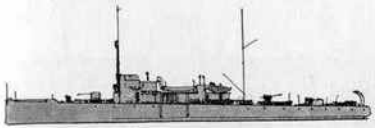
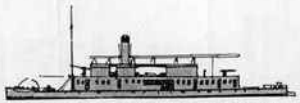


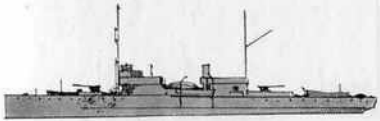
DILIGENTE
ENGAGEANTE (Dummy funnel)
SURVEILLANTE (Yacht stern)
(Minesweepers).



DOUDART DE LAGRÉE *(River Gunboat).*

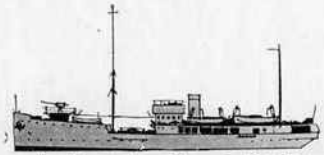
VILLE D'YS *(Despatch Vessel).*

YPRES *class (Despatch Vessels).*



CONQUERANTE.

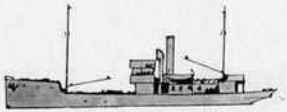
ARGUS, VIGILANTE *(River Gunboats).*



LA PÉROUSE *type (Surveying Vessels).*

ARRAS *class (Despatch Vessels).*

TROUPIER *(Patrol Boat).*

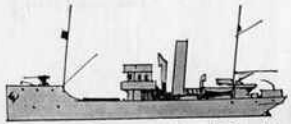


ALIDADE *type (Surveying Vessels).*

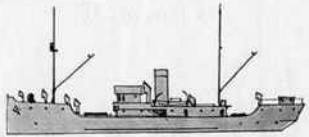
J. COEUR & CHAMPLAIN *(Transports).*

DUBOURDIEU *class (5) (Gunboats).*

GRANIT

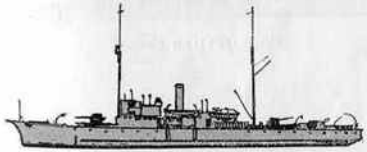


PASSEREAU, FAUVETTE *(Patrol Vessels).*



COËTLOGON *class (Transports).*

VITRY-LE-FRANÇOIS.



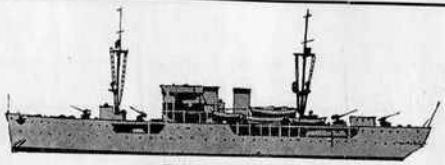
LURONNE

MEUSE OISE SOMME YSER
(Despatch Vessels).

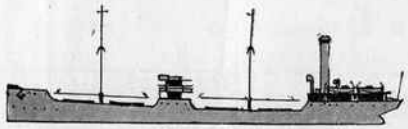
SUIPPE
ANCRE
SCARPE (with Yacht bow)
(Despatch Vessels).

ESCAUT, AILETTE *(Despatch Vessels).*

RECOGNITION SILHOUETTES.

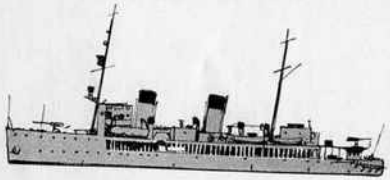


JULES VERNE.



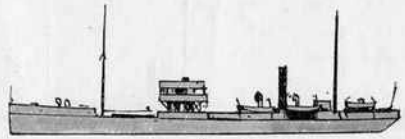
RHONE (*Oiler*).

QUENTIN ROOSEVELT



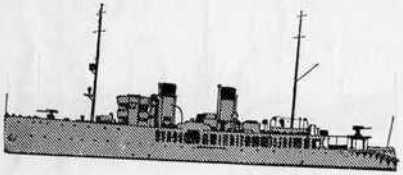
POLLUX.

GARONNE (*Oiler*).



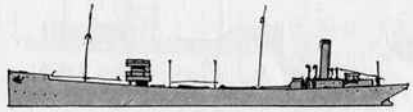
AUBE *class* (*Oilers*).

CH 1—4.



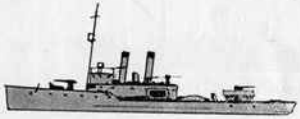
CASTOR.

LE LOING (*Oiler*).



DORDOGNE (*Oiler*).

AISNE. MARNE. (*Despatch Vessels.*)



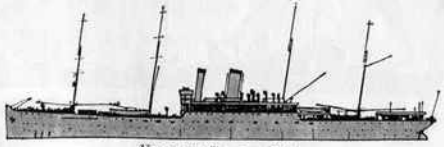
C 102-C 116 *class* (*Submarine Chasers*).

REGULUS *type* (*Sloops*).

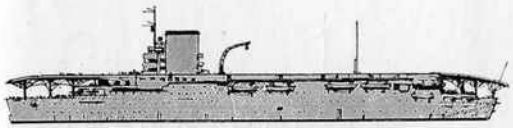
BOUGAINVILLE *class*.

ARDENT *type* (*Despatch Vessels*).

E. GARNIER

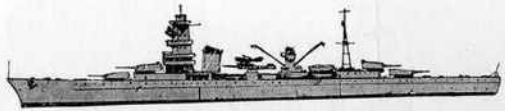


VULCAIN (*Repair Ship*).

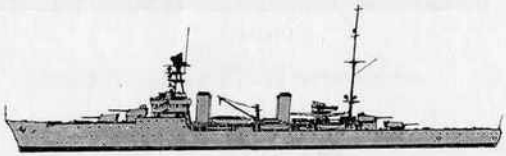


BÉARN (funnel on starboard side).

COMMDT. TESTE.

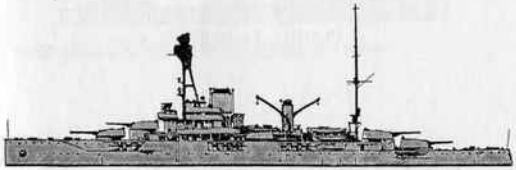


ALGERIE.



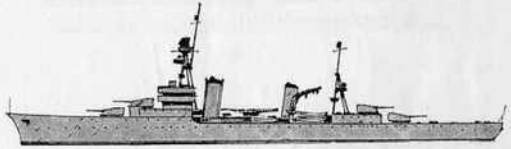
TOURVILLE, DUQUESNE.

FOCH.

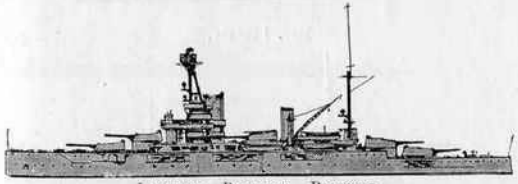


JEAN BART.

DUGUAY-TROUIN *class* (3).



COLBERT.

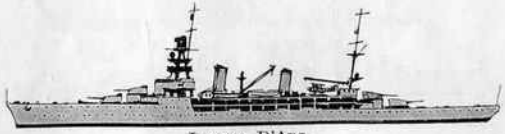


LORRAINE. BRETAGNE. PROVENCE.

PLUTON.

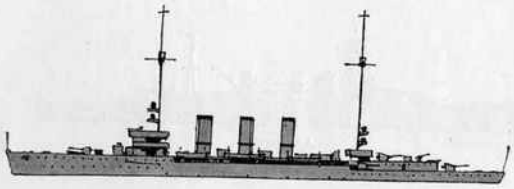
DUPLEIX.

PARIS.

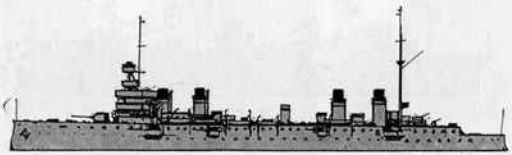


JEANNE D'ARC.

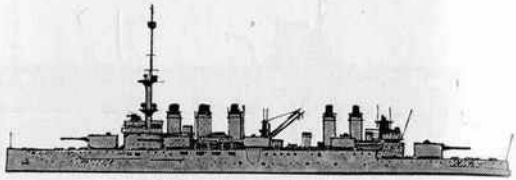
SUFFREN.



STRASBOURG.



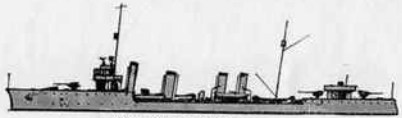
GUEYDON.



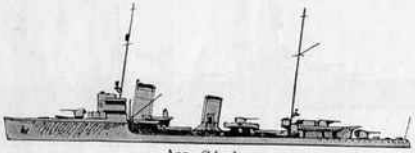
VOLTAIRE (no mainmast).
DIDEROT (main mast).

ALGÉRIEN *type*.

SIMOUN *type*.

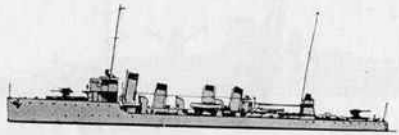


OPINIÂTRE, TÉMÉRAIRE.



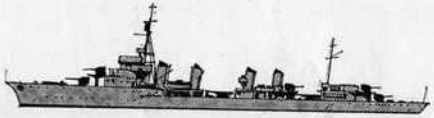
AM. SÉNÈS.

CHACAL *type*.

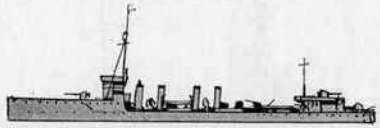


MAT. LEBLANC.

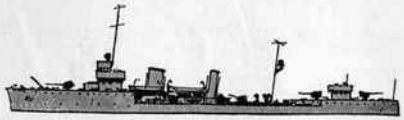
MAZARÉ, VESCO.



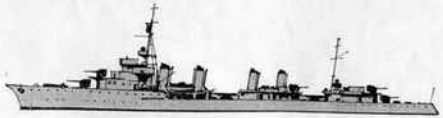
CASSARD *type*.



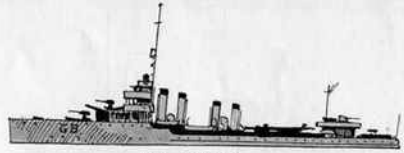
ENSEIGNE ROUX, MEC.-PR. LESTIN.



AVENTURIER, INTRÉPIDE.



GUÉPARD *type*.



ENS. GABOLDE.

SUBMARINES.—

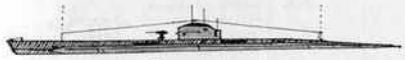
AMAZONE II, ARMIDE.

DAPHNÉ.

M. CALLOT.

REDOUTABLE *class.*

TURQUOISE *class.*



REQUIN *class.*

BELLONE *type.*

FULTON, JOESSEL.

P. CHAILLEY.

DUPUY DE LÔME, SANÉ, LAGRANGE, LAPLACE, REGNAULT, ROMAZZOTTI.

R. AUDRY.

P. MARRAST.

J. CORRE, CARISSAN, TRINITÉ-SCHILLEMANS.

HALBRONN.

SIRÉNE *type.*

V. RÉVEILLE.

J. ROULIER *type.*

GUSTAVE ZÉDÉ.

H. FOURNIER, O'BYRNE.

SURCOUF.

(I) Forces Navales Metropolitaines.

1st FLEET

Battle Fleet.

LORRAINE (F) — JEAN BART
BRETAGNE — PROVENCE
Carrier: BÉARN
Aircraft Tender: CDT. TESTE

Light Divisions

1st.

FOCH (F) — DUPLEIX
COLBERT — DUQUESNE
TOURVILLE — SUFFREN

7th. — 5th.

TARTU (F) — GERFAUT
CASSARD — AIGLE
ALBATROSS — VAUTOUR
VALMY — VERDUN — JAGUAR

Torpedo Divisions

GUEPARD (F)

5th. — 9th.

CYCLONE — FOUDROYANT
SIROCCO — BASQUE
TEMPÊTE — FORBIN

7th. — 2nd.

