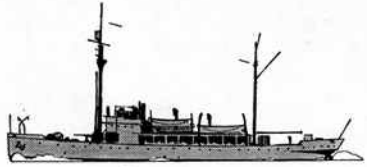
Chelan *class.*

Haida *class.*

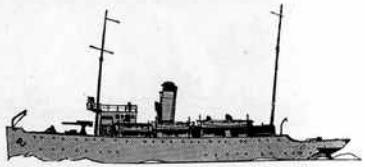


Argo *class except* Aurora, Daphne, Perseus, only 1 funnel.

(Some have thinner 2nd funnel)

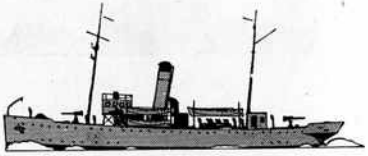


Northland.



Unalga.

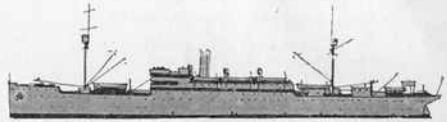
Shawnee.



Tallapoosa.
(Ossipee similar).

WRIGHT.

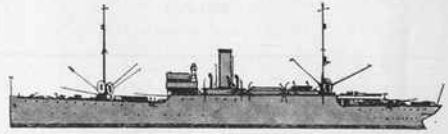
BUSHNELL.



BRIDGEPORT.

PATOKA.

HOLLAND.
(Topmasts now shortened).



CAMDEN.

BEAVER.

WHITNEY *class*.

CANOPUS.

MELVILLE.

MEDUSA.

BLACK HAWK.

CHILDS *class* (ex-Destroyers).

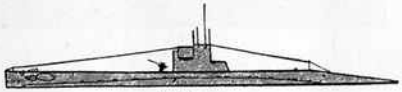
DIXIE, PRAIRIE,

ALTAIR *class*.

OGLALA.

ARCOSTOOK.

S.C. boats.



"O" *class.*

BARRACUDA *class.*

DOLPHIN.

"R" *class.*

ARGONAUT.

CACHALOT *class.*

S. 1, 3, 6–41

NARWHAL *class.*

PIKE *class.*
(PERCH *class* similar).

S. 22, 42–47.

SARGO *class.*

S. 48.

FLEET ORGANISATION (This refers to 1939. Details for 1940 are not available.)

The United States Fleet.

Commander-in-Chief, United States Fleet
PENNSYLVANIA (*Flag*)
Note: HOUSTON (*Relief Flag*)

Battle Force, U.S. Fleet

Commander, Battle Force, U.S. Fleet
CALIFORNIA (*Flag*)

Battleships, Battle Force, U.S. Fleet

Commander, Battleships, Battle Force, U.S. Fleet

WEST VIRGINIA (*Flag*)

Batdiv One	*Batdiv Two*
Combatdiv One	*Combatdiv Two*
ARIZONA (F)	TENNESSEE (F)
NEVADA	OKLAHOMA
PENNSYLVANIA (FF)	CALIFORNIA (FF)
Batdiv Three	*Batdiv Four*
Combatdiv Three	*Combatdiv Four*
IDAHO (F)	WEST VIRGINIA (F)
MISSISSIPPI	COLORADO
NEW MEXICO	MARYLAND

Cruisers, Battle Force, U.S. Fleet

Commander, Cruisers, Battle Force, U.S. Fleet

HONOLULU (*Flag*)

Crudiv Three	*Crudiv Eight*	*Crudiv Nine*
Comcrudiv Three	*Comcrudiv Eight*	*Comcrudiv Nine*
CONCORD (F)	PHILADELPHIA (F)	HONOLULU (F)
CINCINNATI	BROOKLYN	PHOENIX
MILWAUKEE	SAVANNAH	BOISE (RFF)
OMAHA	NASHVILLE	ST. LOUIS
TRENTON		

Destroyers, Battle Force, U.S. Fleet

Commander, Destroyers, Battle Force, U.S. Fleet
DETROIT (*Flag*)

Destroyer Flotilla One

Commander, Flotilla One, Destroyers, Battle Force, U.S. Fleet

RALEIGH .. Flagship
DOBBIN .. Tender for Squadrons One and Three
WHITNEY .. Tender for Squadrons Two and Nine
Destroyer Squadron One .. PHELPS, *Flag*
Destroyer Squadron Two .. PORTER, *Flag*
Destroyer Squadron Three .. CLARK, *Flag*
Destroyer Squadron Nine .. MCDOUGAL, *Flag*

Destroyer Squadron One

COMDESRON ONE

PHELPS (*Flag*)

Desdiv One	*Desdiv Two*
Comdesdiv One	*Comdesdiv Two*
DEWEY (F)	AYLWIN (F)
HULL	DALE
MACDONOUGH (RF)	FARRAGUT (RF)
WORDEN	MONAGHAN

Destroyer Squadron Two

COMDESRON TWO

PORTER (*Flag*)

Desdiv Three	*Desdiv Four*
Comdesdiv Three	*Comdesdiv Four*
DRAYTON (F)	CUSHING (F)
FLUSSER	PERKINS
LAMSON (RF)	PRESTON (RF)
MAHAN	SMITH

Destroyer Squadron Three

COMDESRON THREE

CLARK (*Flag*)

Desdiv Five	*Desdiv Six*
Comdesdiv Five	*Comdesdiv Six*
CASSIN (F)	CASE (F)
CONYNGHAM	SHAW
DOWNES (RF)	CUMMINGS (RF)
REID	TUCKER

Destroyer Squadron Nine

COMDESRON NINE

MCDOUGAL (*Flag*)

Desdiv Seventeen	*Desdiv Eighteen*
Comdesdiv Seventeen	*Comdesdiv Eighteen*
SOMERS (F)	DAVIS (F)
WARRINGTON	JOUETT
WINSLOW	SAMPSON

Destroyer Flotilla Two

Commander, Flotilla Two, Destroyers, Battle Force, U.S. Fleet

DETROIT .. Flagship
ALTAIR .. Tender for Squadrons Four and Six
MELVILLE .. Tender for Squadrons Seven, Eight, Twelve and Division Nineteen.
Destroyer Squadron Four .. SELFRIDGE, *Flag*
Destroyer Squadron Six .. BALCH, *Flag*
Destroyer Squadron Eight .. WINSLOW, *Flag*
Destroyer Squadron Twelve .. MOFFETT, *Flag*
Destroyer Division Nineteen .. RATHBURNE, *Flag*

Destroyer Squadron Four

COMDESRON FOUR

SELFRIDGE (*Flag*)

Desdiv Seven	*Desdiv Eight*
Comdesdiv Seven	*Comdesdiv Eight*
HENLEY (F)	MUGFORD (F)
HELM	RALPH TALBOT
BLUE (RF)	JARVIS (RF)
BAGLEY	PATTERSON
Desdiv Twenty-four	*Desdiv Twenty-eight*
Comdesdiv Twenty-four	*Comdesdiv Twenty-eight*
PERRY (F)	SOUTHARD (F)
WASMUTH	CHANDLER
ZANE (RF)	HOVEY (RF)
TREVER	LONG

Destroyer Squadron Six

COMDESRON SIX

BALCH (*Flag*)

Desdiv Eleven	*Desdiv Twelve*
Comdesdiv Eleven	*Comdesdiv Twelve*
GRIDLEY (F)	DUNLAP (F)
CRAVEN	BENHAM
MAURY (RF)	FANNING (RF)
MCCALL	ELLET

Destroyer Squadron Eight

COMDESRON EIGHT

WINSLOW (*Flag*)

Desdiv Nine	*Desdiv Ten*
Comdesdiv Nine	*Comdesdiv Ten*
LANG (F)	MAYRANT (F)
STACK	TRIPPE
STERETT (RF)	RHIND (RF)
WILSON	ROWAN

Destroyer Squadron Twelve

COMDESRON TWELVE

MOFFETT (*Flag*)

Desdiv Twenty-five	*Desdiv Twenty-six*
Comdesdiv Twenty-five	*Comdesdiv Twenty-six*
ANDERSON (F)	MUSTIN (F)
HAMMANN	RUSSELL
HUGHES (RF)	O'BRIEN (RF)
SIMS	WALKE

Destroyer Division Nineteen[1] [2]

COMDESDIV NINETEEN

RATHBURNE (F)
TALBOT
DENT (RF)
WATERS

[1] In reduced commission.
[2] Operates with under-water sound training school.

Aircraft, Battle Force, U.S. Fleet

Commander, Aircraft, Battle Force, U.S. Fleet

YORKTOWN (*Flag*)

Carrier Division One	*Carrier Division Two*
Comcardiv One	*Comcardiv Two*
SARATOGA (F)	YORKTOWN (F)
LEXINGTON	ENTERPRISE

Minecraft, Battle Force, U.S. Fleet

Commander, Minecraft, Battle Force, U.S. Fleet
OGLALA (*Flag*)

Mine Squadron One

Mindiv One	*Mindiv Two*
Comindiv One	*Comindiv Two*
PRUITT (F)	TANAGER (F)
PREBLE	QUAIL
SICARD	LARK
TRACY	WHIPPOORWILL

Scouting Force, U.S. Fleet

Commander, Scouting Force, U.S. Fleet
INDIANAPOLIS (*Flag*)[1]

[1] Assigned to Crudiv Six for tactical purposes.

Cruisers, Scouting Force, U.S. Fleet

Commander, Cruisers, Scouting Force, U.S. Fleet
CHICAGO (*Flag*)

Crudiv Four	*Crudiv Five*
Comcrudiv Four	*Comcrudiv Five*
NORTHAMPTON (F)	CHICAGO (F)
HOUSTON (RFF)[1]	CHESTER
PENSACOLA	LOUISVILLE
SALT LAKE CITY	PORTLAND

Crudiv Six
Comcrudiv Six
MINNEAPOLIS (F)
ASTORIA
NEW ORLEANS
SAN FRANCISCO

[1] Relief flag for Commander-in-Chief, U.S. Fleet.

Aircraft, Scouting Force, U.S. Fleet

Commander, Aircraft, Scouting Force, U.S. Fleet
MEMPHIS (*Flag*)

Note.—Tenders assigned Patrol Wings as listed below.

(1) ***Patrol Wing One***

WRIGHT (AV)	..	*Seaplane Tender (Flag Compatwing 1)*
AVOCET (AVP)	..	*Seaplane Tender, Small*
PELICAN (AVP)	..	*Seaplane Tender, Small*

(2) ***Patrol Wing Two***

Fleet Air Base, Pearl Harbor

LANGLEY (AV)	..	*Seaplane Tender (Flag Compatwing 2)*
SWAN (AVP)	..	*Seaplane Tender, Small*
CHILDS (AVP)	..	*Seaplane Tender, Small*

(3) ***Patrol Wing Three***

Fleet Air Base, Coco Solo

LAPWING (AVP)	..	*Seaplane Tender, Small (Flag Compatwing 3)*
SANDPIPER (AVP)	..	*Seaplane Tender, Small*

(4) ***Patrol Wing Four***

TEAL (AVP)	..	*Seaplane Tender, Small*
WILLIAMSON (AVP)	..	*Seaplane Tender, Small (Flag Compatwing 4)*

(5) ***Patrol Wing Five***

Fleet Air Base, Sitka

GANNET (AVP)	..	*Seaplane Tender, Small (Flag Compatwing 5)*
THRUSH (AVP)	..	*Seaplane Tender, Small*
OWL (AM)[1]	..	*Minesweeper serving as Seaplane Tender, Small*

[1] OWL assigned additional duty Fifth Naval District.

Atlantic Squadron, U.S. Fleet

Commander, Atlantic Squadron, U.S. Fleet

NEW YORK (*Flag*)
RANGER

Batdiv Five[1]	*Crudiv Seven*
Combatdiv Five	*Comcrudiv Seven*
NEW YORK (F)	QUINCY
ARKANSAS	TUSCALOOSA
TEXAS (RF)	VINCENNES
WYOMING[2]	WICHITA (F)

[1] In reduced commission.
[2] Classed as an AG—operates with Batdiv Five.

Destroyer Squadron Ten

COMDESRON TEN

DECATUR (*Flag*)

Desdiv Twenty-One	*Desdiv Twenty-Two*	*Desdiv Twenty-Seven*[1]
HOPKINS	LEARY	BORIE
REUBEN JAMES	SCHENCK	BROOME
BARRY	FAIRFAX	SIMPSON
GOFF	MANLEY[2]	TRUXTUN

Desdiv Twenty-Nine	*Desdiv Thirty*
BADGER[3]	ROPER
JACOB JONES[3]	HAMILTON
HERBERT[4]	BABBITT
DICKERSON[5]	CLAXTON[6]

[1] In reduced commission.
[2] Converted to an AG. Operates with Desron Ten.
[3] Assigned duty with Squadron 40-T.
[4] To relieve BADGER in Squadron 40-T in second quarter, fiscal year 1940.
[5] To relieve JACOB JONES in Squadron 40-T in second quarter, fiscal year 1940.
[6] Assigned duty at U.S. Naval Academy.

Submarine Force, U.S. Fleet

Commander, Submarine Force, U.S. Fleet

RICHMOND (*Flag*)
LITCHFIELD

Submarine Base, New London

SUBMARINE SQUADRON TWO

Commander, Submarine Base, New London, and Commander, Submarine Squadron Two.

FALCON (*Submarine Rescue Vessel*)

Subdiv Four	*Subdiv Eight* [1]
Comsubdiv Four	*Comsubdiv Eight*
(SS91) R—14 (F)	(SS129) S—24 (F)
(SS79) R—2	(SS126) S—21
(SS81) R—4	(SS130) S—25
(SS87) R—10	(SS131) S—26
(SS88) R—11	(SS134) S—29
(SS90) R—13 (FF)	(SS135) S—30

[1] In commission in reserve at New London.

Experimental Division One

SEMMES (*Experimental Vessel*)
(SS125) S—20
(SS127) S—22

Submarine Squadron Three

Submarine Base, Coco Solo

Commander, Submarine Squadron Three, and Submarine Base, Coco Solo

MALLARD (*Submarine Rescue Vessel*)

Subdiv Eleven
Comsubdiv Eleven
(SS155) S—44 (FF)
(SS153) S—42 (F)
(SS154) S—43
(SS156) S—45
(SS157) S—46
(SS158) S—47

Submarine Squadron Four

Submarine Base, Pearl Harbour

Commander, Submarine Squadron Four, and Submarine Base, Pearl Harbor

KEOSANQUA .. *Tender*
SEAGULL .. *Tender*
WIDGEON .. *Submarine Rescue Vessel*

Subdiv Seven	*Subdiv Twelve*	*Subdiv Thirteen* [1]
Comsubdiv Seven	*Comsubdiv Twelve*	*Comsubdiv Thirteen*
(SS128) S—23 (F)	NAUTILUS (F)	SHARK (F)
(SS123) S—18	ARGONAUT (FF)	CACHALOT
(SS139) S—34	DOLPHIN	CUTTLEFISH
(SS140) S—35	NARWHAL	PLUNGER
		POLLACK
		POMPANO

[1] To be reorganized as shown under note at foot of "Unassigned" group, about 1 April, 1940.