LE MARS — BORDELAIS
LA PALME — FOUGUEUX
BOULONNAIS — FRONDEUR

MISTRAL — TROMBE — SIMOUN
TYPHON — TORNADE — TRAMONTANE
ALCYON — LE FORTUNE — BRESTOIS
LA RAILLEUSE

Submarines

3rd Flotilla

SUIPPE (Scout)

ACTEON — PHENIX
PROTEE — L'ESPOIR
ACHERON — MONGE
VENGEUR — PEGASE — REDOUTABLE
FRESNEL

Train

NANCY — CHAMPLAIN
RHONE — ARROYO
RANCE — FRAICHE

Division d'Instruction

PARIS (F) — **Torpedo**
CONDORCET — **Electricians**
COURBET — **Gunnery**
JULES MICHELET
PLUTON

9th. Light Division

TIGRE — PANTHERE

5th. Scouting Flotilla

SCARPE — YSER — ENGAGEANTE
RHIN — VULCAIN

2nd FLEET

Light Divisions

2nd.

DUGUAY-TROUIN (F) — LAMOTTE-PICQUET

4th. — 6th. — 3rd.

BISON (F) — MAILLE-BREZE — CHACAL
MILAN — KERSAINT — LYNX
EPERVIER — VAUQUELIN — LEOPARD
LION — VAURAN

Submarines

JULES VERNE (*depot*)

4th. Flotilla

SURCOUF — ACHILLE
HENRI-POINCARE — PERSEE
PONCELET — AJAX
PASCAL — PASTEUR — ARCHIMEDE — ARGO

Train

DURANCE — NIÈVRE — RUISSEAU

(II) Forces Navales d'-Outre-Mer.

(A) **China**

PRIMAUGUET (F)
DUMONT D'URVILLE
SAVORGNAN DE BRAZZA
ALGOL
REGULUS
TAHURE

Yang-Tse-Kiang

FRANCIS-GARNIER
DOUDART DE LAGREE
BALNY
LA GRANDIERE

Si-Kiang ARGUS

(B) **Levant.** DIANA. YPRES. VIMY.
(C) **Training Ship.** JEANNE D'ARC.
(D) **Channel and North Sea, etc.** QUENTIN-ROOSEVELT. ARDENT
(E) **Newfoundland.** VILLE D'YS
(F) **Atlantic** D'ENTRECASTEAUX
(G) **Indian Ocean** BOUGAINVILLE
(H) **Pacific.** ALDEBARAN

(III) Marine Aux Colonies.

(A) **Indo China.**

12th. Submarine Flotilla.

JOESSEL
FULTON

Scouts.

VITRY-LE-FRANÇOIS
CRAONNE
ALERTE
ANTARES
ALTAIR
MARNE

Gunboats.

COMDT. BOURDAIS
AVALANCHE
VIGILANTE

Surveying.

LAPEROUSE
ASTROLABE
OCTANT

(B) **Morocco.** MONDEMENT
(C) **Tahiti.** ZELEE

(IV) Regions Maritimes.

(A) **1st REGION.**

Submarines.

POLLUX

1st Flotilla.

ARIANE — DANAE
DIANE — EURYDICE
ANTIOPE — MEDUSE
AMAZONE — SIRENE
GALATEE

Reserve.

JEAN AUTRIC
PIERRE MARRAST
RENE AUDRY
PIERRE CHAILLEY
GUSTAVE ZÉDÉ

Surveying.

GASTON-RIVIER

Vedettes.

VTA 1
VTB 1
VTA 2

(B) **2nd REGION.**

Brest

2nd Torpedo Division.

L'ADROIT
ORAGE
OURAGAN
BOURRASQUE

Defense Littorale.

AISNE
BATAILLEUSE
IMPETUEUSE
SURVEILLANTE

Reserve S/ms.

DUPUY DE LOME — SANE
LEON MIGNOT — JEAN ROULIER
HALBRONN — AMPHITRITE II
GORGONE — BELLONE
HERMIONE — VICTOR REVEILLE

Lorient.

CH. 106, 107, 115

Rochefort.

CH. 63, 68

School Ships.

COUCY — VAUQUOIS — ANCRE
MEUSE — ETOURDI — MUTIN
BELLE-POULE
ETOILE — CONQUERANTE
REMIREMONT — ENSEIGNE-HENRY
RAILLEUR — AUDACIEUSE
SYLPHE — LURONNE

Surveying.

ULITE — CHIMERE

Transport.

JEANNE ET GENEVIRVE

(C) **3rd REGION.**

Toulon

13th. Torpedo Division.

AMIRAL SÉNÈS
AVENTURIER
INTRÉPIDE
TÉMÉRAIRE

Defense Littorale.

DILIGENTE
DÉDAIGNEUSE
HAMELIN

5th. Flotilla of S/ms.

REQUIN — ORION — DORIS
PHOQUE — ONDINE — CIRCE
NARVAL — ARETHUSE — CALYPSO
SAPHIR — ATALANTE — NAUTILUS
RUBIS — THETIS — ARGONAUTE
TURQUOISE

Reserve S/ms.

NEREIDE (*target*) — DAPHNÉ
LAGRANGE — CARISSAN
RAMOZOTTI — TRINITÉ SCHILLEMANS
REGNAULT — JEAN CORRE
LAPLACE — O'BYRNE
HENRI FOURNIER — MAURICE CALLOT

School Ships.

LES ÉPARGES — PRIMEVÈRE

Transport.

FORFAIT — COETLOGON

(D) **4th REGION.**

Bizerta.

12th. Torpedo Division.

ENSEIGNE GAROLDE
ENSEIGNE ROUX
MECH. PRIN. LESTIN
MATELOT LEBLANC

Defense Littorale.

AGILE
ALFRED DE COURCY
CH. 102, 113, 114
CASTOR

6th. Flotilla of S/ms.

SOUFFLEUR — AMPHITRITE
MARSOUIN — ORPHEE
ESPADON — OREADE
CAIMAN — LA PSYCHE
MORSE — NYMPHE
DAUPHIN — NAIADE

Reserve S/ms.

ATALANTE II. — AMAZONE II. — ARMIDE

Algiers.

CH. 104, 105, 116

School Ships.

BAPAUME — CH. 110

Surveying.

BEAUTEMPS-BEAUPRÉ
ESTAFETTE
SENTINELLE

SUMMARY OF NAVAL FORCES.

	Building	Under age	Over age
10 *Battleships.*			
Dunkerque	1	—	—
Provence	—	3	—
Courbet	—	3	—
Voltaire	—	—	3
1 *Aircraft Carrier.*			
Bearn	—	1	—
1 *Aircraft Tender.*			
Cdt. Teste	—	1	—
7 *Large Cruisers.*			
Tourville	—	6	—
Algerie	—	1	—
4 *Old Armoured Cruisers.*			
Michelet	—	—	1
Renan	—	—	2
Gueydon	—	—	1
12 *Cruisers.*			
La Galissonnière ..	6	—	—
E. Bertin	1	—	—
Jeanne D'Arc ..	—	1	—
Duquay Trouin ..	—	3	—
Strasbourg	—	—	1
1 *Cruiser Minelayer.*			
Pluton	—	1	—
32 *Large Destroyers.*			
Am. Sénès	—	1	—
Jaguar	—	6	—
Guépard	—	6	—
Aigle	—	6	—
Cassard	—	5	—
Fantasque	7	—	—

	Building	Under age	Over age
46 *Destroyers.*			
Le Hardi	1	—	—
Adroit	—	14	—
Simoun	—	12	—
M. Leblanc	—	—	1
Algerien	—	—	10
Téméraire	—	—	3
E. Gabolde	—	1	—
Bory	—	—	2
Deligny	—	—	2
12 *Escorteurs.*	12	—	—
4 *Torpedo Boats.*	—	—	4
108 *Submarines.*			
Surcouf	—	1	—
Redoutable	11	10	—
Requin	—	9	—
Saphir	2	4	—
P. Chailley	—	1	—
M. Callot	—	1	—
L. Mignot	—	—	4
Halbronn	—	—	1
Fulton	—	—	2
Dupuy de Lôme ..	—	—	2
Lagrange	—	2	2
Diane	7	13	—
R. Audry	—	1	—
Gustave Zédé	—	—	1
Sirène	—	11	—
V. Réveille	—	—	1
Armide	—	—	2
Daphne	—	—	1
Bellone	—	—	3
Fournier	—	—	2
Carissan	—	—	3
Atlante II	—	—	2

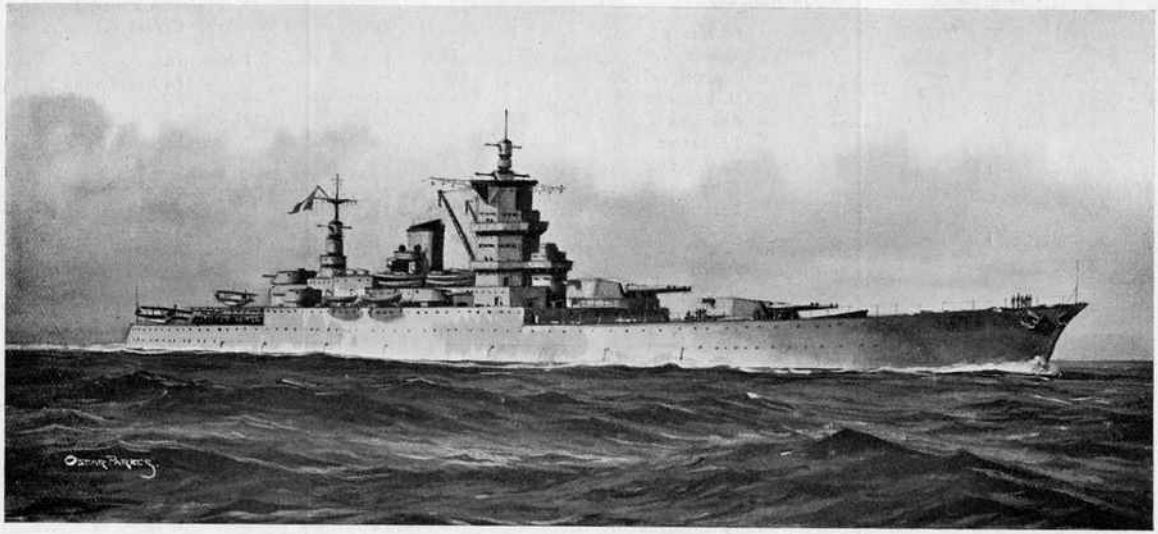
	Building	Under age	Over age
2 *Minelayers.*			
Castor	—	2	—
1 *Netlayers.*			
Le Gladiateur	1	—	—
51 *Sloops.*			
Bougainville	3	4	—
Algol	—	5	—
Dubourdieu	—	5	—
Ailette	—	5	—
Ville d'Ys	—	1	—
Arras	—	28	—
24 *Despatch Vessels.*			
Aisne	—	6	—
Conquérante	—	1	—
Diligente	—	4	—
Alerte	—	13	—
4 *Minesweepers.*			
Granit	—	4	—
42 *Submarine Chasers.*			
CH 1—4	—	4	—
CH 102—116	—	15	—
C 25—C 98	—	23	—
10 *River Gunboats.*			
F. Garnier	—	1	—
Argus	—	2	—
Balny	—	1	—
Lagrandière	—	1	—
D. de Lagrée	—	1	—
Mytho	2	—	—
Avalanche	—	2	—
8 *Patrol and Fishing Vessels.* ..	—	8	—
13 *C.M.B.*	—	12	—
8 *Surveying Ships*	—	8	—
11 *Auxiliaries*	—	11	—
13 *Oilers*	—	13	—
1 *Armed Yacht*	—	1	—

1932—BATTLESHIP.

DUNKERQUE (Brest, ordered October, 1932).

Displacement, 26,500 tons.

Dimensions: Length (*o.a.*) 688·9 feet. Beam: 98·4 feet. Draught: — feet.

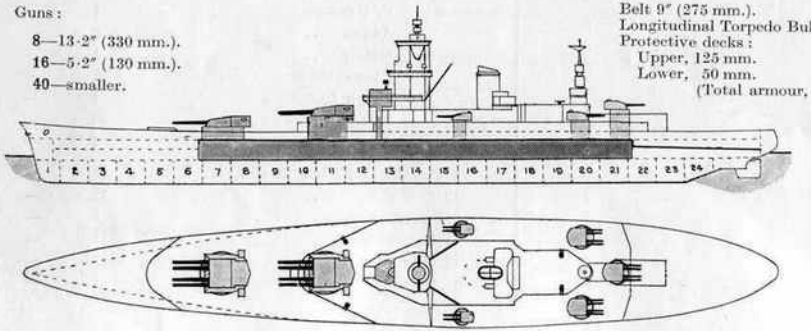


1933 *Drawing, Oscar Parkes.*

Guns:

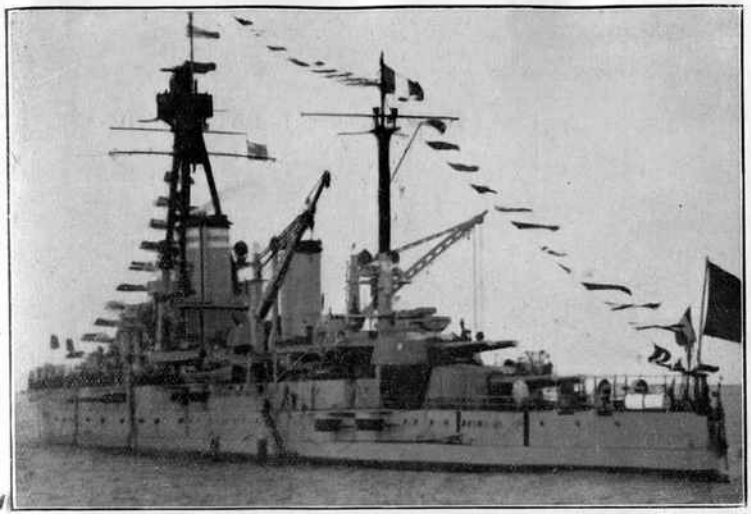
8—13·2″ (330 mm.).
16—5·2″ (130 mm.).
40—smaller.

Belt 9″ (275 mm.).
Longitudinal Torpedo Bulkhead, 40 mm.
Protective decks:
Upper, 125 mm.
Lower, 50 mm.
(Total armour, 10,000 tons).

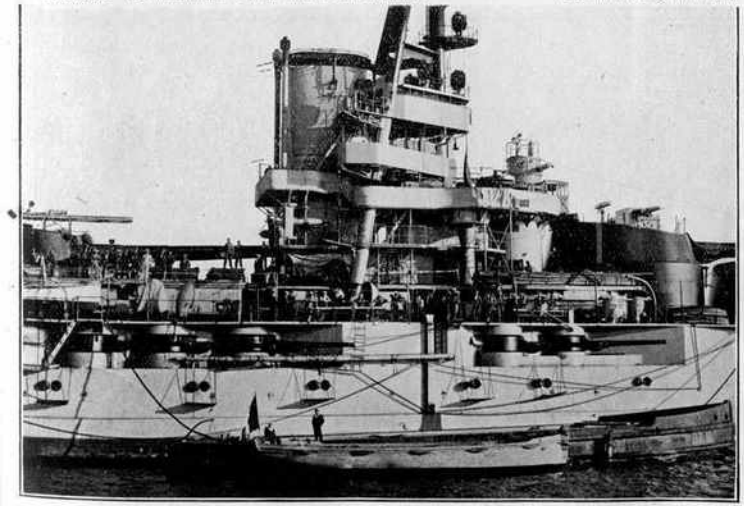


H.P. 100,000 = 29·5 kts. Radius 7500 at 15 kts. 6 boilers.

General Notes.—The armament of these ships is to consist of fifteen 6.1″ guns and not of 5″ guns as has been supposed. They are thus by far the most powerfully armed cruisers in the world for their tonnage. It is, however, difficult to reconcile the dimensions given above (which were communicated from a reliable source) with the official displacement and until we know the correct figures no critical survey of them is of much value. In passing, it may be noted that the dimensions given suggest a tonnage of 9590 using our "*Exeter*" formula and 9265 tons if based on that of the "*Atago*," which would be more in keeping with the 10,000 tons required by the U.S.A. constructors for a fifteen 6″ gunned cruiser. The shallow draft should be noted, and this feature is common to the "*Ryujo*" (15 feet) and the new torpedo boats (5·8 feet.)



LORRAINE. (Now high main Topmast and no fore Topmast.) 1928 *Photo, W. A. Fuller, Esq.*



BRETAGNE. July, 1928 *Photo, R. Perkins, Esq.*

(BRETAGNE CLASS—3 SHIPS.)

BRETAGNE (April. 21, '13), **LORRAINE** (September, 30, '13), **PROVENCE** (April, 20, '13).

Standard displacement. 22,189 tons. Complement, 1102 (+ 57 as Flagship.)

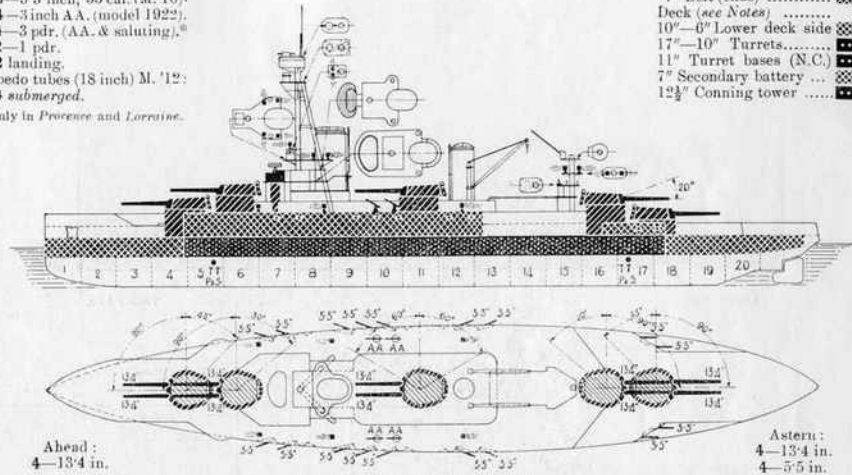
Length (*waterline*), 541½ feet. Beam, 88½ feet. *Maximum* draught, 29 feet. Length *over all*, 544½ feet.

Guns (M. '12. **Dir. Con.**):
10—13·4 inch, 45 cal.
18—5·5 inch, 55 cal. (M.'10).
4—3 inch AA. (model 1922).
4—3 pdr. (AA. & saluting).*
2—1 pdr.
2 landing.
Torpedo tubes (18 inch) M. '12:
4 *submerged*.

* Only in *Provence* and *Lorraine*.

Note.—Belt now ceases 10 metres short of bows, a transverse bulkhead having been inserted at this point.

Armour (chromo-nickel):
10¾″ Belt (amidships) ...
7″ Belt (ends) .....
Deck (*see Notes*) .....
10″—6″ Lower deck side
17″—10″ Turrets.....
11″ Turret bases (N.C.)
7″ Secondary battery ...
12½″ Conning tower .....



Ahead:
4—13·4 in.

Astern:
4—13·4 in.
4—5·5 in.

Broadside: **10**—13·4 in., **9**—5·5 in.

Machinery: Parsons turbine. 4 screws. Boilers: see *Notes*. Designed H.P. 29,000=20 kts.
Coal: *normal* 900 tons; *maximum* 2680 tons. Also 300 tons oil.

**Gunnery Notes.*—Carry 100 rounds per gun for 13·4 inch and 275 per gun for the 5·5 inch. Janney electro-hydraulic mountings to big guns. Special cooling for magazines—temperature 77° Fahr. Magazines can be completely flooded inside ten minutes. Height of guns above l.w.l.: 1st turret, 30½ feet; 2nd, 37½ feet; 3rd, 33½ feet; 4th, 28½ feet; 5th, 21½ feet. Arcs of training: Nos. 1 and 5, 270°; Nos. 2 & 4, 280°; No. 3, 120° either beam. Arcs of secondary guns; 120°. Big gun elevation increased from 18° to 23°: max. range = 23,000 metres.

**Torpedo Notes.*—8—36″ and 2—30″ searchlights. 4—200 k.w. dynamos. Torpedoes: 24 carried. Also 30 blockade mines.

**Armour Notes.*—Turrets of maximum thickness at ports, instead of uniform thickness as in *J. Bart* type. According to the 1917 Edition of "Flottes de Combat," the barbette shields are not of uniform design. Those for the end barbettes are 13·4″ thick, for the super-firing barbettes 21″ thick and for the central barbette 15¾″ thick. The double bottom is carried to the under side of protective deck. Main belt is 13½ feet wide, 5 7/12 feet below and 7½ above l.w.l. Battery 197 feet long with 7 in. bulkheads. Protective decks: lower 2″ slopes, 1½″ flat. Upper, 1½″ flat on top of belt.

**Engineering Notes.*—Boilers: *Bretagne*, 24 Penhoet: *Lorraine*, 24 Belleville: *Provence*, 18 Penhoet. Grate area: *Bretagne*, 2,090 sq. feet; *Lorraine*, 2,030 sq. feet; *Provence*, 1,492 sq. feet. Heating surface: *Bretagne*, 64,660 sq. feet; *Lorraine*, 63,700 sq. feet; *Provence*, 62,585 sq. feet. Pressure, 256 lbs. per sq. in. 300 turbine r.p.m. 2,700 tons coal in 13 bunkers, 300 tons oil in 4 tanks. Endurance: 4,700 miles at 10 kts. 2,800 at 18½ kts. 8 boilers, converted to oil-burning during last refits of each ship.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*	*Turbines*	*Boilers*	*Best recent speed*
Bretagne	Brest	La Seyne	July '12	Sept.'15	21·4 kts.	Parsons	Niclausse	20·5
Lorraine	S.Nazaire (Pen.	S.Nazaire (Pen.)	Nov. '12	July '16		Parsons	Belleville	
Provence	S. Lorient	La Seyne	June '12	June'15		Parsons	D.T.Guyot	

General Notes.—*B.*, *L.* and *P.* belong to the 1912 programme, one of them being a replace ship for the *Liberté*, blown up September, 1911. Estimated cost, £2,908,000 per ship=£126 per ton. *Lorraine* refitted and converted to partial oil-burning, 1929-30. *Bretagne* undergoing similar alterations at La Seyne and *Provence* at A. C. Loire.

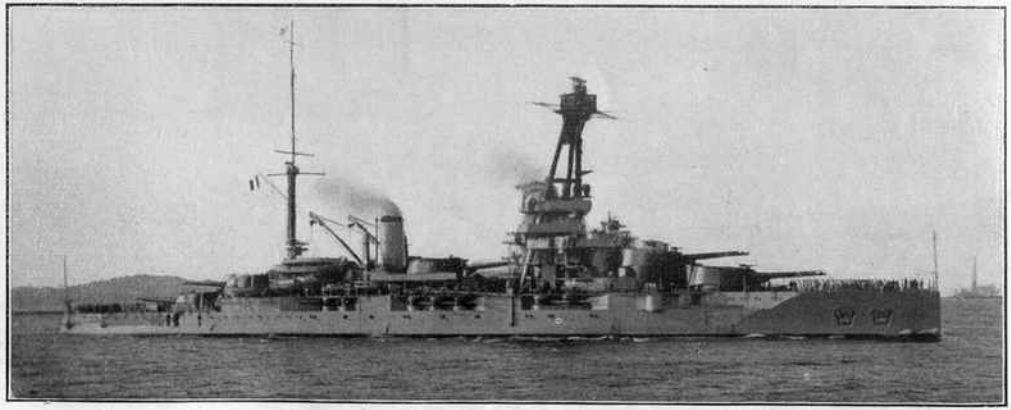
*Unofficial.