Submarine Squadron Six

(Normally operates with Battle Force)
Commander, Submarine Squadron Six

PERCH .. *Flag*
HOLLAND .. *Tender*
BEAVER .. *Tender*
ORTOLAN .. *Submarine Rescue Vessel*

Subdiv Fifteen	*Subdiv Sixteen*
Comsubdiv Fifteen	*Comsubdiv Sixteen*
SNAPPER (F)	SARGO (F)
SALMON	SAURY
SEAL	SCULPIN
SKIPJACK	SPEARFISH
STINGRAY	SQUALUS
STURGEON	SWORDFISH

Experimental Division Two [1]

(SS132) S—27
(SS133) S—28

[1] Operating with Underwater Sound Training School.

Unassigned

Four new submarines, due for commissioning in fiscal year 1940, operating under the Chief of Naval Operations.

SEADRAGON
SEALION
SEARAVEN
SEAWOLF

Base Force U.S. Fleet

Commander, Base Force, U.S. Fleet

ARGONNE .. *Flag*
RIGEL .. (*AD*) *Also Receiving Ship, San Diego*

Train, Base Force

Commander, Train

ARGONNE (*Flag*)

Fleet Training Base, San Clemente
Fleet Air Base, San Pedro
Destroyer Base, San Diego

ANTARES	(AG)	BRAZOS	(AO)
ARCTIC	(AF)	CUYAMA	(AO)
BRIDGE	(AF)	KANAWHA	(AO)
UTAH	(AG)	NECHES	(AO)
RELIEF	(AH)	CIMARRON	(AO)
BOBOLINK	(AM)	NEOSHO	(AO)
BRANT	(AM)	PLATTE	(AO)
GREBE	(AM)	MEDUSA	(AR)
KINGFISHER	(AM)	VESTAL	(AR)
PARTRIDGE	(AM)	ALGORMA	(AT)
RAIL	(AM)	KALMIA	(AT)
ROBIN	(AM)	PINOLA	(AT)
TERN	(AM)	SONOMA	(AT)
TURKEY	(AM)	NAVAJO	(AT)
VIREO	(AM)	SEMINOLE	(AT)

Mobile Target Division One, Base Force

Comtardiv One

DORSEY	(DD) (F)
ELLIOT	(DD)
BOGGS	(AG)
LAMBERTON	(AG)

Asiatic Fleet

Commander-in-Chief, Asiatic Fleet

AUGUSTA (*Flag*)
MARBLEHEAD
ASHEVILLE
ISABEL
TULSA

Yangtze Patrol.

Comyangpat
LUZON (F)
GUAM
OAHU
TUTUILA

South China Patrol

Comsopat
MINDANAO (F)

Destroyers, Asiatic Fleet

Destroyer Squadron Five.

Commander, Destroyer Squadron Five

PAUL JONES .. *Squadron Leader*
BLACK HAWK .. *Tender*

Desdiv Thirteen	*Desdiv Fourteen*
Comdesdiv Thirteen	*Comdesdiv Fourteen*
WHIPPLE (F)	STEWART (F)
ALDEN (RF)	BULMER (RF)
BARKER	EDSALL
EDWARDS, J. D.	PARROTT
Desdiv Fifteen	
Comdesdiv Fifteen	
PEARY (F)	
FORD, J. D. (RF)	
PILLSBURY	
POPE	

Submarine Squadron Five.

Commander, Submarine Squadron Five

CANOPUS .. *Flag*
PIGEON .. *Submarine Rescue Vessel*

Subdiv Ten
Comsubdiv Ten
(SS142) S—37 (F)
(SS141) S—36
(SS143) S—38
(SS144) S—39
(SS145) S—40
(SS146) S—41
Subdiv Fourteen
Comsubdiv Fourteen
PERCH (F)
PORPOISE
PIKE
TARPON
PICKEREL
PERMIT

Train, Asiatic Fleet

Mindiv Three
BITTERN
FINCH

Aircraft Detachment.

HERON (AVP) .. *Seaplane Tender, Small*

Auxiliaries

PECOS (F)

Special Service Squadron.

Commander, Special Service Squadron

CHARLESTON (F)
ERIE (RF)
TATTNALL
J. FRED TALBOTT

Naval Transportation Service

CHAUMONT
HENDERSON
BARNETT
MCCAWLEY
HARRIS
ZEILIN
WHARTON
NITRO
PYRO
RAMAPO
SALINAS
SIRIUS
TRINITY
VEGA
CAPELLA

Special Duty

ACUSHNET	5th Naval District
ALLEGHENY	4th Naval District
BAGADUCE	11th Naval District
BOWDITCH	Survey Duty
BUSHNELL	Survey Duty
CORMORANT	Bureau of Ordnance
CUYAHOGA	Special duty
DAHLGREN	Engineering Experimental, under Chief of Naval Operations
GOLDSTAR	Station Ship, Guam
HANNIBAL	Surveying duty
KEWAYDIN	5th Naval District
MONTCALM	Guantanamo
NAPA	16th Naval District
ONTARIO	Station Ship, Samoa
ORIOLE	13th Naval District
PENGUIN	Guam
POTOMAC	Special duty
SAGAMORE	3rd Naval District
SUNNADIN	14th Naval District
UMPQUA	6th Naval District
WANDANK	1st Naval District
WOODCOCK	15th Naval District

SHIP NOMENCLATURE.

Battleships will be named after States; heavy and light cruisers after large cities; aircraft carriers after historical naval vessels or battles; destroyers after officers and enlisted men of the Navy and Marine Corps, Secretaries of the Navy, Members of Congress and inventors.

Submarines will be named after fish; minesweepers after birds; gunboats after small cities; river gunboats after islands; submarine tenders after pioneers in submarine development; repair ships after mythological characters; oilers after rivers; cargo ships after stars; destroyer tenders after natural areas of the United States; large seaplane tenders after sounds; small seaplane tenders after bays, straits and inlets; ocean-going tugs after Indian tribes; and harbour tugs after Indian chiefs and words of the Indian dialect.

(Iowa Class—11 Ships).

IOWA, NEW JERSEY, MISSOURI, WISCONSIN, and 7 more.

Standard displacement : 45,000 tons.
Complement :
Length, 880 feet (*over all*). Beam, 108 feet. Draught, 36 feet (*max.*).
Guns : **9**—16 inch
20—5 inch, 38 cal.
16 smaller.
Aircraft : 4. Catapults : 2.
Armour : Not reported.
Machinery : Geared turbines. Designed Speed : Over 30 kts. (35 kts. reported unofficially). Boilers as in *Washington* class. Oil fuel.

Notes.—First pair to be completed in 1944. Cost reported to be $85,000,000 each, but this may not include armament. Also given as $93,000,000 for *New Jersey*. Last 7 have also been reported as ships of about 52,000 tons each, in which case they are of a new design. It is possible one or two of the battleships to be laid down at Philadelphia and Norfolk may be built in dry dock.

(*No plan available*)

Programme	*Name and No.*	*Builder*	*Machinery*	*Laid down*
1939	*Iowa* (61)	New York Navy Yd.	Westinghouse Co.	June 27, 1940
	New Jersey(62)	Philadelphia Navy Yd.	Do.	Sept. 16, 1940
1940	*Missouri* (63)	New York Navy Yd.	Do.	*To be* 1941
	Wisconsin (64)	Philadelphia Navy Yd.	Do.	
1940	69 and 70	New York Navy Yd.	Do.	
	65, 67, 68	Philadelphia Navy Yd.	Do.	*To be* 1941
	66 and 71	Norfolk Navy Yd.	Do.	

(Washington Class—6 Ships)

NORTH CAROLINA (June 13, 1940), WASHINGTON (June 1, 1940), INDIANA, MASSACHUSETTS ALABAMA, SOUTH DAKOTA.

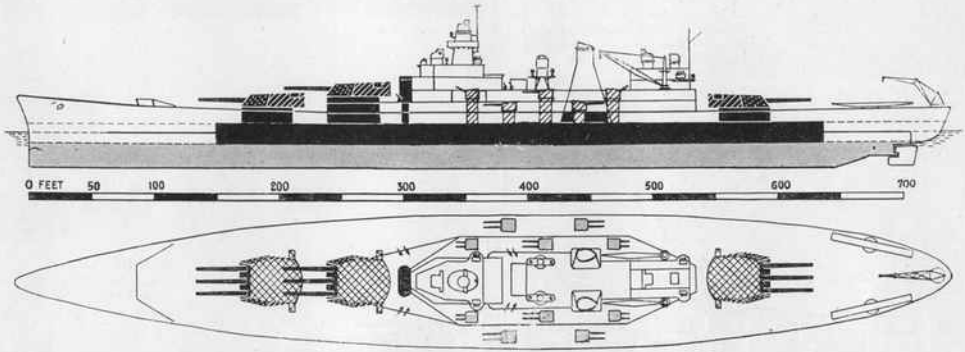
Standard displacement: 35,000 tons. (*About* 41,000 tons, full load.)
Complement : 1,500
Length : 750 feet. Beam : 108 feet. Draught : 36 feet (*mean*).

Guns:
9—16 inch.
20—5 inch, 38 cal. (dual purpose).
16 smaller.

Armour: (Unofficial)
16″ Belt amidships.
6″ Upper Deck.
4″ Lower Deck.

Aircraft : 4 Catapults : 2

Note to Plan.—This is believed to represent with accuracy the design of the *North Carolina* and *Washington*; but it is quite likely that further modifications may be made in the course of construction, and that the appearance of the ships when completed may vary from that shown here.



Machinery : Geared turbines. 4 shafts. S.H.P. : 115,000 = 28 kts. (4 later ships may be S.H.P. : 130,000 = 30 kts.). Babcock and Wilcox boilers of a new pattern (working pressure reported to be 600 lb. per sq. inch, with 400° of superheat). Oil fuel.

General Notes.—Delays in laying down these ships have been due to changes in design, late delivery of materials and necessity for extending and strengthening building slips. Ships are to be fully 35 per cent. welded. Engine room will be arranged on a novel plan to save weight. Cost estimated at $68,741,300 for *N. Carolina*, $65,815,200 for *Washington*, $52,794,000 for *S. Dakota*, $49,540,000 for *Indiana*, and $49,815,000 for *Massachusetts*. Last 3 figures exclude cost of armament.

Programme	*Name*	*Builder*	*Machinery*	*To replace*	*Laid down*	*To be completed*
1936	*N. Carolina*	New York Navy York	Westinghouse Co.	*Arkansas*	Oct. 27, 1937	Nov., 1941
	Washington	Philadelphia Navy Yard	Westinghouse Co.	*Texas*	June 14, 1938	Oct., 1942.
1938	*Indiana*	Newport News Co.	Westinghouse Co.	*New York*	Nov. 20, 1939	1943
	Massachusetts	Bethlehem Steel Co. (Quincy)	Builders	*Nevada*	July 20, 1939	
	Alabama	Norfolk Navy Yard	Westinghouse Co.	*Oklahoma*	Feb. 1, 1940	
	S. Dakota	New York S.B. Corpn.	Builders	*Pennsylvania*	July 5, 1939	

(Maryland Class—3 Ships.)

COLORADO (March 22nd, 1921), **MARYLAND** (March 20th, 1920), and **WEST VIRGINIA** (Nov. 19th, 1921).

Standard displacement, *Colorado*, 32,500 tons. *Maryland*, 31,500. *W. Virginia* 31,800 tons. *Full load*, 33,590 tons. Complement, 1407.

Complement of *W. Virginia* as fleet flagship, 1486.

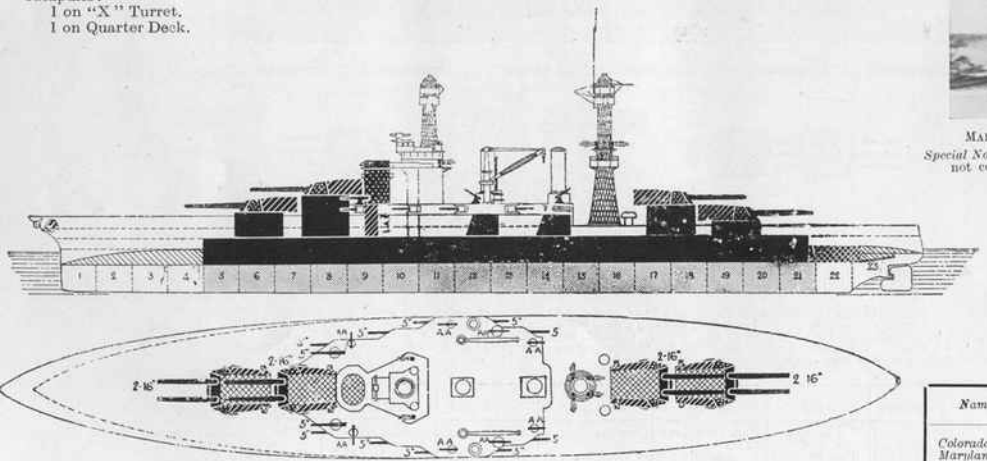
Length (*w.l.*), 600 feet. (*o.a.*), 624 feet.
Beam, 97½ feet.

Mean draught, 30½ feet 29⅔ feet and 30 feet respectively.
Max. draught of all, 35 feet.

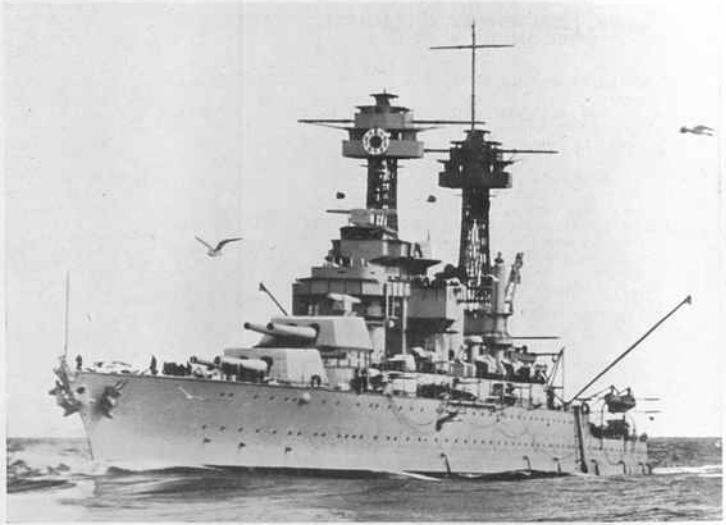
Guns:
- 8—16 inch, 45 cal. Mk. I.
- 12—5 inch, 51 cal.
- 8—5 inch (AA.) Mk. X.
- 4—6 pdr. (saluting).
- 2—1 pdr.
- 2—M.G.
- 11— M.G., AA.