M

1912 FRENCH BATTLESHIPS.

BRETAGNE. 1930 *Photo.*

PROVENCE. 1930 *Photo, R. Perkins, Esq.*

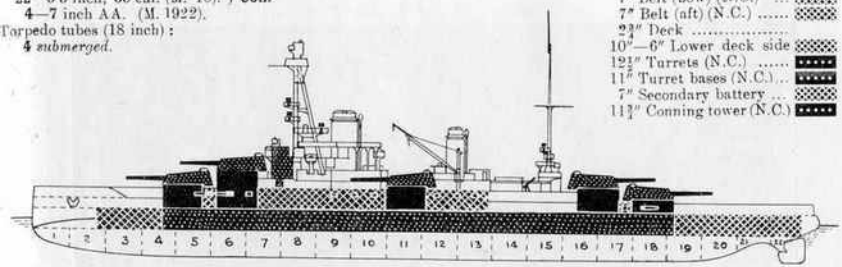


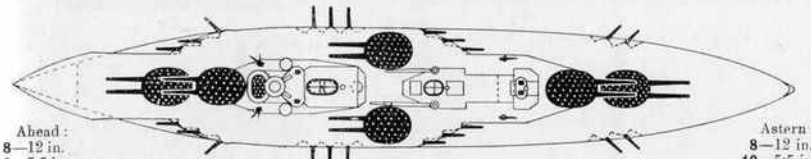
PROVENCE. *Oct.*, 1927 *Photo, Dussau (added* 1928).

COURBET (Sept. 23, '11), **JEAN BART** (Sept. 22, '11), **PARIS** (Sept. 28, '12).
Standard displacement, W.D. = 22,189 tons. *Full load*, 25,850 tons. Complement, 1108.
Length (*p.p.*), 541½ feet. Beam, 88½ feet. *Maximum* draught, 29 feet. Length *over all*, 544½ feet.

Guns (M. '06—10): Dir. / Con.
12—12 inch, 45 cal.
22—5·5 inch, 55 cal. (M. '10).
4—7 inch AA. (M. 1922).
Torpedo tubes (18 inch):
4 *submerged*.

Armour: (Chromo-nickel):
11¾″ Belt (amidships).....
7″ Belt (bow) (N.C.) ...
7″ Belt (aft) (N.C.) .....
2¾″ Deck .....
10″—6″ Lower deck side
12¾″ Turrets (N.C.) .....
11″ Turret bases (N.C.)..
7″ Secondary battery ...
11¾″ Conning tower (N.C.)

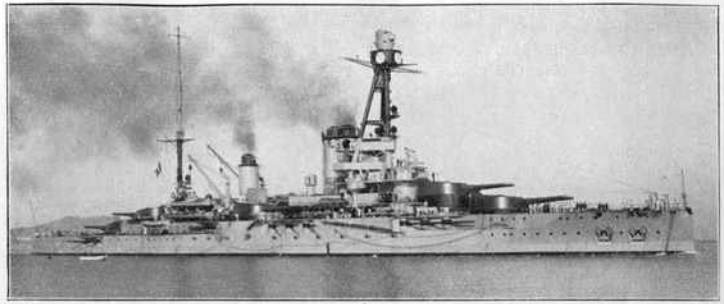




Ahead:
8—12 in.
6—5·5 in.

Astern:
8—12 in.
10—5·5 in.

Broadside: **10**—12 in., **11**—5·5 in.



PARIS 1929 *Photo, M. Bar, Toulon.*

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials Full power*	*Boilers*	*Best recent speed*
J. Bart	Brest	F.&C. de la Méd	Nov., '10	June '13	=22·04	Belleville	20
Courbet	Lorient	St. N'z're (Ch. de l'Atlantique)	Sept., '10	Sept. '13	=20·81	Belleville & Du Temple	20
Paris	La Seyne	F.&C. de la Méd	Nov., '11	Aug. '14	35,610=21·6	Belleville	20,5

General Notes—Designed by M. Lyasse. Construction very fine and highly finished in details. Average cost about £2,475,000. The heavy weight of deep 7″ belt at ends made them pitch in a head sea, hence modification noted against plans above. On the other hand, *J. Bart* was twice torpedoed in the bows by an Austrian submarine and her heavy bow belt contributed largely to her survival. *France*, of this class, foundered in Quiberon Bay, Aug., 1922. All this class have been reconstructed, 1928–1929. *Courbet* has been completely reboilered at La Seyne (1929) with ex-Normandie type boilers, and is now gunnery training-ship instead of *Ernest Renan*.

Machinery: Parsons turbine. 4 screws. 24 Boilers: Penhoët Designed H.P. 28,000 = 20 kts. Coal: *normal*, 906 tons; *maximum*, 2452 tons; also 450 tons oil (two boiler rooms are fitted for oil burning). *Endurance —— at 10 kts., 2700 at 18¾ kts.

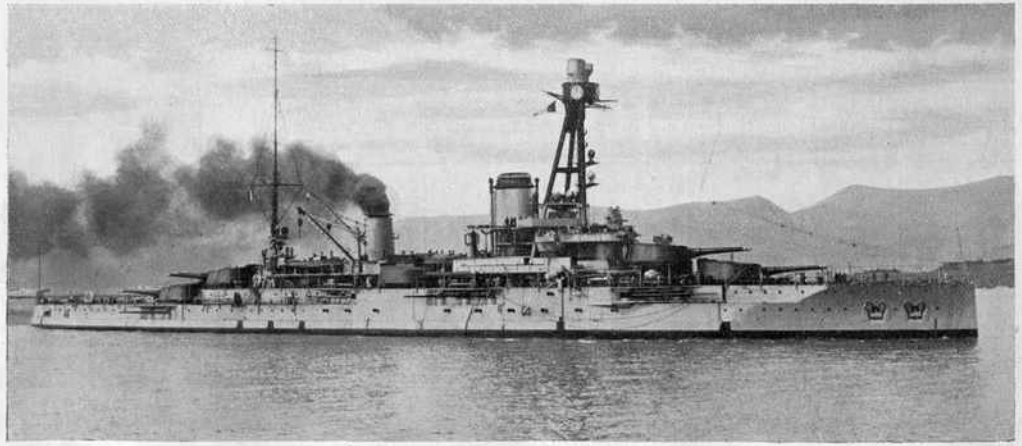
Armour Notes—Belt, 13½ feet wide; 7¾ feet of it above water, 5½ feet of it below. For about 325 feet it is 10¾″. Upper belt, 7″ thick forms redoubt for secondary battery. The 4—5·5 inch aft. are in casemates. Prot. decks: 2¾″ curved from lower edge of belt to l.w.l. level. Above that a flat 1¾″ deck from end to end on top of main belt. Above again is a 1¼″ splinter deck against aerial attack. Conning tower is in three stories. 10¾″ communication tube. Two armoured fire control stations on top.

**Gunnery Notes*.—Amidship 12 inch 180°, the centre line turrets 270° each. The 5·5 inch 120°. Elevation of guns reported increased to give range of 24,000 metres. Height of guns above water: Turrets (1) 30½ feet, (2) 37¾ (amidships) 25 feet, (5) 28½ feet, (6) 21½ feet; upper deck battery, 5·5 inch, 21½ feet; main deck. 5·5 inch aft, 11¾ feet. Ammunition carried: 100 for each 12 in., 275 for each 5·5 inch, 300 for each 3 pdr. Westinghouse refrigerators in magazines. 77°F.

**Torpedo Notes*.—8 searchlights (36 inch), also 2—30 inch. Carries 12 torpedoes and 30 blockade mines.

**Engineering Notes*.—Outer shafts: H.P. turbines; inner, L.P. Condensers (2): 32,076 sq. feet cooling surface. Turbines: 300 r.p.m. Belleville oil fuel system.

* Unofficial.



COURBET. (*Jean Bart* similar, but goose neck cranes.) 1930 *Photo, Bar.*

OLD BATTLESHIPS (*Cuirassés de 2e rang*).

DANTON CLASS.—3 SHIPS.

DIDEROT (April, 1909), **CONDORCET** (April, 1909), and **VOLTAIRE** (Jan., 1909).

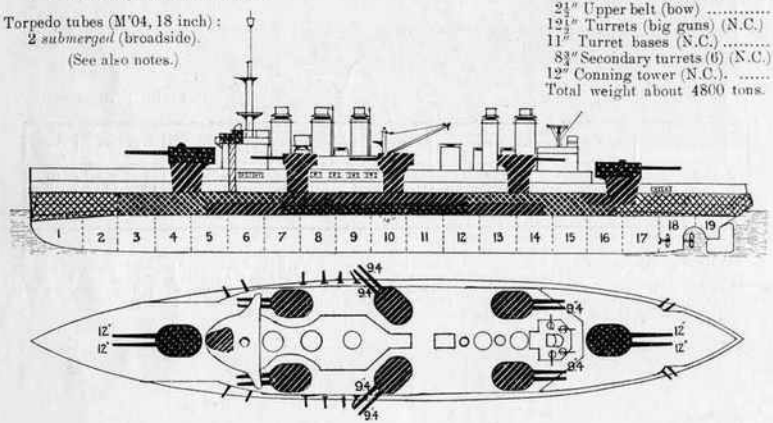
Standard displacement, 17,597 tons. Complement, 923.

Length (*w.l.*), 475¾ feet. Beam, 84¾ feet. *Mean* draught, 27 feet. *Max.* draught, 28¾ feet.
Length (*over all*), 481 feet.

Guns:
4—12 inch, 45 cal. (M '06).
12—9·4 inch, 49·5 cal. (M '02-'06).
*12—3 inch (none on board *Condorcet*).
2—3 in. AA. (on 9·4 inch turrets).

Torpedo tubes (M'04, 18 inch):
2 *submerged* (broadside).
(See also notes.)

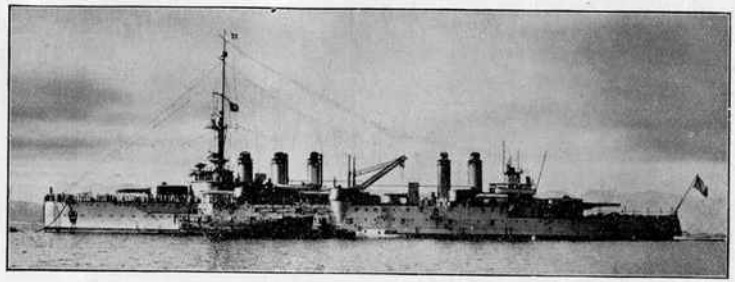
Armour:
10½″ Belt (amidships) ... .
6″ Belt (ends) .....
3″ Deck (flat on upper belt) ...
3″ Deck (below belt) .....
9″—6″ Lower deck side .....
2¼″ Upper belt (bow) .....
12⅛″ Turrets (big guns) (N.C.)
11″ Turret bases (N.C.) .....
8¾″ Secondary turrets (6) (N.C.)
12″ Conning tower (N.C.). .....
Total weight about 4800 tons.



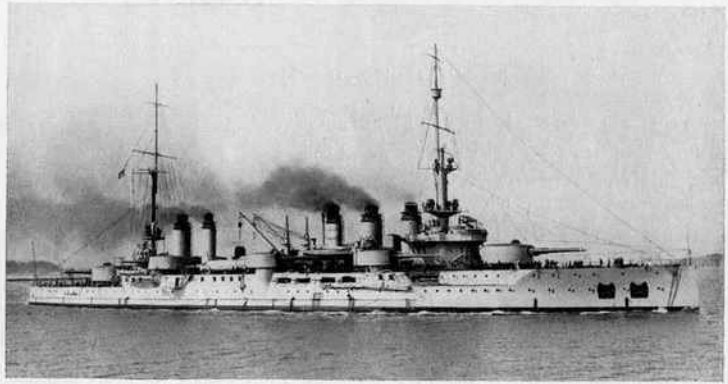
Machinery: Parsons turbine. 4 screws. Boilers: 26 Belleville or Niclausse (large tubes). Designed H.P. 22,500 = 19·25 kts. Coal: *normal* 965 tons: *maximum* 2100 tons. Endurance: *nominally*, 3750 miles at 10 kts., 2300 at 18½ kts. (See note below.)

Name.	*Builder.*	*Machinery.*	*Laid down*	*Completed.*	*Trials. 24 hrs.*	*10 hrs.*	*5 hrs.*	*Boilers*	*Best recent speed*
Diderot	St. Nazaire	St. Nazaire	Oct. '07	Sept. '11	= 18·4	= 19·48	= 19·9	Niclausse	14-16
Condorcet	St. Nazaire	St. Nazaire	Aug. '07	June '11	= 18·02	= 19·31	= 19·7	Niclausse	
Voltaire	La Seyne	F. & Ch., Médit.	July, '07	Aug. '11	= 18·60	= 19·78	= 20·66	Belleville	

General Notes.—Average cost, £2,190,000 each. They are not very successful ships, and consume large quantities of coals at cruising speed. Some have lateral anti-torpedo "caissons" along hull below waterline. *Danton* lost 1917. *Mirabeau* scrapped 1919. *Voltaire* twice torpedoed by U-boat during 1918 and repaired. Designed by M. Lhomme. *Verginaud* condemned 1921, and expended as a target for aircraft bombs. *Condorcet* and *Voltaire* refitted 1923-24. *Diderot* 1925, extra under-water protection being given at some sacrifice of speed. **Condorcet*, being attached to Torpedo School, carries several extra deck torpedo tubes for practice purposes and no 3″ gun battery.



VOLTAIRE. (*Condorcet* similar.) 1925 *Photo, by courtesy of the Ministry of Marine.*



DIDEROT. 1930 *Photo, by M. Bar.*

AIRCRAFT CARRIER. (*Bâtiment Porte-Avions.*)

BÉARN (F. & Ch. de la Mediterranée, La Seyne).

Laid down January, 1914, as a battleship of the "*Normandie*" class. Launched April, 1920, construction having been suspended during the war; re-designed as a Fleet Carrier and conversion begun at La Seyne in August, 1923. Finally completed May, 1927.

Standard displacement: 22,146 tons; 25,000 tons *full load.*

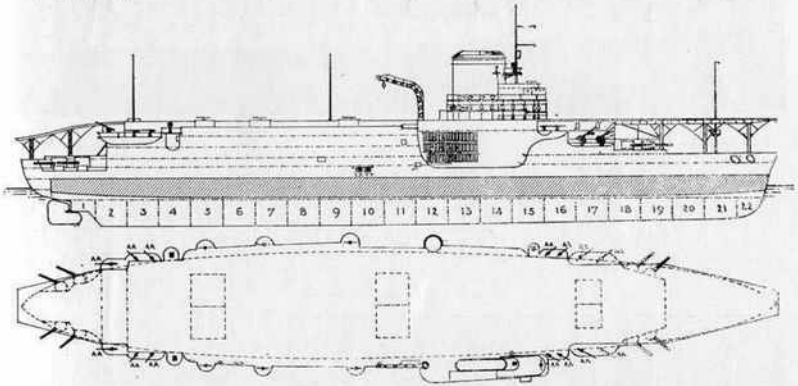
Dimensions: 576 (*w.l.*), 560 (*p.p.*) feet × 89 feet × 26 feet. (Extreme beam is 102 feet.)

Complement, 875.

Guns:
- **8**—6.1 inch.
- **6**—14 pdr. AA.
- **8**—3 pdr. AA.
- **12** M.G.

Tubes:
- **4**—21.7 inch

Armour:
- 1" Main deck .....
- 1—2¾" Lower deck .....
- 1" Flight deck .....
- 3½" Side armour to 6½ feet below w.l.



Total designed H.P. 37,200 = 21·5 kts. Fitted with 2 turbines on inner shafts (for main propulsion) = 24,000 S.H.P. and 2 sets reciprocating engines on outer shafts (for cruising and manœuvring purposes only) = 15,000 I.H.P. This machinery was originally ordered for *Normandie*. 12 Du Temple-Normand small tube boilers. 4 screws. Oil fuel: 2,160 tons. Radius: 6,000 miles at 10 kts. Is capable of accommodating over 40 planes.

At a height of 51 feet from the waterline is the flight deck, 600 feet long. An external gangway at a level 3 ft. 9 in. lower allows personnel to move about clear of the flight deck. Underneath the flight deck is the central hangar, in which are housed 5 torpedo planes, 5 reconnaissance planes, and 7 fighter planes (part of the total of 40 carried). Under this hangar again, are workshops for assembling and repairs, and for accommodation of partially equipped planes. The hangar and workshops can be divided into two portions, by means of asbestos curtains.

Hangar and workshops are equipped with overhead transporter cranes for the rapid manipulation of heavy weights, and a special type of derrick (12 tons capacity, 33 feet radius) is fitted on the starboard side of ship, abaft funnel.

Planes are carried up to flight deck by means of three electric lifts, the smallest being 27 × 40 feet and the largest 50 × 50 feet. On a lift, forward, is a charthouse which by this means can be raised above or dropped below flight deck.

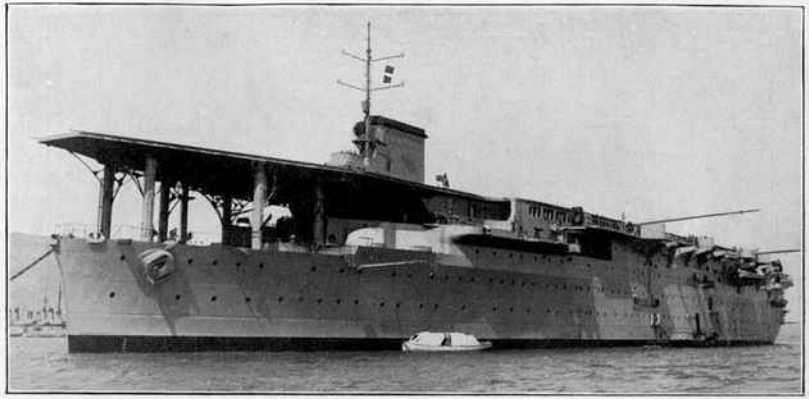
Smoke is diluted with cold air to avoid eddies in surrounding atmosphere.

Other items of equipment comprise a special hot water service for filling radiators of seaplanes, and a pneumatic distributing system for conveying their fuel.

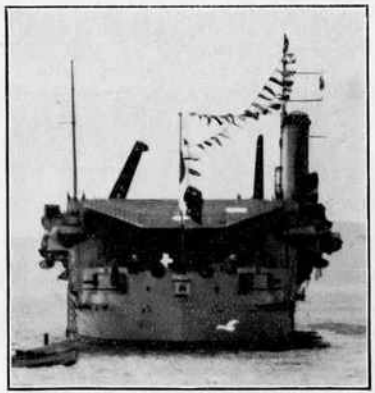
Stores carried include 3530 cubic ft. of petrol, under inert gas, and 530 cubic feet of oil.

It has been stated that owing to lack of space on flight deck, only about one fourth of the total number of planes carried can be employed simultaneously.

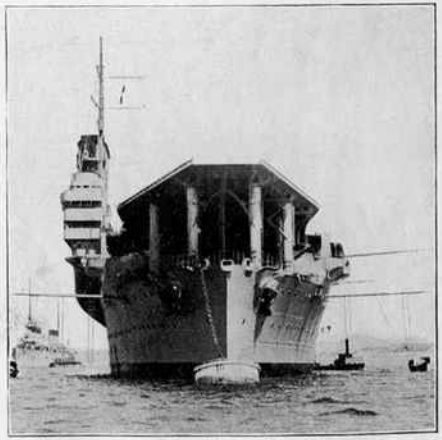
Trials.—On trial a speed of 21·5 kts. was reached with over 40,000 H.P.



BÉARN, (fore end of flight deck now curved down). 1927 *Photo, Marius Bar, Toulon.*

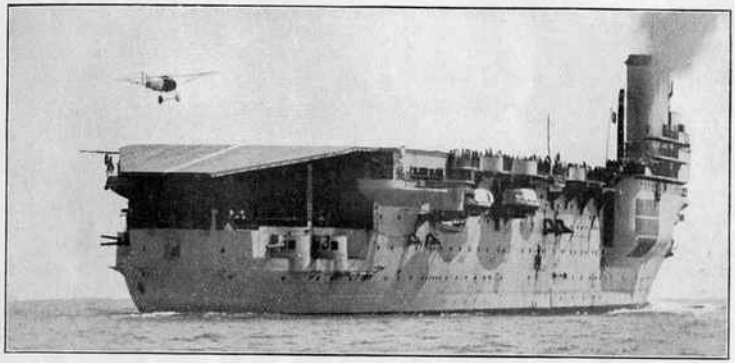


1928 *Photo, W. A. Fuller, Esq.*
BÉARN, showing lift opening up.



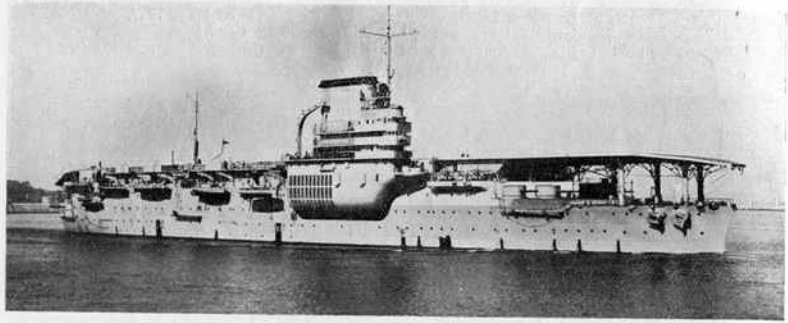
BÉARN, bow view. 1927 *Photo, M. Bar.*

AIRCRAFT TENDER. (*Transport d'Aviation.*)



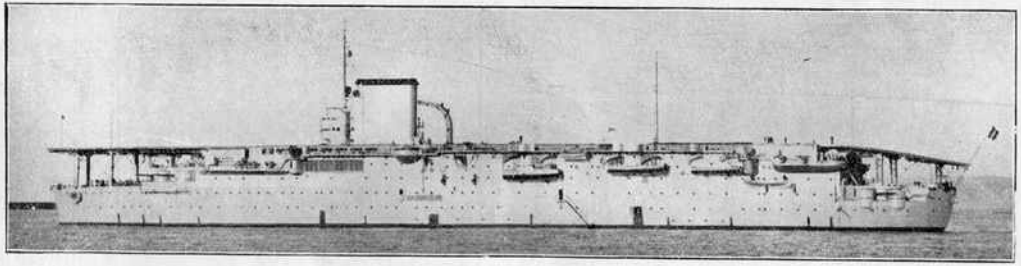
BÉARN.

1927 *Photo Marius Bar, Toulon.*



Note alteration to flight deck at bows.

1930 *Photo, M. Bar.*



BÉARN.