Torpedo tubes (removed)
Aircraft: 3
Catapults:
- 1 on "X" Turret.
- 1 on Quarter Deck.

Armour:
- 16″—14″ Belt
- 8″ Belt (aft)
- 3″ Deck (ends)
- 16″—9″ Funnel bases
- 18″—9″ Turrets
- 16″ Conning tower and tube
- 3½″ upper and 2½″ lower armour decks.



Machinery: In *Colorado* Westinghouse turbines and electric drive; in *Maryland* and *W. Virginia*, G.E. turbines and electric drive. Designed S.H.P. 27,300 = 21kts. cf. trials. 4 shafts. Boilers: 8 Babcock & Wilcox. Fuel (oil only): *normal* 2500 tons; *maximum* 4000 tons (unofficial figures).



Maryland. *Added* 1938, *Theo. N. Silberstein.*

Special Note.—Provision was to have been made for the modernisation of this class during 1940–41, but this is not contemplated in the near future.

Gunnery Notes.—Maximum elevation of 16 inch 30°; Maximum range at this elevation unofficially stated to be 33,300 yards. Turrets electrically manœuvred and with electric hoists. Excepting increase of calibre to 16 inch, otherwise as Notes for *Tennessee* Class. New director system installed, 1923. Main control is at a height of 120 feet above sea level.

Armour Notes. As for *California* and *Tennessee*.

Anti-Torpedo Protection.—Ferrati type triple hull and minute internal subdivision by longitudinal and transverse unpierced bulkheads.

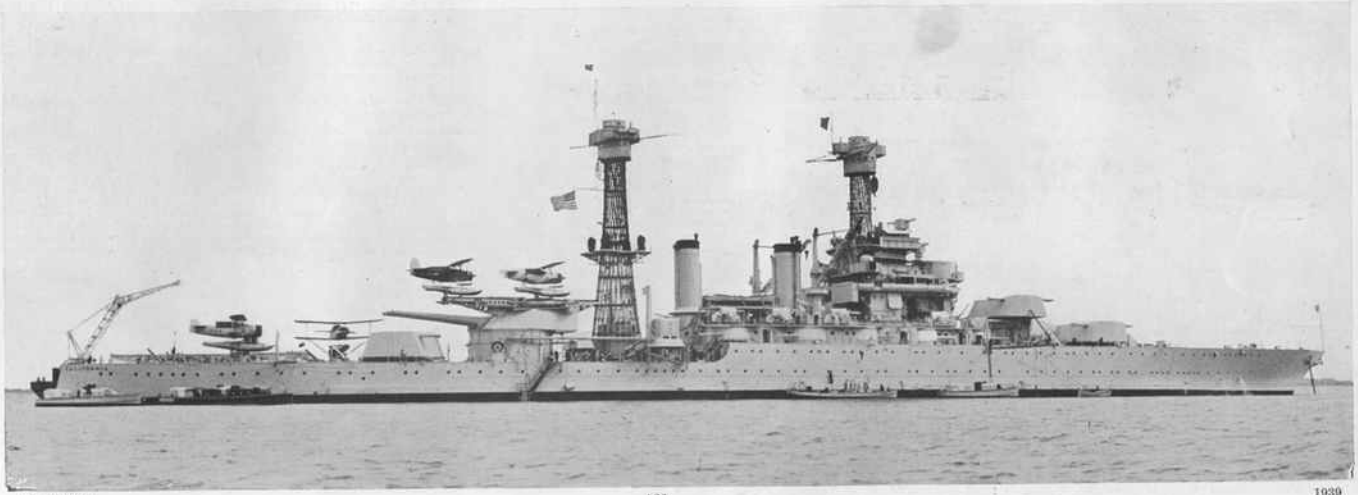
Engineering Notes.—"Electric Drive" is identical with that for the *California* Class but in these ships, electric installation has been extended. Part of steam generated in boilers is diverted for running six auxiliary turbo-generators, supplying current to anchor gear, workshop lathes, refrigerating plant, bakeries, &c. Guns are also electrically manœuvred, ammunition hoists are electric. In fact, every possible item of equipment, even down to potato peelers and ice-cream freezers is run by electric power. Estimated weight of machinery, 2002 tons. Heating surfaces as *Tennessee* on a later page.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*	*Best recent speed*
Colorado	New York S.B. Co.	Westinghouse Co.	May '19	Aug. '23	37,480 = 20·67	Babcock	21
Maryland	Newport News	Gen. Elec. Co.	Apl., '17	July '21	36,167 = 21·07	Babcock	
W. Virginia	Newport News	Gen. Elec. Co.	Apl., '20	Dec. '23	= 21·1	Babcock	

General Notes.—Authorised 1916 as *No. 45* (*Colorado*), *No. 46* (*Maryland*), and *No. 48* (*W. Virginia*). *W. Virginia* and *Maryland* both fitted as Flagships. Except for change in primary armament, and differences in displacement, they are identical in nearly all respects with *California* class. *Washington* of this type scrapped before completion under Naval Treaty of 1922.

W. Virginia. 1935, *Bear Photo Service*

W. Virginia—bow view. 1924 *Photo Abrahams*



California. 1939

(California *class*—2 ships.)

CALIFORNIA (Nov. 20th, 1919) and **TENNESSEE** (April 30th, 1919).

Displacement: *Standard* 32,600 and 32,300 tons, respectively. *Full load*, 35,190 tons. Complement: 1,480.

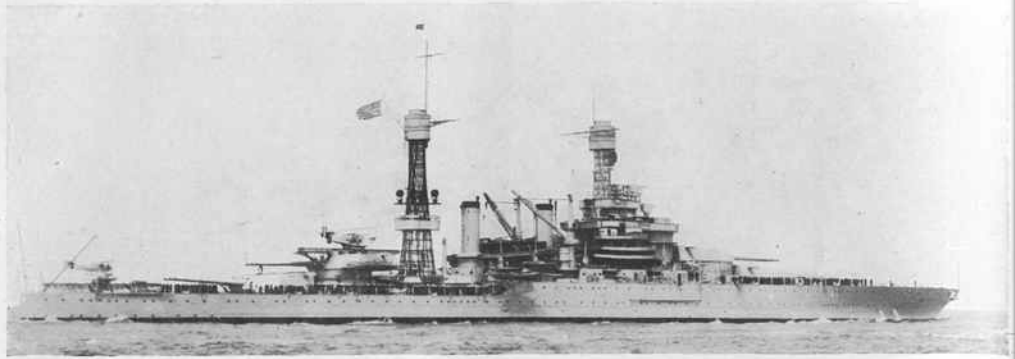
Length { (*w.l.*) 600 feet. (*o.a.*) 624 feet. } Beam 97½ feet. { *Mean* draught, 30½ feet, and 30½ ft. resp. *Max.* ,, 35½–35 feet, resp. }

Guns:
- 12—14 inch, 50 cal., Mk. IV.
- 12—5 inch, 51 cal.
- 8—5 inch, 25 cal. AA.
- 4—6 pdr. (saluting).
- 2 —1 pdr.
- 2 M.G.
- 11 M.G. AA.

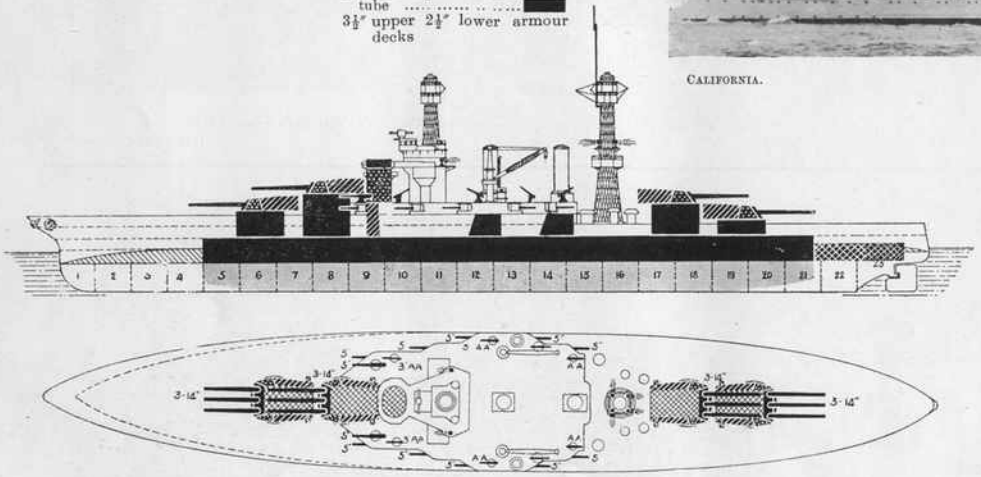
Torpedo tubes (removed).

Aircraft: 3
Catapults:
- 1 on "X" turret.
- 1 on Q.D.

Armour:
- 14″ Belt ..
- 8″ Belt (aft) ..
- 3″ Deck (ends) ..
- 15″—9″ Funnel bases ..
- 18″—9″ Turrets..
- 16″ Conning tower and tube ..
- 3½″ upper 2½″ lower armour decks



California. 1930, *Official Photo*



Machinery: *California*, G. E. turbines and electric drive. *Tennessee*, Westinghouse turbines and electric drive. 4 shafts in both ships. Boilers: 8 Bureau Express type in *California*. 8 Babcock and Wilcox in *Tennessee*. Designed H.P.: 26,800 = 21 kts. Fuel (oil only): *normal* 2,200, *maximum* 3,328 tons.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Refit*	*Trials*	*Boilers*	*Best recent speed*
California	Mare Island Y.	G. E. Co.	Oct.,'16	Aug '21		21·46	Express	
Tennessee	New York Yard	Westinghouse Co.	May,'17	June'20		30,908=21·01	Babcock	

General Notes.—Authorised 1915 as *No.* 43 (*Tennessee*) and 44 (*California*). The above design is practically identical with *New Mexico* class as originally completed. *California* fitted as Flagship.

Special Note.—Provision was to have been made for the modernisation of these 2 ships during 1940–41, but "Fighting Ships" is officially informed that this is not contemplated in the immediate future.

Gunnery Notes.—The 14 inch mounted in separate sleeves; elevation, up to 30°. Maximum range stated to be over 35,000 yards. Main guns controlled from upper storey and 5 inch from lower storey of masthead tops. Fire control arrangements modernised, 1937.

Armour Notes.—Internal subdivision by unpierced bulkheads developed to the utmost degree below waterline

Engineering Notes.—Current generated is quarter-phase; turbine speed is controlled by mechanical governors; and control is located in one small room. Four alternating current motors, one to each propeller shaft, supplied by current at 3,400 volts, from 2 turbo-generators. *California* has squirrel-cage winding for starting and wound-rotor for running; but *Tennessee* has wound-rotors for both purposes. Motors are designed for 24 and 36 poles. Oil for trials: 1,467 tons and 187 tons feed water. Estimated weight of machinery: *California*, 1,805 tons; *Tennessee*, 2,045 tons. Heating surface: 50,984 sq. ft. for Bureau Express boilers in *California*; 41,768 sq. ft. + 4,168 sq. ft. (superheated) for Babcock boilers in *Tennessee*. Each boiler is in a separate w.t. compartment. Boiler rooms are abeam of engine rooms (4 to port, 4 to starboard), and boilers are under central control. Turbines are in tandem on centre line. On *trials*, *Tennessee* brought to rest from full speed within 3 minutes; tactical diameter: 700 yards (full helm, both screws turning forward).

(New Mexico Class—3 ships.)

AHO	New York Shipbuilding Co.	(June 30th, 1917).
SSISSIPPI	Newport News	(January 25th, 1917).
W MEXICO	New York Navy Yard	(April 23rd, 1917).

ment { *Idaho* and *New Mexico* / *Mississippi* } 33,400 tons. / 33,000 tons. } Complement, 1323

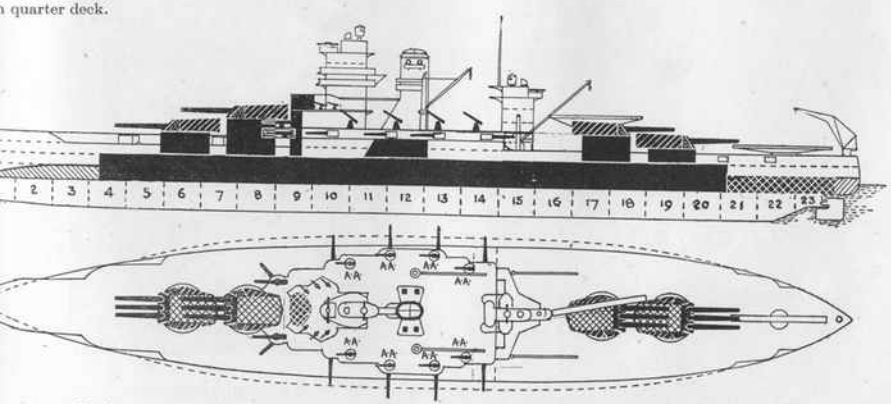
{ *waterline*, 600 feet. / *over all*, 624 feet. } Beam, 106¼ feet { *Mean* draught, Mississippi 29½ft. ; others 29½ feet. / *Max.* „ 34 feet

-14 inch, 50 cal., Mk. IV.
-5 inch, 51 cal.
-5 inch (A.A.), 25 cal.
-3 pdr. (saluting) in *Idaho* ;
4—6 pdr. in others
-M.G. AA.

: 3
s:
" X " turret.
quarter deck.

Armour :
14″ Belt (amidships) .....
8″ Belt (aft) .....
*″ Deck ends .....
15″—9″ Funnel base .....
18″–9″ Turrets
16″ Conning tower & tube

*(Reported as 6″ upper and 4″ lower over vital areas)



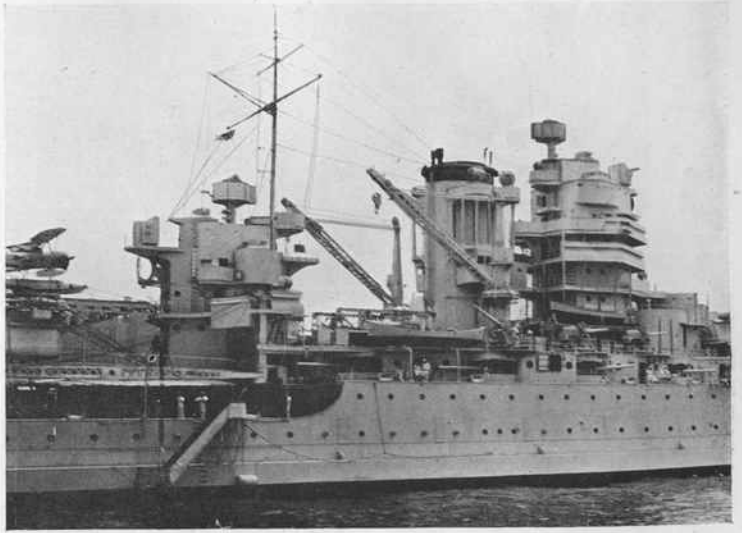
Machinery : Westinghouse geared Turbines. 4 shafts. Boilers : *Idaho* and *Mississippi*, 6 Bureau Express ; *New Mexico*, 4 White-Forster. Designed H.P. : 40,000 = 21·5 kts. Fuel : Oil only, 2,200 tons (pre-alterations figures). Since modernisation speed has been raised to 22–23 kts.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*
Idaho	N.Y.S.B. Co.	Builders	20/1/15	24/3/19
Mississippi	Newport News Co.	„	5/4/15	18/12/17
New Mexico	N.Y. Navy Yard	„	14/10/15	15/8/18

New Mexico

1934 *Photo Official.*

(Note differences in funnels of these 3 ships.)