1928 *Photo, R. Perkins, Esq.*

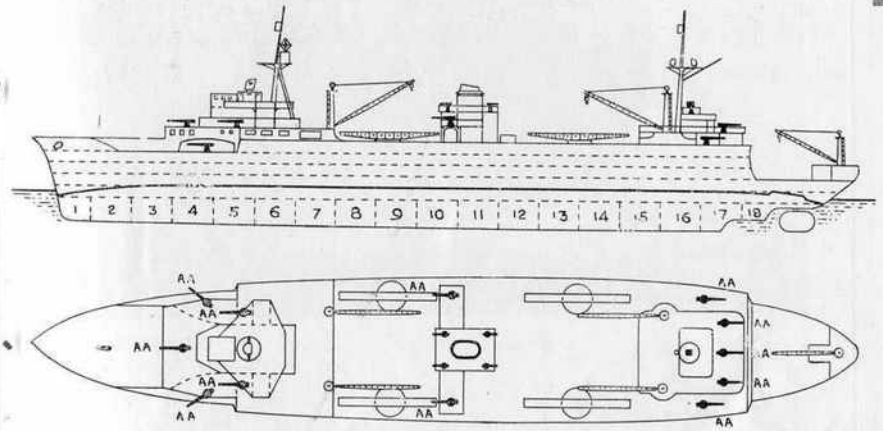
COMMANDANT TESTE. (April 12th, 1929).

Standard Displacement, 10,000 tons. Length, 512¾ feet (*p.p.*), 558 feet (*o.a.*).
Beam, 71½ feet (88½ feet, extreme). Draught, 23½ feet. Complement, 649.

Guns:
12—3.9 inch AA.
8—3 pdr. AA.
12 M.G.

Armour:
2" (H.T.?) side at waterline and a
1½" protective deck over engine and boiler spaces.

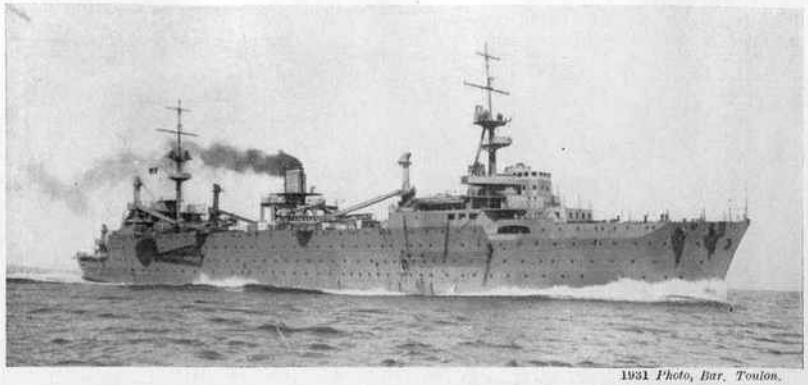
Hangar:
84 × 27 × 7 metres.
275 × 88 × 23 feet.



Machinery: 2 Schneider-Zoelly geared turbines. 2 screws. 4 Yarrow-Loire boilers (mixed firing).
S.H.P. 21,000 = 21.37 kts. Radius of action: 6000 miles at 10 kts. Fuel:— Oil 290, coal 720 tons.

Notes.—This vessel is intended to act as a tender to *Béarn*, and as a reserve from which aircraft supplies can be drawn by cruisers which carry planes. Authorised under 1926 Programme, she was ordered in May, 1927, from the Société d'Exploitation des Chantiers de la Gironde, Bordeaux (a subsidiary of the Schneider group). She carries 4 catapults, Penhoët type.

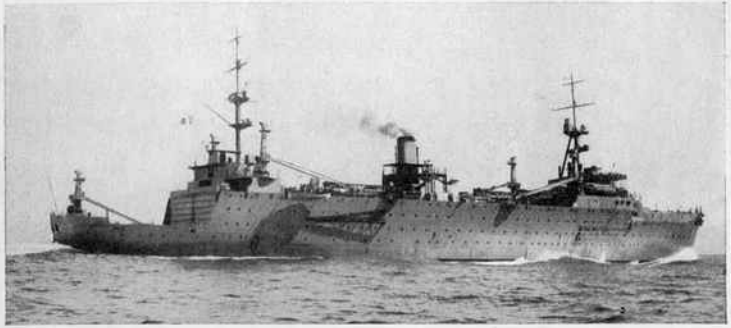
Special Note.—The small transports *Hamelin* and *A. de Courcy* (described elsewhere) are now fitted as Aircraft Tenders their official rating being "Ravitailleurs d'Aviation."



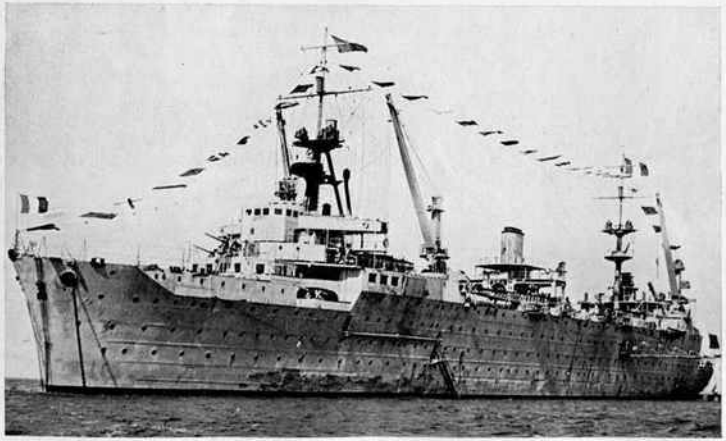
1931 *Photo, Bar. Toulon.*

1931 *Photo, Official.*

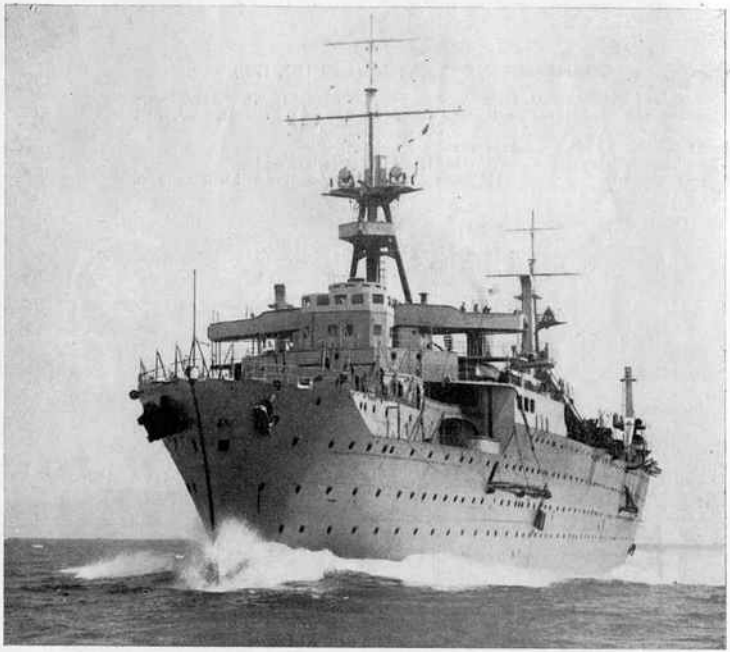
AIRCRAFT TENDER.



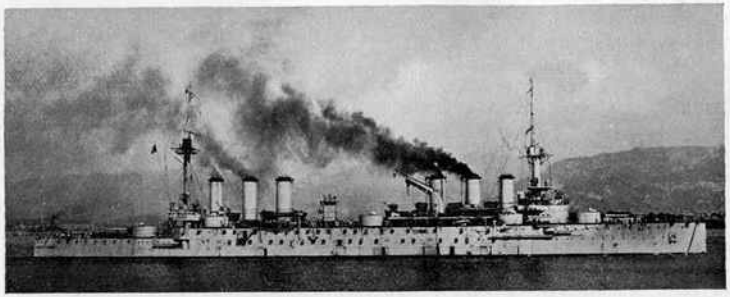
COMMANDANT TESTE (guns not mounted). 1931 *Photo, Bar, Toulon.*



1933 *Photo ,Leslie H .Howard, Esq.*



1931 *Photo, Official.*



1930 *Photo.*

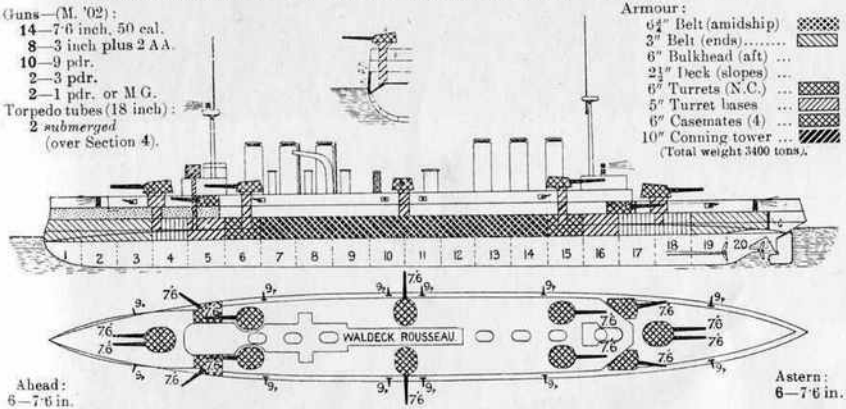
WALDECK-ROUSSEAU (March, 1908).

Standard displacement, 12,617 tons. Complement, 892.

Length (*waterline*), 515 feet. Beam, 70¾ feet. *Max.* draught, 27½ feet. Length *over all*, 521¼ feet.

Guns—(M. '02):
14—7·6 inch, 50 cal.
8—3 inch plus 2 AA.
10—9 pdr.
2—3 pdr.
2—1 pdr. or M.G.
Torpedo tubes (18 inch):
2 *submerged* (over Section 4).

Armour:
6½" Belt (amidship)
3" Belt (ends).....
6" Bulkhead (aft) ...
2½" Deck (slopes) ...
6" Turrets (N.C.) ...
5" Turret bases ...
6" Casemates (4) ...
10" Conning tower ...
(Total weight 3400 tons).



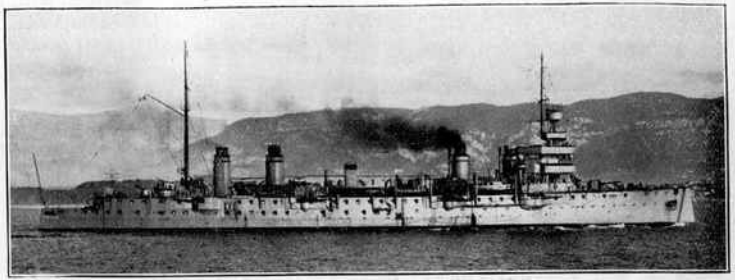
Ahead: 6—7·6 in.

Astern: **6**—7·6 in.

Broadside: **9**—7·6 in.

Machinery: 3 sets vertical triple expansion. 3 screws. Boilers (large tube): *See Notes.* Designed H.P. 36,000=23 kts. Coal: *normal* 1,242 tons; *maximum* 1,900 tons. *Nominal endurance:* 6560 miles at 10 kts. 2 seaplanes added to equipment, 1923. *E. Quinet* **Lost Jan. 1930.**

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials:* 30 boilers 10 hours	*Trials:* Full power 3 hours	*Boilers*	*Best recent speed*
W. Rousseau	Lorient Yard		June,'06	1911		35,286=23·1	42 Niclausse	20



GUEYDON. 1927 *Photo, M. Bar, Toulon.*

(*Sea-going Gunnery Training Ship.*)

GUEYDON (September, 1899). Displacement: 8189 tons. Length (*waterline*), 452¾ feet. Beam, 63¾ feet. *Max.* draught, 25 feet. Length (*over all*), 459 feet. Guns: **8**—5.5 inch, **4**—3 inch AA., **12**—40 m/m., **4**—37 m/m. Armour (Harvey Nickel): 6" Belt (ends), 3" Forecastle, 2"—1", ⅜" Decks, 3"—2¼" Lower deck side, 7¾" Casemates (8), 6¼" Conning tower. Machinery: 2 sets vertical triple expansion. 3 screws. Boilers: 20 Niclausse. Designed H.P. 19,600=21 kts. Coal: *normal* 1030 tons, *maximum* 1650 tons. Begun at Lorient, 1898; completed, 1902. Complement, 487. Reconstructed, with tripod mast and other modifications, 1926.