Mississippi.

1934 *Photo, Mr. L. Sprague de Camp.*

(New Mexico Class—3 ships.)

IDAHO	New York Shipbuilding Co.	(June 30th, 1917).
MISSISSIPPI	Newport News	(January 25th, 1917).
NEW MEXICO	New York Navy Yard	(April 23rd, 1917).

Displacement *Standard* { *Idaho* and *New Mexico* } 33,400 tons. / *Mississippi* 33,000 tons. } Complement, 1323

Length { *waterline*, 600 feet. / *over all*, 624 feet. } Beam, 106¼ feet { *Mean* draught, Mississippi 29½ ft.; others 29½ feet. / *Max.* „ 34 feet

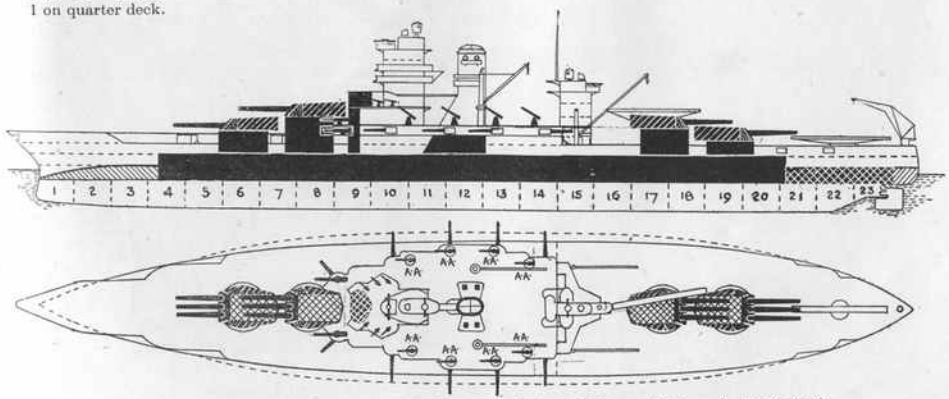
Guns:
- 12—14 inch, 50 cal., Mk. IV.
- 12—5 inch, 51 cal.
- 8—5 inch (A.A.), 25 cal.
- 4—3 pdr. (saluting) in *Idaho*; 4—6 pdr. in others
- 12—M.G. AA.

Aircraft: 3

Catapults:
- 1 on "X" turret.
- 1 on quarter deck.

Armour:
- 14″ Belt (amidships)
- 8″ Belt (aft)
- *″ Deck ends
- 15″—9″ Funnel base
- 18″–9″ Turrets
- 16″ Conning tower & tube

*(Reported as 6″ upper and 4″ lower over vital areas)



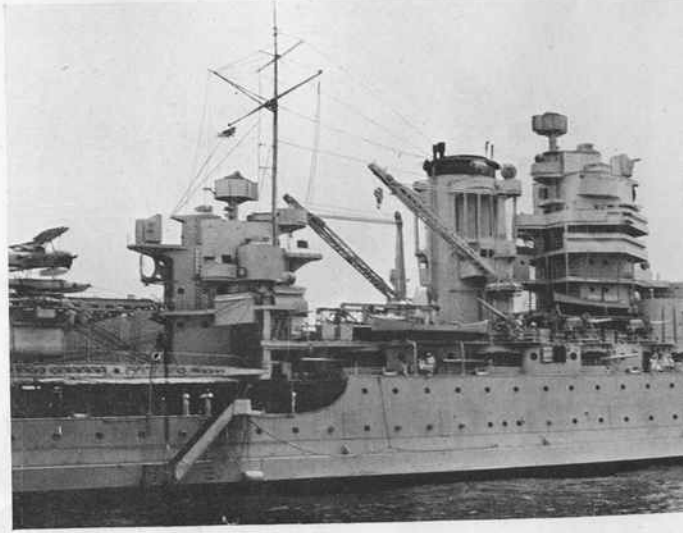
Machinery: Westinghouse geared Turbines. 4 shafts. Boilers: *Idaho* and *Mississippi*, 6 Bureau Express; *New Mexico*, 4 White-Forster. Designed H.P.: 40,000 = 21·5 kts. Fuel: Oil only, 2,200 tons (pre-alterations figures). Since modernisation speed has been raised to 22–23 kts.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*
Idaho	N.Y.S.B. Co.	Builders	20/1/15	24/3/19
Mississippi	Newport News Co.	„	5/4/15	18/12/17
New Mexico	N.Y. Navy Yard	„	14/10/15	15/8/18

New Mexico

1934 *Photo C*

(Note differences in funnels of these 3 ships.)



Mississippi.

1934 *Photo, Mr. L. Sprague de*

IDAHO 1936, *O. W. Waterman*

MISSISSIPPI. *Added* 1935, *courtesy of U.S. Naval Institute, Annapolis, Md.*

ARIZONA. *Added* 1940, *Official.*

(Observe difference in height of C.T. compared with *Pennsylvania.*)

PENNSYLVANIA.
1934 *Photo, Mr. L. Sprague de Camp.*

(Pennsylvania Class—2 Ships).

PENNSYLVANIA (16th March, 1915) & **ARIZONA** (19th June, 1915)
Standard Displacement, 33,100 and 32,600 tons respectively.

Length { *w.l.* 600 feet / *o.a.* 608 feet } Beam, 106 feet, 3 in. { *Mean* draught, 28 feet in *Pennsylvania*; 5 ins. less in *Arizona*. / *Maximum* draught, 33½ feet. }

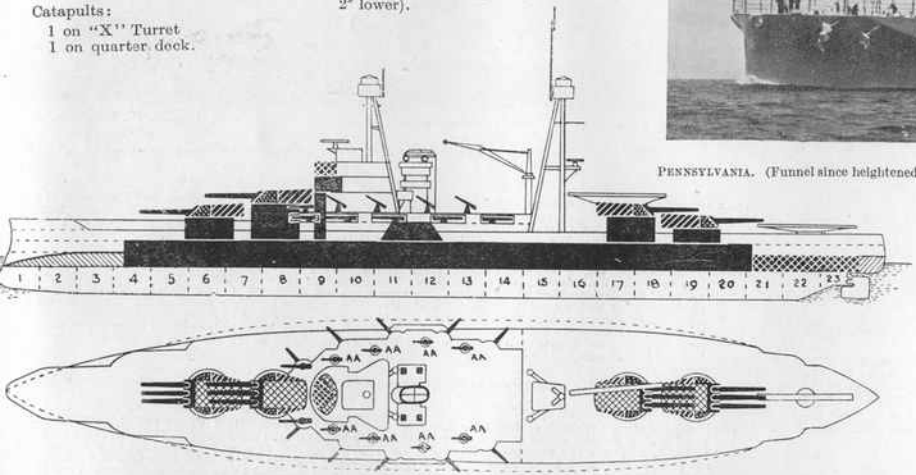
Complement, 1358.

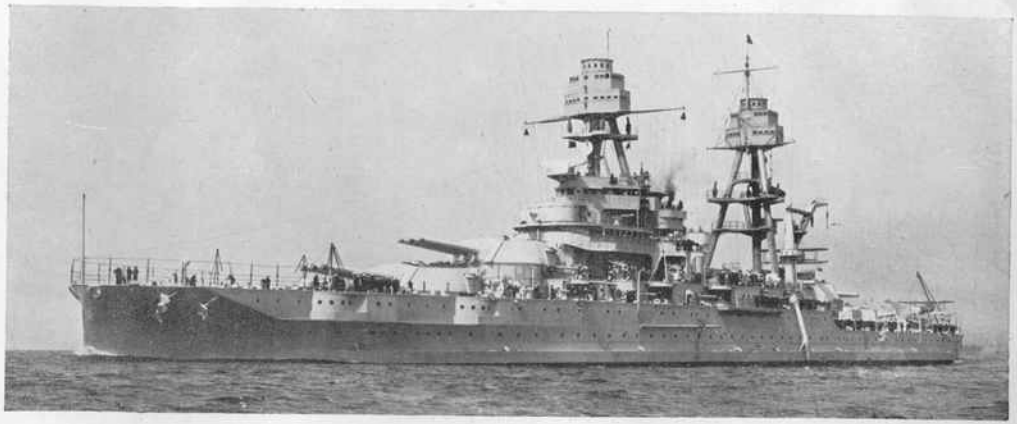
Guns:
12—14 inch, 45 cal.
12—5 in., 51 cal.
8—5 in. (AA.), 25 cal.
4—3 pdr. (saluting).
(Torpedo tubes removed).

Aircraft: 3

Catapults:
1 on "X" Turret
1 on quarter deck.

Armour:
14″ Belt (amidships) .....
8″ Belt (aft) .....
3″ Deck (ends) .....
15″—9″ Funnel base .....
18″—9″ Turrets
16″ Conning tower & tube ...
(Total, 8672 tons.)
6″ deck amidships (4″ upper, 2″ lower).





Pennsylvania. (Funnel since heightened.)

1933 *O. W. Waterman.*

Pennsylvania, showing heightened funnel.

1939, *Bear Photo Service.*

Machinery: *Pennsylvania*, Curtis turbines, L.P. ahead and astern, H.P. astern. *Arizona*, Parsons turbines, L.P. ahead and astern, H.P. astern. In both ships: Westinghouse geared turbines, H.P. ahead and cruising. 4 shafts. Boilers: *Arizona*, 6 Bureau Express. *Pennsylvania*, 1 Bureau Express, 5 White-Forster. Designed H.P. 32,000 = 21 kts. (unaffected by modernisation). Fuel: Oil only, *normal* 2,322 tons (694,830 gallons).

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials Full Power: 12 hrs.*	*Tons Fuel per day* 10—	15—	19—kts.
Pennsylvania	Newport News	Newport News	Oct.'13	June,'16	29,366=21·05	65/—	90/—	—/—
Arizona	New York Yard	New York Yard	Mar.'14	Oct.'16	33,376=21	76/—	167/174	—/309

General Notes.—*Pennsylvania* authorised 1912, as *No. 38*, *Arizona* 1913, as *No. 39*. Both ships are enlarged and improved *Nevadas*. They have proved excellent sea boats, very steady gun platforms, and have proved to be very economical ships. Both ships have undergone extensive reconstruction which has cost $14,800,000. Battery raised a deck and AA. armament increased; tripods fitted, funnel moved further aft; bulges and increased internal protection; additional bridges, and catapults fitted. In appearance differ from *Nevada* and *Oklahoma* in having higher conning tower and bridge which reaches funnel level.

Armour Notes.—Generally as for *Nevada* class. Increase of armour weight due to increased internal protection against submarine explosions and greater length of belt. Armour for each triple barbette, 226½ tons. *Arizona* has cement backing to belt, instead of teak, and armoured fire-control tops.

Gunnery and Fire Control Notes.—14 inch guns mounted in single sleeve, and can be fired as one piece. *Max.* range at 15° elevation reported to be 21,000 yards. Triple positions weigh about 650 tons each (guns, mountings and armour). Turrets are capable of putting 2—3 salvoes a minute through a target at short range practice. Breech blocks worked by hand power. Interior of the shields to 14 inch guns very roomy and well arranged.

(Nevada Class—2 Ships).

OKLAHOMA (March 23rd, 1914) & **NEVADA** (July 11th, 1914).

Standard Displacement 29,000 tons. Complement, both 1301.

Length { *waterline*, 575 feet. / *over all*, 583 feet. } Beam, 107 ft. 11 in. *Mean* draught 27½ feet.

Maximum draught 32½ feet.

Guns:
- 10—14 inch, 45 cal.
- 12—5 inch, 51 cal.
- 8—5 inch, 25 cal. AA.
- 4—3 pdr (saluting) in *Oklahoma*.
- 4—6 pdr. in *Nevada*.
- 8—M.G.

(Torpedo tubes removed.)

Aircraft: 3.

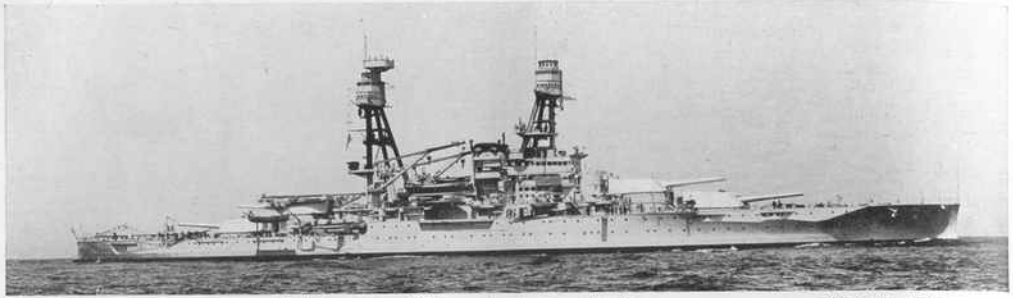
Catapults:
- 1 on "X" Turret.
- 1 on quarter deck.

Armour:
- 13½" Belt (amidships)
- 8" Belt (aft)
- 13½" Bulkheads
- 13½" Funnel base
- 3" Deck (ends)
- 18"—9" Triple turrets
- 16"—9" Double turrets
- 16" Conning tower and tube

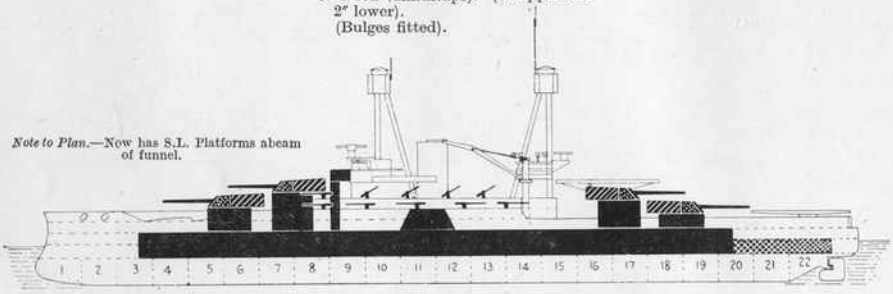
(Total weight, 7664 tons.)

5" Deck (amidships). (3" upper and 2" lower).

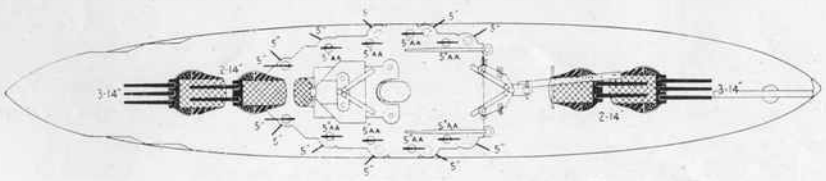
(Bulges fitted).



NEVADA. (To distinguish from *Oklahoma*, observe mainmasthead.) 1935, *O. W. Waterman*.



Note to Plan.—Now has S.L. Platforms abeam of funnel.



Special Note:

The alterations effected to *Oklahoma* and *Nevada* include substitution of tripod for cage masts, and installation of a deck house, on which, 8—5 inch, 25 cal. guns are mounted. The 5 inch 51 cal. torpedo defence battery is raised from the main deck to the forecastle deck. The funnel is moved aft slightly. Cost of alterations $7,000,000 per ship. The addition of bulges has made them unwieldy at low speeds.

Armour Notes.—Main belt is 400 feet long by 17½ feet wide; 8½ feet of it being below *L.w.l.* Lower edge is 8°. The ends are unarmoured; the battery also. Plates are applied in vertical strakes. Two protective decks, upper 3" flat, lower 1½" flat, 2" on slopes. Barbette bases are 13½" thick, but turrets are only 4½" where below protective deck and behind belt. Barbette shields; 18" port plate for triple positions, 16" port plate for twin positions, 10" sides, 9" back, 5" roof. Sighting slits in conning tower closed by splinter-proof shutters. There is a signalling station protected by 16" armour behind conning tower. These ships marked a new era in naval construction, being the first to embody the "everything or nothing" idea in the matter of protection. No bulkhead between 14 inch guns.

Gunnery Notes.—Guns in the triple turrets in one sleeve, can be fired as one piece. Elevation has been increased to 30.°

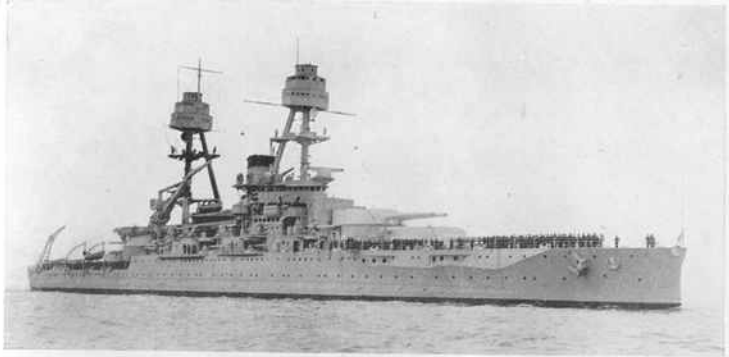
Engineering Notes.—Cylinders of *Oklahoma* are H.P. 36·5 inch, I.P. 59·5 inch, L.P. (2) 78 inch. Stroke, 48 inch. Total heating surface, 45,080 sq. feet. Weight of machinery, *Nevada*, 1,860 tons; *Oklahoma*, 1,933 tons. Electric installation in both is 4 generating sets of 300 k.w., 125 volts, 2,400 amp. each. Boilers are in 6 compartments and occupy less than 80 feet of length. Boilers are large tube "Express" type. No superheaters in either ship. Electric-driven f.d. blowers proved too unreliable, and were replaced by steam turbine-driven blowers. All oil fuel carried in double bottom; no wing tanks.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials: (Full Power—12 hrs.)*	*Tons fuel per day: 10 kts.*	*15 kts.*	*19 kts.*
Oklahoma	N.York S.B.Co	N.Y. S.B. Co.	Oct. '12	May, '16	21,703=19·68	77	143	278
Nevada	Fore River Co.	Fore River	Nov. '12	Mar. '16	23,312=20·28	50·5† / 77§	132·5† / 149§	— / 210§

†Cruising turbines. §Main turbines.

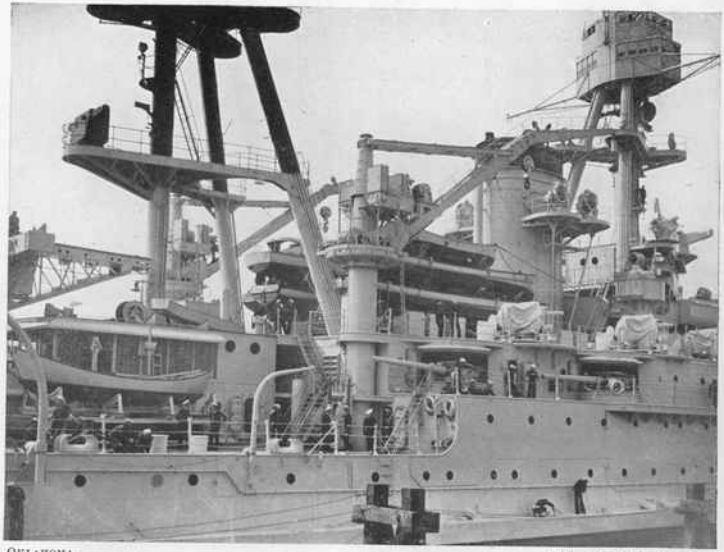
Machinery: *Oklahoma*, Triple expansion, 4 cylinder; *Nevada*, Parsons turbines with reduction gear. Both: 2 shafts. Boilers: 6 Bureau Express. Designed H.P.: 25,000 = 20·5 kts. Fuel: Oil, 598,400 gallons (2,000 tons), *maximum capacity*. Radius of action: 4,000 miles at full speed, 10,000 miles at 10 kts.

General Notes.—Authorised 1911 as *No. 36* (*Nevada*), *37* (*Oklahoma*).



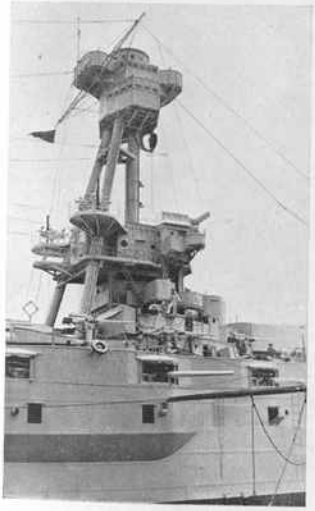
OKLAHOMA.

1936, *Wright & Logan.*



OKLAHOMA.

1936, *Wright & Logan.*



NEW YORK.

1934 *Photo, Mr. L. Sprague de Camp.*

NEW YORK.

1936 *Photo, O. W. Waterman.*

(Texas Class—2 Ships.)

NEW YORK (Oct. 30th, 1912) and **TEXAS** (May 18th, 1912).

Displacement, { *Standard*, 27,000 tons. / *Full load*, 32,000 tons. } Complement, 1314.

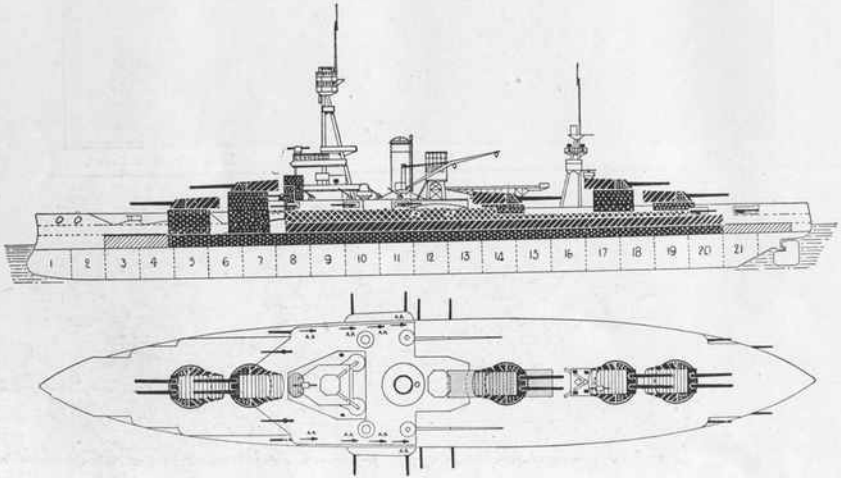
Length (*waterline*), { 566 feet. / Length (*over all*), { 573 feet. } Beam, 106 feet.

Mean draught, 26ft.
Max. „ 31½ ft.

Guns:
10—14 inch, 45 cal.
16—5 inch, 51 cal.
8—3 inch AA., Mk. III.
4—3 pdr. (saluting).
2—1 pdr.
8 M.G.
2 landing.
(Torpedo tubes removed).

Aircraft: 3.
Catapults:
1 on turret amidships.

Armour (Midvale):
12″ Belt (amidships).....
6″ Belt (ends) .....
3″ Deck (since increased)
9″—6″ Upper Belt
14″—8″ Turrets...
12″ Barbettes.....
6″ Battery .....
12″ C.T .....
(Bulges fitted 1926-27).



Machinery: Vertical triple expansion, 4 cylinder. 2 shafts. Boilers: 6 Bureau Express.
Designed H.P. 28,2100 kts. Oil: 5200 tons. Present speed 19 kts.

TEXAS (To distinguish from *New York*, note forward control top.) 1938, *Wright & Logan.*

The alterations effected in the Battleships of the *Arkansas, Texas* classes, include oil burning installation, anti-aircraft defence, increased underwater protection and improved aircraft handling arrangements. All carry catapults. Displacement increased by nearly 3,000 tons.

Gunnery Notes.—New fire control system installed 1926 with tripod foremast. *New York* now has four M.G. in each masthead top. Elevation of 14 inch guns from 15° to 30° has been authorised, which should increase range to about 25,000 yards.

Engineering Notes.—Builders of turbine engines in the U.S. refused to adopt the standards laid down by the Navy Department. Accordingly, in these ships, reciprocating engines were reverted to, to show the turbine builders that the Navy Department was determined to have turbines built to official specification, or else the older type of engines would be taken up again. Cylinders: H.P. 39″, I.P. 63″, L.P. (2) 83″. Stroke: 48″. Weight of machinery: *Texas* 1971 tons: *N.Y.* 2048 tons, both exclusive of electric lighting equipment. Electrical installation: 4 sets each of 300 k.w., 125 volts, 2400 amps., by General Electric Co. Both ships converted to oil burning, and will have main engines and boilers renewed.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials: Full Power.*	*Boilers*	*Best recent speed*
Texas	Newport News	Newport News	Apl.'11	Mar.'14	19·77	Bureau	19
New York	New York Yard	New York Yard	Sept.'11	Apl.'14	20·23	Express	

General Notes.—Authorised 1910 as *No. 34* (*N.Y.*) and *35* (*Texas*). Both ships fitted as flagships. They are slow since refit, hard to handle and bad sea boats in rough weather—wet and rolling so that waves ride the bulges into the amidships casemate. Neither of these battleships is reckoned effective for war purposes, and they will be replaced in due course by new battleships *Washington* and *Indiana*.

(Arkansas Class)

ARKANSAS (N.Y. Shipbuilding Co. Jan. 14th, 1911).

Displacement, { *Standard*, 26,100 tons. / *Full load*, 31,000 tons. } Complement, 1330.

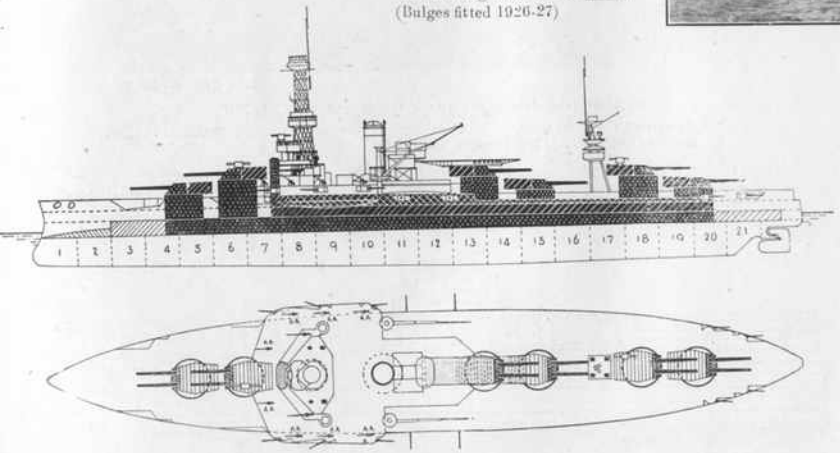
Length { (*w.l.*), 555½ feet. / (*o.a.*), 562 feet. } Beam, 106 feet.

Mean draught, 26 feet.
Max. „ 32 „

ans:
12—12 inch, 50 cal.
16—5 inch, 51 cal.
8—3 inch AA., Mk III.
4—3 pdr. (saluting).
Torpedo tubes removed).

Aircraft: 3
Catapults:
1 on 3rd turret.

Armour (Midvale):
11"—9" Belt amidships
5" Belt (ends)
12"—9" Turrets
11" Turret bases
6½" Battery
12" Conning tower
(Bulges fitted 1926-27)

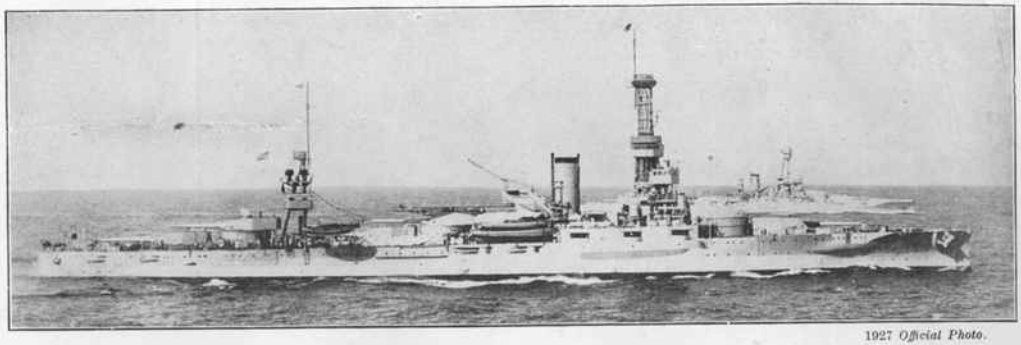


Machinery: Parsons turbines. 4 shafts. Boilers: 4 White-Forster. Designed H.P. 28,000 = 20·5 kts. Oil: 5,100 tons. Present speed 19·2 kts.