The following old armoured cruisers are in reserve.

JULES MICHELET 1905
ERNEST RENAN 1906

1930 CRUISER.

ALGERIE, (Brest, May 21st, 1932).

Standard Displacement, 10,000 tons. Complement,

Length, (*p.p.*), 607 feet; (*o.a.*), 617 feet. Beam, 65 feet. Draught, 20 feet.

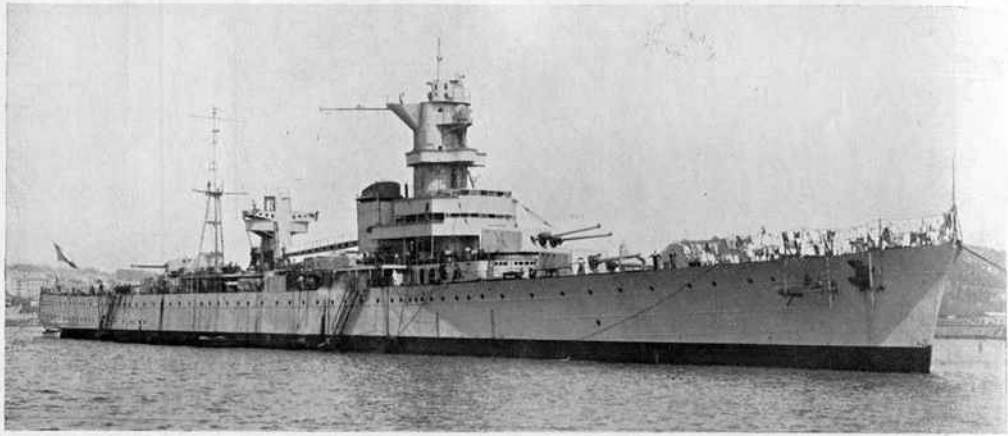
Guns: 8—8″ (new model).
12—4″ AA.
8—37 mm.

Armour:
Belt—4 inch.
Inside bulges, with hull thickness of 40 mm.

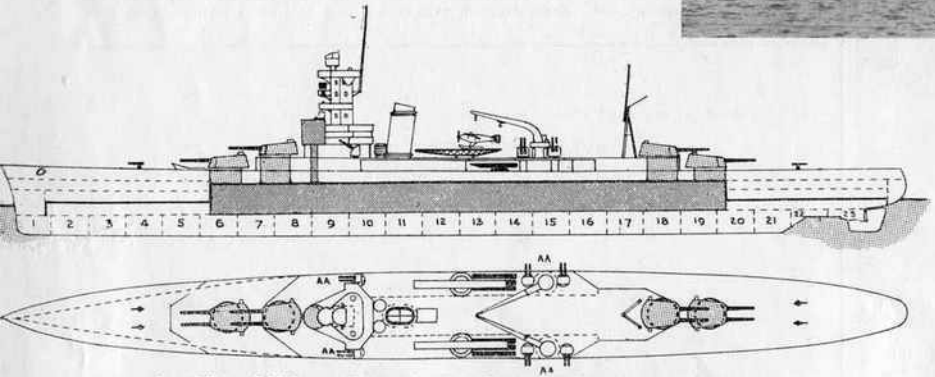
Torpedo tubes:
6—21 inch in triples.

Catapults: —2.

Machinery: 4 Ratean geared Turbines. Boilers: 8 Penhoët.
D.H.P. 84,000=32 kts. Radius: 5000 miles at 15 kts. Fuel: tons.

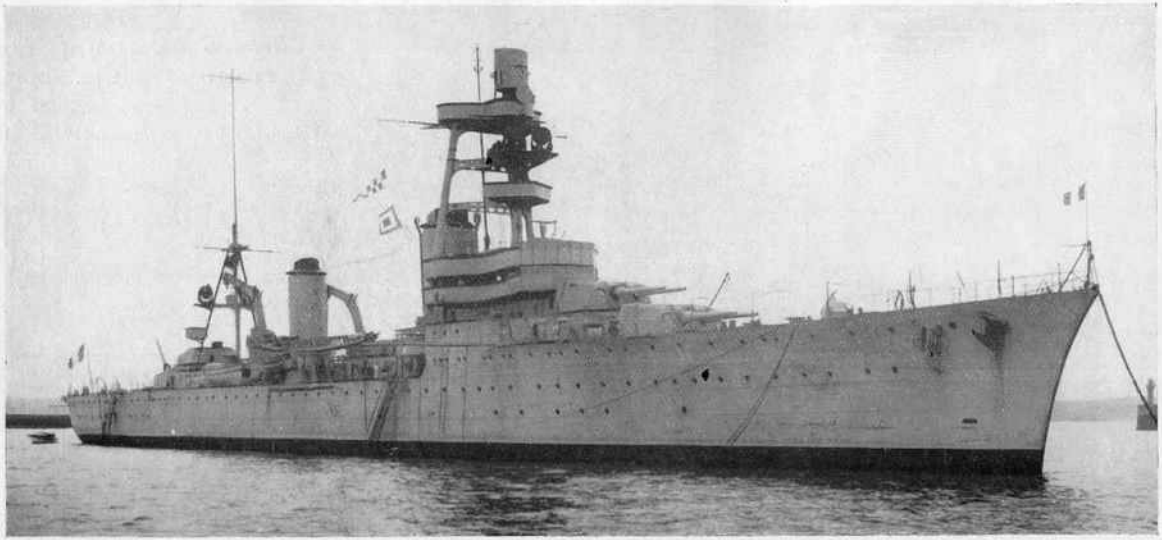


1933 *Photo, Officia*

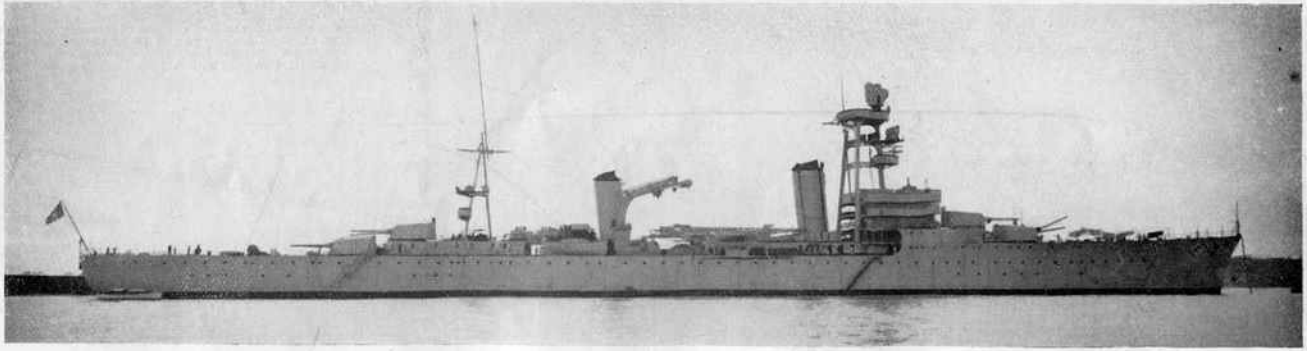


General Notes.—Laid down on March 13th, 1931 at Brest. The design constitutes a distinct departure from the "Tin-clad" vogue, and is to be more along the lines of a modern edition of the armoured cruiser of thirty years ago, being a reply to the Italian *Zara* type. A novel distribution of internal armour is to be introduced giving special anti-aerial and torpedo protection, while the big guns and hoists are to be adequately armoured instead of being mounted in gunhouses made up of thin plating with unarmoured hoists. Speed will undergo some reduction but the ships are not likely to suffer any real loss of military qualities on this account. A new model 8″ gun is to be introduced in this class, firing improved shells and having a greater range than the present model. She is to be completed in 1933.

1933 *Photo, Capt. M. Adam.*



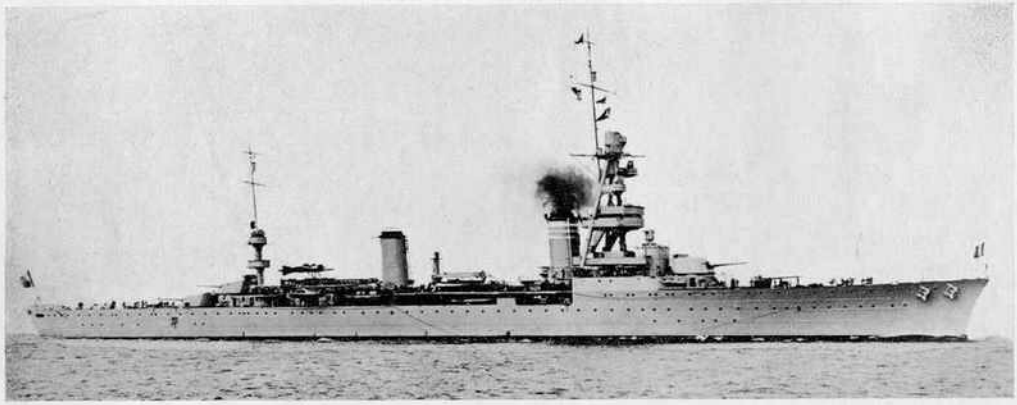
FOCH. 1931, *Official Photo.*



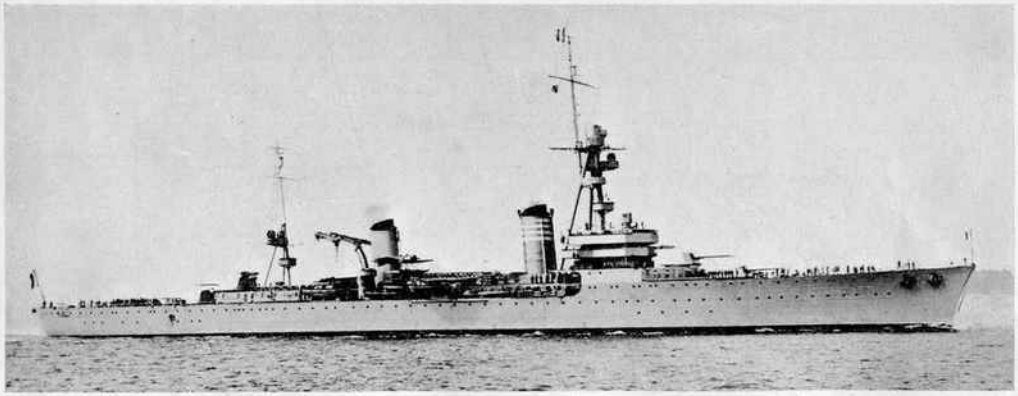
1931, *Official Photo.*

1926 CRUISERS 1929

SUFFREN CLASS—4 SHIPS.



SUFFREN. 1930 *Photo.*



COLBERT. (Note position of catapult, bridgework, cranes, and after mast.) 1930 *Photo.*

Dupleix similar, but with s.l. on foremast mounted on a single platform.

SUFFREN (May 3rd, 1927). **COLBERT** (April 20th, 1928).
FOCH (April 24th, 1929). **DUPLEIX** (October 9th, 1930).

Standard Displacement, 9,938 tons. Complement, 605.

Length (*p.p.*), 607 feet, (*o.a.*), 617 feet. Beam, 65 feet. Draught, 20 feet.