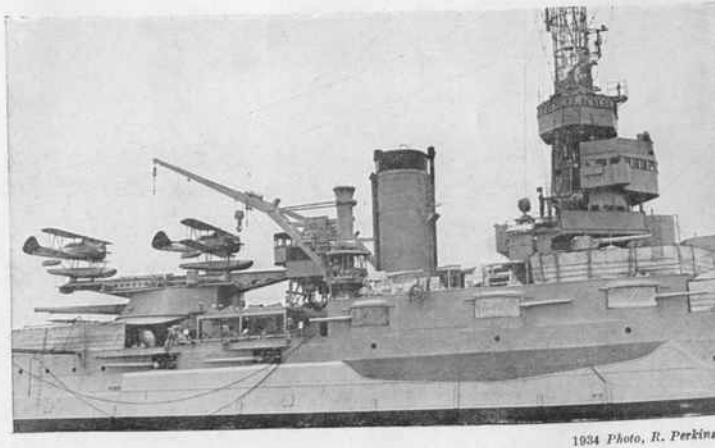
General Note.—Laid down Jan. 1910 and completed Sept. 1912. Underwent extensive alterations and refit 1925-27 when displacement was increased by 3,000 tons. No longer considered effective for war purposes, and will be replaced by new battleship *North Carolina*.

Gunnery Note.—Elevation of 12 inch guns from 15° to 30° has been authorised. Present range said to be only about 15,000 yards.

A sister ship **WYOMING** has been de-militarised according to the terms of the Naval Treaty. Nos. 3, 4, 5 turrets removed. She is employed as a Training Ship (vide a later page).



1927 *Official Photo.*



1934 *Photo, R. Perkins*

(Essex Class—11 Ships.)

ESSEX, BON HOMME RICHARD, INTREPID, KEARSARGE, and 7 more.

Displacement: *circa* 26,000 tons. Complement: Over 2,000.
Dimensions: Not reported. Aircraft: 100.

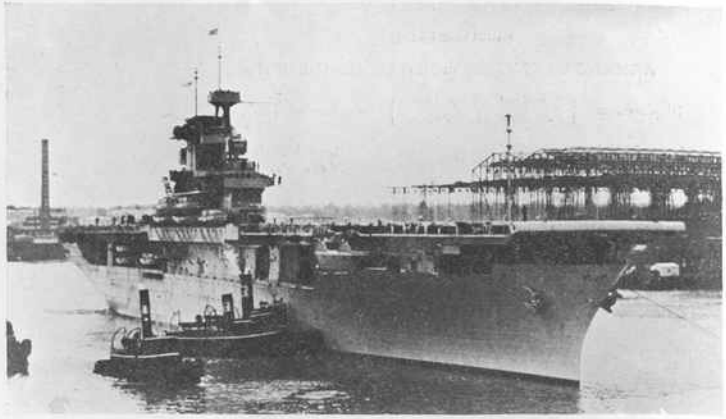
Guns:
8—5 inch 38 cal. (dual purpose).
Sundry smaller guns.

Inclusive cost (with armament, etc.) expected to be about $60,000,000 per ship.

Name	*Builder*	*Laid down*
Essex *B. H. Richard* *Intrepid* *Kearsarge* 3 ships (CV 14–16)	Newport News Co.	*To be* 1941
4 ships (CV 17–20)	Bethlehem Co., Quincy	

1940, *courtesy "Our Navy".*

(*Another view of this ship in Addenda.*) 1940, *Theo. N. Silberstein.*



1940, *Theo. N. Silberstein.*

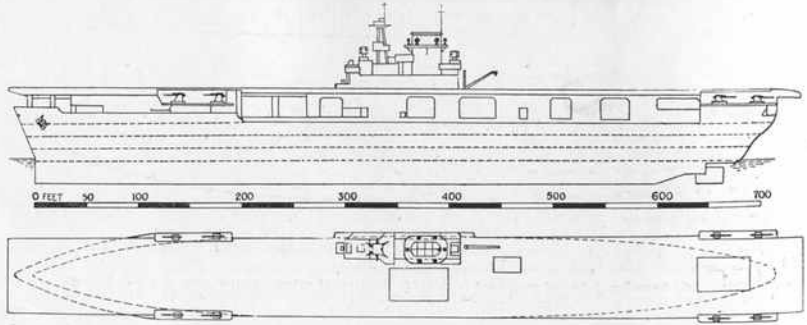
WASP (Bethlehem Steel Co., Quincy, April 4, 1939).

Displacement: 14,700 tons. Complement (including flying personnel): 1,800.
Dimensions: 688 (*w.l.*), 739 (*o.a.*) × 20 feet (*mean* draught).

Guns:
8—5 inch 38 cal. (dual purpose).
40 smaller.

Aircraft: 72
(80 can be carried)

Armour:
As in *Ranger*, on a later page.



Machinery: Parsons impulse reaction geared turbines. 2 shafts. S.H.P.: 55,000 = 30 kts.
Boilers: Yarrow (by builders).

Notes.—Laid down April 1, 1936, under 1935–36 Programme, and completed April 25, 1940. Cost $20,737,000 exclusive of armament. Hull form resembles that of *Ranger*, but superstructure follows the *Enterprise* design, though funnel is of lighter type.

Recognition Letters of U.S. Aircraft Carriers
(painted prominently on after end of flight deck):
RANGER, RNGR. LEXINGTON, LEX. SARATOGA, SARA.
ENTERPRISE, EN; YORKTOWN, YT.

ENTERPRISE (Oct. 3, 1936). **HORNET** (building).
YORKTOWN (April 4, 1936).

Displacement: 19,900 tons. Complement, 2,072 (including flying personnel).

Length: 761 feet (*w.l.*), 809½ feet (*o.a.*). Beam, 83½ feet. Draught, 21⅓ feet (*mean*).

Guns:
8—5 inch 38 cal. (dual purpose).
16—1·1 inch M.G. A.A.
16 smaller M.G.

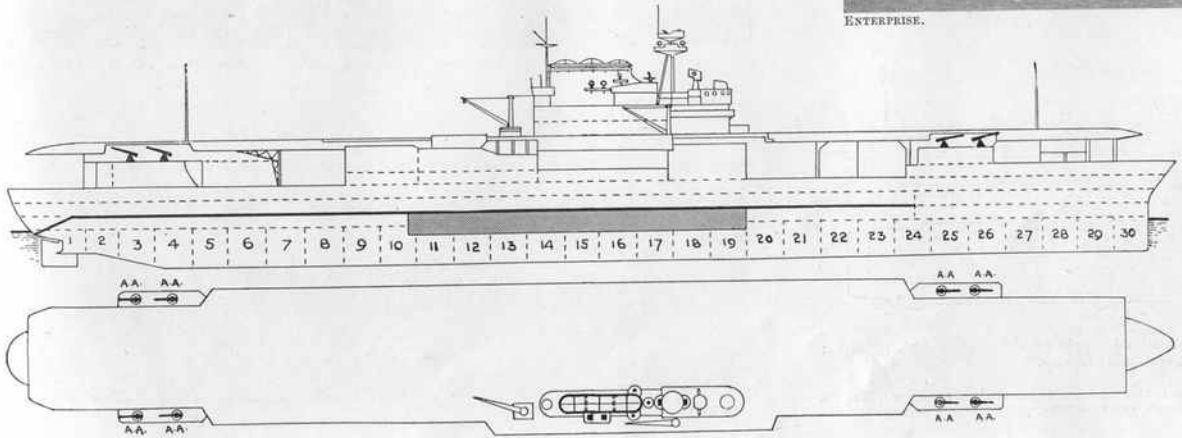
Aircraft:
81 (space for over 100).

Armour: A patch of side armour at water line over machinery and boiler spaces (unofficially reported to be 4") and a heavy protective deck.

YORKTOWN (Note "Y" on funnel). 1939, *Theo N. Silberstein*

ENTERPRISE. 1938, *Official, courtesy "Our Navy."*

Note to Plan.—This shows starboard beam to illustrate details of funnel, etc.



Machinery: Geared turbines. S.H.P.: 120,000 = 34 kts. (exceeded on trials). Boilers: 9 Babcock & Wilcox Express type.

Name	*Builder*	*Laid down*	*Completed*
Enterprise	Newport News Co	16 July, 1934	18 July, 1938
Yorktown		21 May, 1934	1938
Hornet		25 Sept. 1939	1942

General Notes.—Owing to serious mechanical defects, involving replacement of the reduction gearing and over 1,200 boiler tubes, completion of *Yorktown* was postponed until late in 1938. *Enterprise* was similarly delayed. Said to have cost over $21,000,000 apiece, without armament, though contract figure was $19,000,000. *Hornet* ordered end March, 1939. To cost $31,800,000.

Aircraft Notes.—Aircraft can be catapulted from hangar deck as well as from flight deck, thus increasing the number that can be put into the air at short notice.

RANGER (Newport News S.B. Co., Feb. 25, 1933). Displacement: 14,500 tons. Complement (including flying personnel) 1,788, of whom 162 are commissioned officers. Dimensions: 728 (*w.l.*), 769 (*o.a.*) × 80 1/2 × 19 3/4 ft. (*mean*).

RANGER.

Added 1935, *courtesy U.S. Naval Institute.*

Guns:

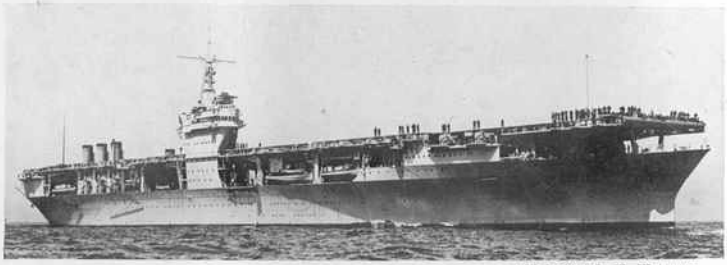
8—5 inch 25 cal. AA.
40 smaller

Aircraft:

72, of which 4 squadrons are bomber fighters, the remainder amphibians. (81 usually carried.)

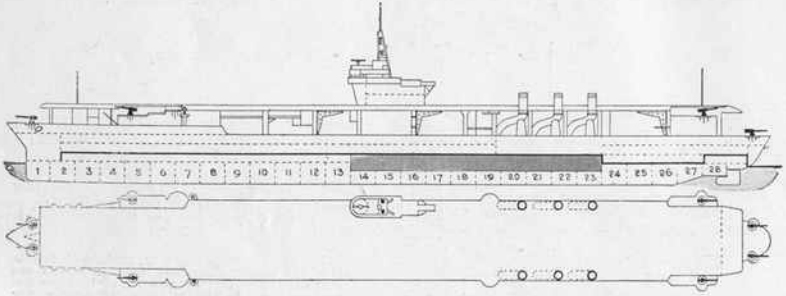
Armour:

1" Flight Deck
Double Hull and internal subdivision, but no side armour beyond small patch shown.



Added 1937, *O. W. Waterman.*

Note to Plan.—Guns shown on forecastle and q.d. now mounted on superstructure over sections 6 and 26—27, as shown in 1936—37 photos.



Machinery: Geared Turbines (high pressure Curtis; low pressure Parsons). 2 shafts. S.H.P.: 53,500 = 29 1/4 kts. Boilers: 6 Babcock & Wilcox sectional Express.

General Notes.—Laid down Sept. 26, 1931. Completed June 4, 1934. Trials: 58,700 = 30·35 kts. (*max.*). The six funnels can be lowered to horizontal position as in aircraft tender *Langley*.

With funnels lowered.

1936, *O. W. Waterman.*

LEXINGTON (3rd Oct., 1925.)

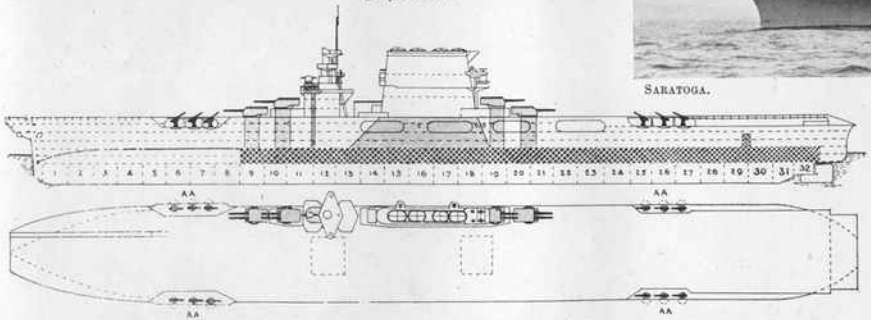
SARATOGA (7th April, 1925.)

Displacement, 33,000 tons. *Full load* about 40,000 tons.
Complement (including flying personnel): 2,122 of whom 169 are Commissioned Officers.
Length (*w.l.*) 830 ; (*pp.*), 850 ft.; (*o.a.*) 888 ft.
Beam, 105½ ft. (*extreme*).
Draught, 24 feet 2 inches (*mean*). 32 feet (*max.*)

Guns:
8—8 inch, 55 cal.
12—5 inch AA., 25 cal.
4—6 pdr. saluting.
8—50 cal. M.G.

Aircraft:
81 *normal.*
90 *max.*
Catapult, **1.**

Armour:
Unofficially reported to have 6" Belt, 600 feet in length, and 3" deck. Triple hull and bulge protection.



Machinery: G.E. turbines, electric drive. 4 shafts. Designed S.H.P.: 180,000 = 33·25 kts.
Boilers: *Lexington*, 16 Yarrow; *Saratoga*, 16 White-Forster. Oil fuel: 7,000 tons.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Boilers*
Lexington	Fore River S.B. Co.	Gen. Elec. Co.	8/1/21	Dec.'27	153,600 = 33·04	Yarrow
Saratoga	New York S.B. Co.		25/9/20	Nov.'27	138,375 = 33·42	White-Forster

Special Note.—It is intended to reconstruct these 2 ships at a cost of $15,000,000 for the two. Each will be modernised as regards AA. and gas defence, damage control and aircraft operation. Flight deck to be widened at the bow by 60 ft. A bulge to be built along port side, nearly the full length of the ship and adding 2½ feet to the beam, to balance the weight of the island superstructure. This will make it possible to utilise the full quantity of oil fuel carried, instead of retaining some as ballast. This will increase deadweight by 450/500 tons. but decrease displacement by about 2,000 tons, as ship will stand higher out of water. Work to begin on *Saratoga* Jan. 1, 1941 and on *Lexington* July 1, 1941.

General Notes.—These two ships were originally authorised in 1916 for construction as Battle Cruisers of 35,300 tons, with *seven* funnels and boilers disposed on two deck levels. After the War, plans were to a large extent re-cast, v. F.S. 1919–1921 Editions. Total cost, with aircraft, was over $45,000,000 each.

As Aircraft Carriers it is believed the waterline protection is retained and that deck protection has been heavily reinforced. The general lines of the hull remain unaltered, and the special system of underwater protection is also adhered to. Flight deck is 880 feet long, from 85 to 90 feet in width, and 60 feet above waterline. 8-inch guns have 30° elevation and range to 28,000 yards. Depth of hull from keel to flight deck is 74½ feet, and funnel rises 79 feet above flight deck.

Handling of Aircraft.—The Landing Net is placed just before the recessed stern portion of the Flight Deck; it is about 100 feet long. Before it is a large T-shaped lift for moving aircraft from Flight to Hangar Deck. There is another and similar T-shaped lift abeam of the mast and C.T. At the bow is a catapult, 155 feet in length, capable of launching the heaviest aircraft into the air at flying speed with a travel of 60 feet. Before the C.T. and abaft the Navigating Officers' Deck House, and right over to starboard beam, are powerful derricks for lifting seaplanes and flying boats from the water. As a result of experiments with *Langley*, certain modifications were made enabling planes to land safely on deck in any weather.

SARATOGA. 1936, *O. W. Waterman*

Engineering Notes.—Each boiler 11,250 H.P. Steam pressure, 295 lbs. to sq. inch. Fuel consumption estimated at 2,000 tons daily under full power. Machinery is the most powerful ever installed in a warship; it is all controlled, so far as main engines are concerned, from one central position. There are eight propelling motors of 22,500 H.P. (two to each of the four shafts), speed 317 R.P.M. On trials, it is stated that 97% of designed speed was obtained with 85% of designed power. *Lexington* did the voyage from San Diego to Honolulu (2,228 miles) at an average speed of 30·7 kts. A speed of 34·5 kts. was maintained for one hour by the latter ship with S.H.P 210,000. Average displacement of both ships on trials was about 39,000 tons.

LEXINGTON, showing altered shape of bow. 1939, *Theo. N. Silberstein.*

LEXINGTON. (Platform added around funnel top) 1936, *O. W. Waterman*

New Construction

Note.—10 more heavy cruisers (no specific details published) were ordered in Sept. 1940 from New York S. B. Corpn. (4 ships); Bethlehem Co., Quincy (4); and Newport News Co. (2).

(Baltimore Class—4 Ships.)

BALTIMORE, BOSTON, PITTSBURGH, ST. PAUL.

Displacement: 13,000 tons.
Dimensions not reported.

Guns:
9—8 inch.
8—5 inch AA.
Machinery: Geared turbines. Speed: 33 kts.

Aircraft: 4
Catapults: 2

Armour:
Will be more extensive than in *Wichita*.

Notes.—All ordered from Bethlehem Steel Co., Quincy, and will be laid down in 1941. Are to be enlarged and improved editions of *Wichita*. Cost, $23,618,000 each.

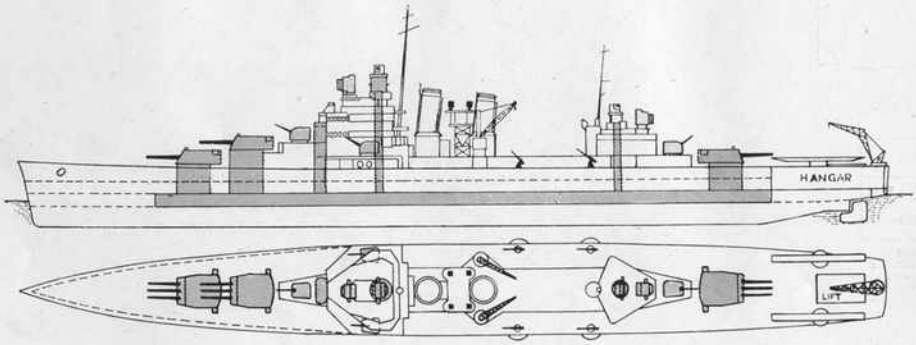
WICHITA (Nov. 16, 1937).

Displacement: 9,324 tons (*standard*). Complement: 600.
Length, 600 feet (*w.l.*), 614 feet (*o.a.*). Beam, 61¾ feet. Draught, 19⅞ feet (*mean*).

Guns:
9—8 inch, 55 cal.
8—5 inch AA.
2—3 pdr.
10 smaller

Aircraft: 4
Catapults: 2

Armour:
1½″ Side (fore and aft)
5″ Side (amidships)
3″ + 2″ Decks
5″—6″ Turret faces
3″ Turret sides and backs
8″ C.T.

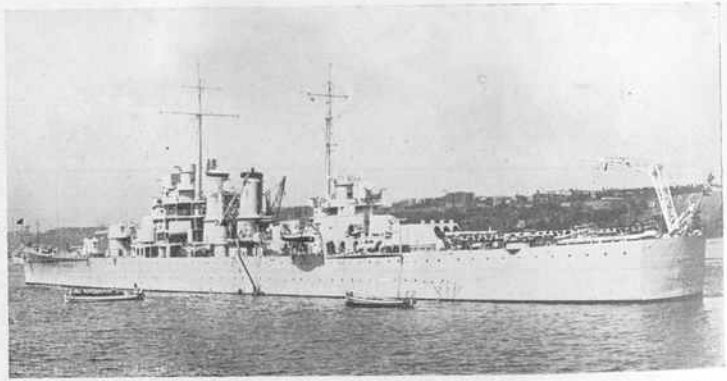


Machinery: Westinghouse geared turbines. 4 shafts. S.H.P.: 100,000 = 32·5 kts. Boilers: 8 Babcock & Wilcox. Fuel: 1,650 tons.

Notes.—Though originally to have been a unit of *Minneapolis* class, this ship was completed as a modified *Brooklyn* with 8 inch guns.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*
Wichita	Philadelphia Navy Yard	Westinghouse Co.	Oct. 28, 1935	March, 1939

Wichita 1939, "*Ships and Aircraft.*"



Wichita. 1939.

(Minneapolis Class—7 Ships)

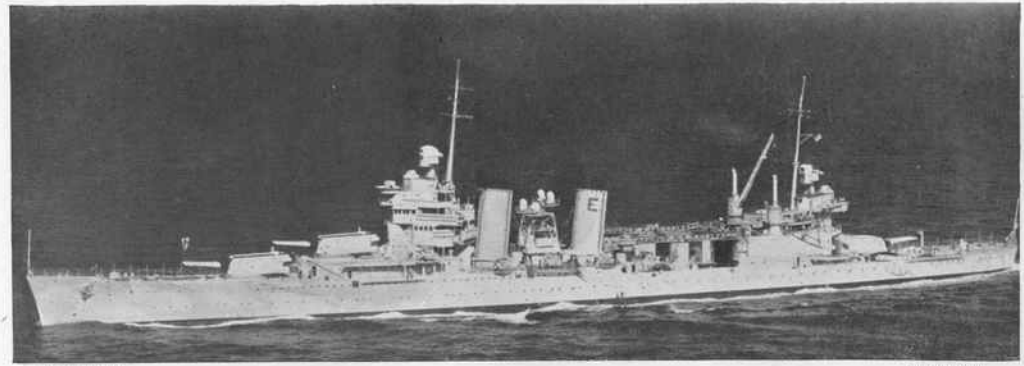
ASTORIA (Dec. 16, 1933).
MINNEAPOLIS (Sept. 6, 1933).
NEW ORLEANS (April 12, 1933).
TUSCALOOSA (Nov. 15, 1933).
SAN FRANCISCO (March 9, 1933).
QUINCY (June 19, 1935).
VINCENNES (May 21, 1936).

Displacement: 9,950 tons, except *Tuscaloosa*, 9,975, *Vincennes*, 9,400 and *Quincy*, 9,375 tons.

Complement, 594.

Dimensions: 574 (*w.l.*), 588 (*o.a.*) × 61¾ × 19 11/16 feet (*mean*), 23½ (*max.*).

Quincy and *Vincennes*: 569 (*w.l.*), 588 (*o.a.*) × 61⅞ × 18⅝ feet (*mean*).



Minneapolis

1940, *Official*.

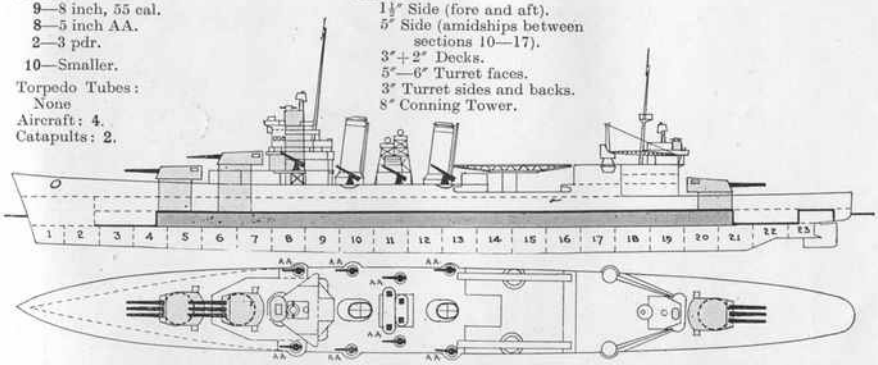
Guns:
9—8 inch, 55 cal.
8—5 inch AA.
2—3 pdr.
10—Smaller.

Torpedo Tubes:
None

Aircraft: 4.

Catapults: 2.

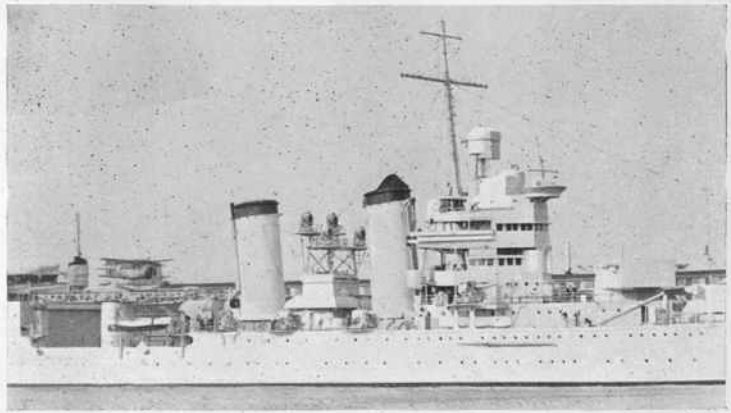
Armour
1½″ Side (fore and aft).
5″ Side (amidships between sections 10—17).
3″+2″ Decks.
5″—6″ Turret faces.
3″ Turret sides and backs.
8″ Conning Tower.



Machinery: Parsons geared turbines in *Tuscaloosa*, *Quincy*, *Vincennes*; Westinghouse in others. 4 shafts. S.H.P.: 107,000 = 32·7 kts. (32 kts. in 2 later ships). 8 Babcock & Wilcox boilers. Fuel: 1,650 tons.

General Notes.—In this class, the forecastle deck has been extended to the second funnel with a slight lowering of the freeboard; the bow form altered and overhang dispensed with; bridges raised and pole rig substituted for tripods; AA. guns re-distributed; hangars moved aft and extended to shelter deck, all the boats excepting the lifeboats being stowed on top to avoid interference with the AA. guns. These ships possess better protection than the *Portland* class as armour has been distributed to better advantage on the new design. The utmost economy has been effected in construction, electric welding having been employed extensively and weight saved in every direction even to the extent of using aluminium paint internally. 8 inch guns and mountings are of a lighter model and the weight so saved has been put into armour. There is a certain amount of plating on the bridgework, not shown in the plan. Cost, $15,000,000 apiece.

Gunnery Notes.—8 inch guns elevate to 45°



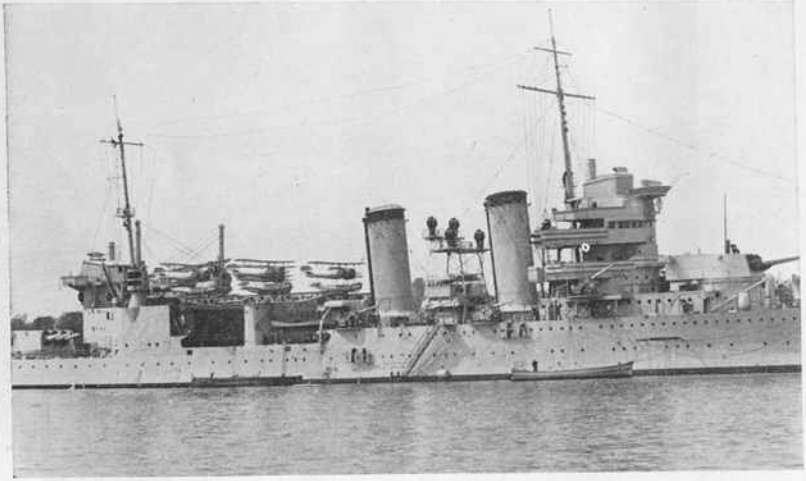
Tuscaloosa.

1940, *Theo. N. Silberstein*.

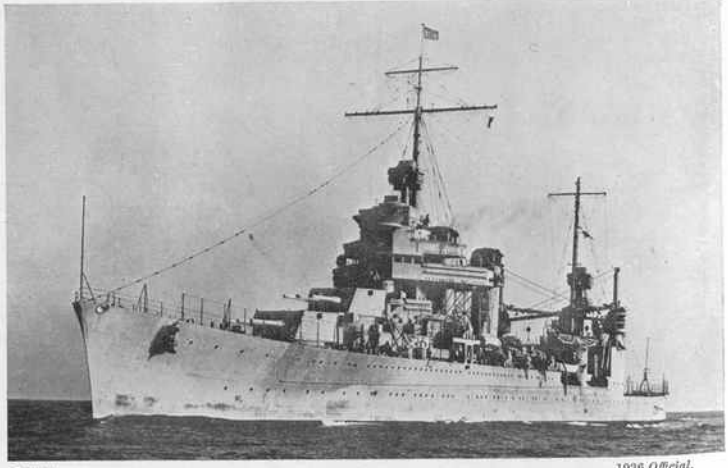
Name	*Builders*	*Machinery*	*Laid down*	*Completed*
Astoria	Puget Sound Navy Yard	Westinghouse Co.	1/9/30	1/6/34
Minneapolis	Philadelphia Navy Yard	Do.	27/6/31	20/6/34
New Orleans	New York Navy Yard	Do.	14/3/31	18/4/34
Tuscaloosa	New York S.B. Corp.	N.Y.S.B. Corp.	3/9/31	17/8/34
San Francisco	Mare Isld. Navy Yard	Westinghouse Co.	9/9/31	23/4/34
Quincy	Bethlehem Co. Quincy	Bethlehem Corp.	15/11/33	9/6/36
Vincennes	Bethlehem Co. Quincy	Do.	2/1/34	24/2/37

TUSCALOOSA. (Now has cinder screen on fore funnel). 1935, *O. W. Waterman.*

(*For particulars of these ships, see preceding page.*)



NEW ORLEANS. 1934 *Photo, Registrator Ossi Janson.*



QUINCY 1936 *Official.*
(Funnels in this ship and *Vincennes* are slightly thinner than in preceding ships.)

(Portland Class—2 Ships).

PORTLAND (May 21, 1932). (Bethlehem Steel Co., Quincy.)

INDIANAPOLIS (Nov. 7, 1931). (New York S.B. Co.)

Standard Displacement: 9,800 and 9,950 tons respectively. Complement: 581 (597 as flagship).

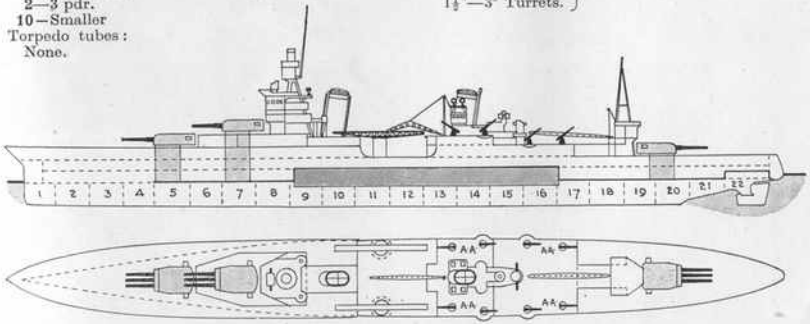
Dimensions: *Indianapolis*, 584 (*w.l.*), 610¼ (*o.a.*) × 66 × 17½ feet (*mean*). *Portland*, 582 (*w.l.*), 610¼ (*o.a.*) × 66 × 17 7/16 feet (*mean*).

Portland. 1940, *Theo. N. Silberstein.*

Guns:
9—8 inch, 55 cal.
8—5 inch AA.
2—3 pdr.
10—Smaller
Torpedo tubes:
None.

Aircraft:
4 and 5, respectively.
Catapults: 2.

Armour: (Not Official.)
3″—4″ Vert. Side
2″+2″ Decks.
1½″—3″ Turrets.



Machinery: Parsons geared turbines. 4 shafts. S.H.P. 107,000 = 32·7 kts. 8 White-Forster boilers in *Indianapolis*, 8 Yarrow in *Portland*.

General Notes.—These ships follow the general design of the *Augusta* class with alterations in weight distribution to improve stability. Some 40 tons of plating has been spread over the bridge work, which is higher than in *Augusta*, with a 30 feet reduction in the height of the masthead control top. *Portland* laid down Feb. 17, 1930, completed Feb. 23, 1933. *Indianapolis* laid down March 31, 1930, and completed November 15, 1932.

Portland used to be a bad roller until fitted with bilge keels. *Indianapolis* did not suffer from this trouble, her extra displacement having a steadying effect. Machinery of both ships supplied by builders.

Portland 1934 *Photo.*

U.S.A.—Heavy Cruisers

(Northampton Class—6 ships).

AUGUSTA (Feb. 1st, 1930). **CHESTER** (July 3rd, 1929). **CHICAGO** (Apr. 10th, 1930).
HOUSTON (Sept. 7th, 1929). **LOUISVILLE** (Sept. 1st, 1930). **NORTHAMPTON** (Sept. 5th, 1929).

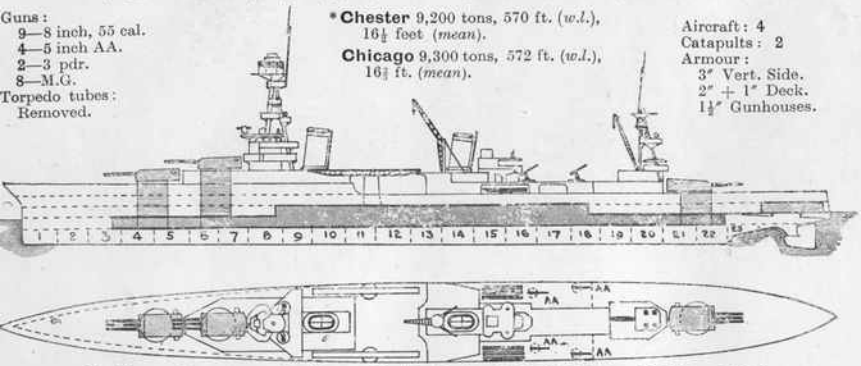
Standard displacement, 9,050 tons.* Complement, 691/795.

* Dimensions: 569 (*w.l.*), 600¼ (*o.a.*) × 66 × 16½ feet (*mean*), 23 feet (*maximum*).

Guns:
9—8 inch, 55 cal.
4—5 inch AA.
2—3 pdr.
8—M.G.
Torpedo tubes:
Removed.

***Chester** 9,200 tons, 570 ft. (*w.l.*), 16½ feet (*mean*).
Chicago 9,300 tons, 572 ft. (*w.l.*), 16¾ ft. (*mean*).

Aircraft: 4
Catapults: 2
Armour:
3″ Vert. Side.
2″ + 1″ Deck.
1½″ Gunhouses.



Machinery: Parsons geared turbines. 4 shafts. Designed S.H.P. 107,000 = 32·7 kts. 8 White-Forster boilers. Radius: 13,000 miles at 15 kts. Fuel: 1,500 tons.

General Notes.—Authorised 1926–27 under Act of December, 1924, as Nos. 26–31. The previous class having worked out at 9,100 tons only, the dimensions were increased and a forecastle deck added. Weight was saved by reducing and re-grouping the armament, while a certain amount of extra protection was provided. Because of vibration in the *Pensacola* the hull was stiffened to try and overcome this defect. Owing to the centre of gravity being placed too low, they were inclined to roll at low speed until fitted with bigger bilge keels. Four planes are carried inside the large hangars amidships, which can accommodate six aircraft if required. *Houston*, *Augusta* and *Chicago* are fitted as flagships and extra accommodation has been secured by extending the forecastle aft to the catapult. When first completed, these ships suffered from cracked sternposts, but the last of these defective sternposts was replaced in 1934.

Gunnery Notes.—Elevation of 8 inch guns, 45°. Control very accurate.

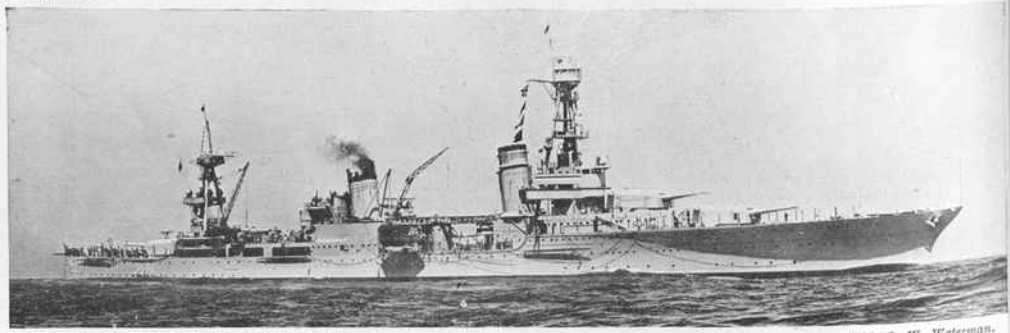
Engineering Notes.—Heating surface, 95,040 sq. feet. Machinery weighs 2,161 tons. 4 Turbo generator sets; 250 kilo-watts each; 120—240 volts; built by General Electric Co. There are 4 boiler rooms.

Special Note.—Torpedo Tubes have been removed and additional AA. guns mounted on the hangar. *Chicago's* modernisation completed Dec., 1935.

Name	*Builders*	*Machinery*	*Laid down*	*Completed*	*Trials*
Augusta	Newport News Co.	N.N. Co.	2/7/28	Jan., 1931	33·11
Chester	New York S.B. Cpn.	N.Y.S.B.C.	6/3/28	June, 1930	33·04
Chicago	Mare Island Navy Yard	G.E. Co.	10/9/28	March, 1931	—
Houston	Newport News Co.	N.N. Co.	1/5/28	June, 1930	33·02
Louisville	Puget Sound Navy Yard	P.S.N.Y.	4/7/28	March, 1931	32·74
Northampton	Bethlehem Steel Co., Quincy	Bethlehem	12/4/28	May, 1930	33·10

Chicago 1940, *Theo. N. Silberstein.*

Louisville (*Chester* similar). 1940, *Theo. N. Silberstein.*



Northampton. (Observe heightened fore funnel). 1935, *O. W. Waterman.*

Heavy Cruisers—*continued.*

(Pensacola Class).

PENSACOLA (April 25th, 1929), **SALT LAKE CITY** (Jan. 23rd, 1929).

Displacement, 9,100 tons.

Complement, 663.

Length (*w.l.*) 558 feet; *o.a.*, 585½ feet. Beam, 65¼ ft.

Mean draught (at *normal* displacement), 16 ft. 2 in. *Max.* draught, 22 ft.

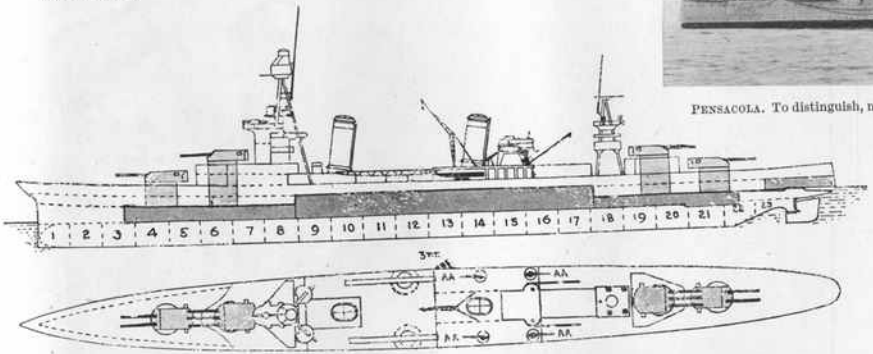
Guns:
10—8 inch, 55 cal.
4—5 inch, 25 cal. AA.
2—3 pdr.

Torpedo tubes: Removed.

Aircraft: 4.

Catapults 2.

Armour:
3″ side.
2″+1″ deck.
1½″ gunhouses.



Machinery: 4 sets of Parsons geared Turbines. Cramp type, with de Laval single reduction gearing. 4 shafts. Designed S.H.P. 107,000 = 32·7 kts. 8 White-Forster boilers, working pressure reported as 300 lbs. per square inch. Radius of action: 13,000 miles at 15 kts. Fuel: 1500 tons.

General Notes.—Laid down under Act of December 18, 1924. Tons per inch immersion, 60·7. Utmost economy in weights practised in design and construction. Aluminium alloy fittings replacing steel and aluminium paint is used internally. Welding has been employed wherever possible instead of riveting. They suffer from lack of freeboard, but no longer vibrate, although they roll at low speeds. Above 20 kts. they are extremely steady even in bad weather.

Gunnery Notes.—The 8in. 55 cal. guns, have an elevation of 45°: fore control station at the mast head is about 120 feet above w.l.: the after control is abaft second funnel, and AA. control on fore bridge.

Engineering Notes.—Heating surface, 95,000 square feet. Machinery weighs 2,161 tons. Can steam at 30 kts. with 60 per cent H.P. There are 2 engine and 2 boiler rooms, the outboard shafts coming from the foremost engine rooms.

Name	*Builders*	*Machinery*	*Laid down*	*Completed*	*Trials*
Pensacola	New York N. Yd	N.Y.S.B. Cpn.	Oct. 1926	6 Feb., '30	=32·66
Salt Lake City	New York S.B. Cpn.		June 1927	11 Dec., '29	107,746=32·78

Pensacola. To distinguish, note position of main topmast. 1935 *Photo, O. W. Waterman.*

Salt Lake City. 1935, *Official.*

(Cleveland Class—13 Ships).

Note.—17 more light cruisers (particulars not stated) were ordered in Sept. 1940 from Bethlehem Co., Quincy (2 ships); Bethlehem Co., San Francisco (4); New York S.B. Corpn. (6); and Federal S.B. & D.D. Co. (5)

CLEVELAND, COLUMBIA, DENVER, MONTPELIER, AMSTERDAM, SANTA FE, TALLAHASSEE, BIRMINGHAM, MOBILE, FLINT, PASADENA, SPRINGFIELD, TOPEKA.

Displacement: 10,000 tons. Complement: 888.
Length, 600 feet (*w.l.*). Beam, 61½ feet. Draught, 20 feet (*mean*).

Guns:
12—6 inch
(Unofficial reports)

Aircraft:
4

Armour:
Probably similar to *Helena* and *St. Louis*.

Machinery: Geared turbines. Designed speed over 33 kts. Cost will approach $18,000,000 each.

Programme	*Name*	*Builders & Machinery*	*Laid down*	*Completed*	*Programme*	*Name*	*Builders & Machinery*	*Laid down*	*Completed*
1939	*Cleveland*	New York S.B. Corp.	1/7/40	*To be* 1943	1940	*Birmingham*	Newport News Co.	1941	*To be* 1944
	Columbia		19/8/40			*Mobile*			
1940	*Denver*		1940			*Flint*	Bethlehem Co., Quincy	1941	1944
	Montpelier		1940			*Pasadena*			
	Amsterdam		1941	*To be* 1944		*Springfield*			
	Santa Fe		1941			*Topeka*			
	Tallahassee		1941						

(Atlanta Class—4 Ships).

ATLANTA, JUNEAU, SAN DIEGO, SAN JUAN.

Displacement: 6,000 tons. Complement:
Length, 541 feet. Beam, 52 feet. Draught, not reported.

Guns:
12—5 inch, 38 cal., (dual purpose)
12 smaller.

Aircraft:
2 or 3, with catapult.

Armour:
3½″ Side
2″ Deck

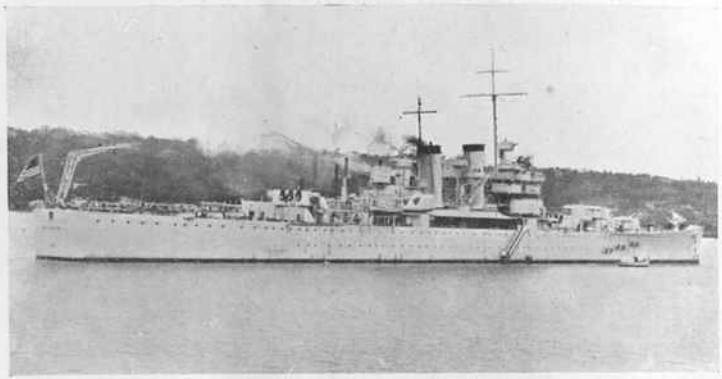
Torpedo Tubes:
6—21 inch
(in triple deck mountings)

Machinery: Geared turbines. Designed speed: 38 kts.

Name	*Builders*	*Machinery*	*Laid down*	*Completed*
Atlanta	Federal S.B. Co., Kearny	Builders	22/4/40	*To be* 1943
Juneau			27/5/40	
S. Diego	Bethlehem Steel Co., Quincy		27/3/40	
S. Juan			15/5/40	

Notes.—All belong to 1938 Programme. Are believed to be designed to act as flagships of Destroyer Flotillas. Cost will exceed $13,000,000 apiece, without armament.

(*For particulars of these ships, see following page.*)



St. Louis. (*Helena* similar.) 1940, *Theo. N. Silberstein.*

St. Louis. 1940, *Official.*

Notes on Helena and St. Louis.—These ships differ from rest of *Brooklyn* class in having their 5 inch AA. in pairs behind shields on high bases; a different scheme of boat stowage; a small tripod mast immediately abaft second funnel; and after gunnery control arrangements redistributed.