Guns:
- 8—8″ (**Dir. Con.**)
- 8—3·5″ AA. (3″ in *Suffren*)
- 8—37 m/m Q.F.

Torpedo Tubes:
- 6—21″ (in triples above water)
- 2 Catapults.
- 3 Seaplanes.

Armour:
Has a patch of thin armour over engine and boiler spaces, with 17 W.T. bulkheads carried right up to upper deck. Coal bunkers arranged to give extra protection. Fitted with external bulges.

Machinery: 3 Rateau geared turbines. Boilers: 9 Guyot (8 main and 1 auxiliary). Designed: S.H.P. 90,000=33 kts. 3 screws. Fuel: oil, 1800 tons. Coal: tons. Auxiliary equipment driven through 3 Diesel (Renault type) with dynamos. Radius: 5000 miles at 15 kts.

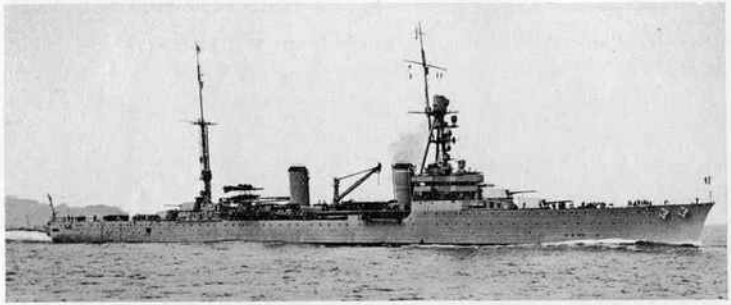
Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*
Suffren	Brest	A. & C. de	May, 1926	Dec., 1928	98,300=33·7
Colbert	,,	Bretagne	June, 1927	Sept., 1929	101,800=33·9
Foch	,,	in all	June, 1928	1930	119,000—34.1
Dupleix	,,		Oct., 1929	1931	

Are able to steam at 29 knots with half-power.

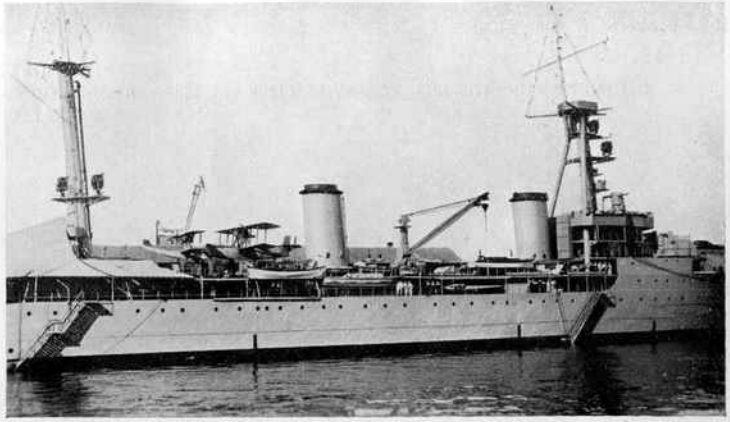
Cost: *Suffren*, 144 million. *Colbert*, 147 million francs.
Foch, 156 million. *Dupleix*, 167 million francs.

General Notes.—Are modified editions of *Tourville* class in which about two knots have been sacrificed in order to gain better protection. They differ in detail as regards appearance, *Dupleix* being similar to *Colbert*. At full speed *Foch* proved very successful, (compare with *Lamotte-Picquet*) due to modified bow and stern lines.

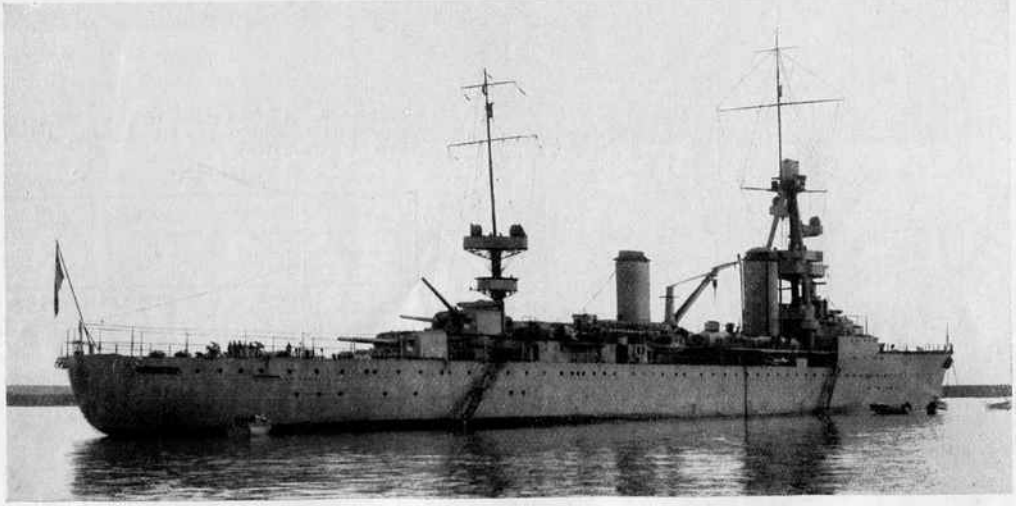
DUPLEIX. 1932 *Photo, Capt. M. Adam.*



DUQUESNE. 1930 *Photo.*



TOURVILLE. *Photo added* 1930, *W. W. Stewart, Esq.*

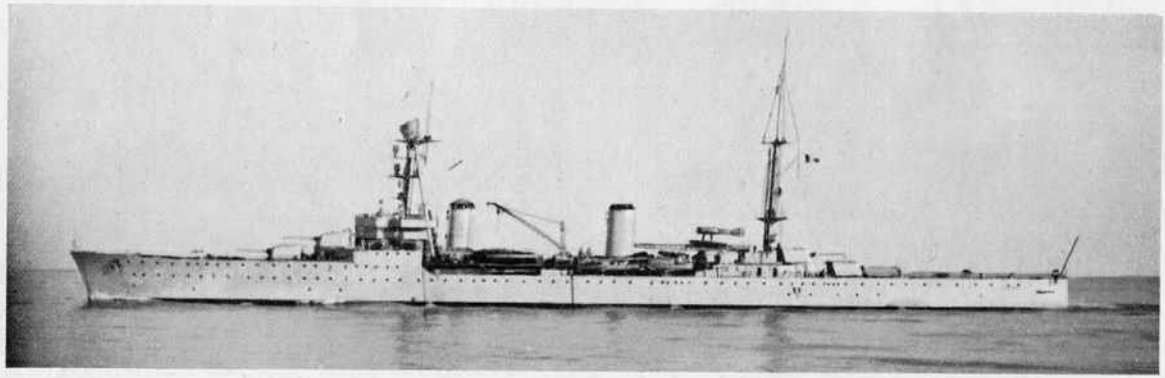


SUFFREN. 1930 *Photo, courtesy of the Ministry of Marine.*

1924 CRUISERS.

(Tourville Classes—2 Ships.)

DUQUESNE (Dec. 17th, 1925), **TOURVILLE** (Aug. 24th, 1926). Standard displacement, 10,000 tons (11,900 tons deep load). Complement, 605. Length (*p.p.*), 607 feet; (*o.a.*), 626½; Beam, 63 feet. Draught, 20⅔ feet.

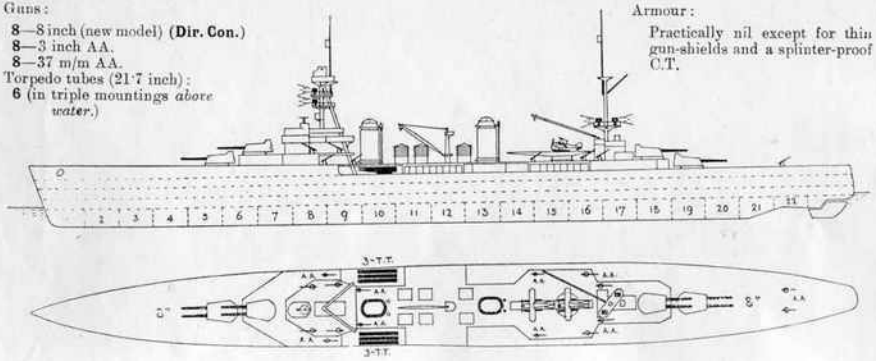


Duquesne

1932 *Photo, Mons. H. le Masson.*

Guns:

8—8 inch (new model) **(Dir. Con.)**
8—3 inch AA.
8—37 m/m AA.
Torpedo tubes (21·7 inch):
6 (in triple mountings *above water*.)



Armour:

Practically nil except for thin gun-shields and a splinter-proof C.T.

Machinery: 4 Rateau geared turbines. Boilers: 9 Guyot (8 main and 1 auxiliary). Designed S.H.P., 120,000 = 34·5 kts. 4 screws. Oil: 1800 tons. Radius: 5,000 miles at 15 kts.; 700 at full speed.

Duquesne and *Tourville* equipped with 2 scouting seaplanes and a launching catapult.

Name	*Builder*	*Machinery*	*Laid down*	*Completed*	*Trials*
Tourville	Lorient	A. & C. de Bretagne	14 April, 1925	1928	130,000 = 36.15
Duquesne	Brest		30 Oct., 1924	1928	135,000 = 35.3

General Note.—Above ships are practically enlarged copies of *Duguay-Trouin* design, with an improved form of hull and heavier armament.

Engineering Notes.—Boiler and engine rooms are arranged alternately, and not in two separate groups, as suggested in plans appearing elsewhere. *Tourville's* trial speed of over 36 kts. was obtained while running on normal Displacement. Auxiliaries driven through 3 Diesels (Renault Type) with dynamo.

La GALISSONNIÈRE (Brest) (Nov. 17, '33). *JEAN de VIENNE* (L'Orient).

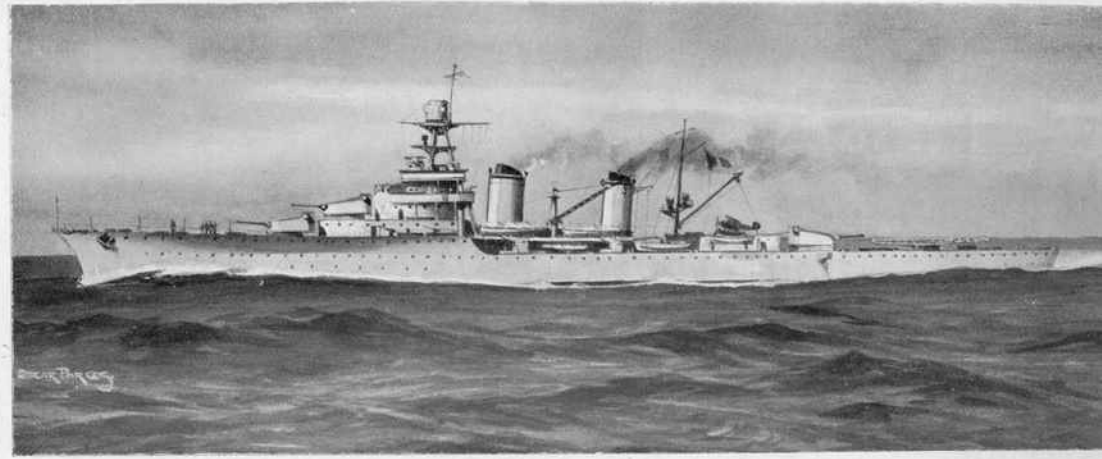
GLOIRE (Ch. de la Gironde). *MARSEILLAISE* (Ch. de la Loire). *MONTCALM* (F. et. Ch. de la Mediterranean). *GEORGES LEYGUES* (*ex. Chateaurenault*) (Ch. de Ste Nazaire).

Displacement, 7,729 tons.

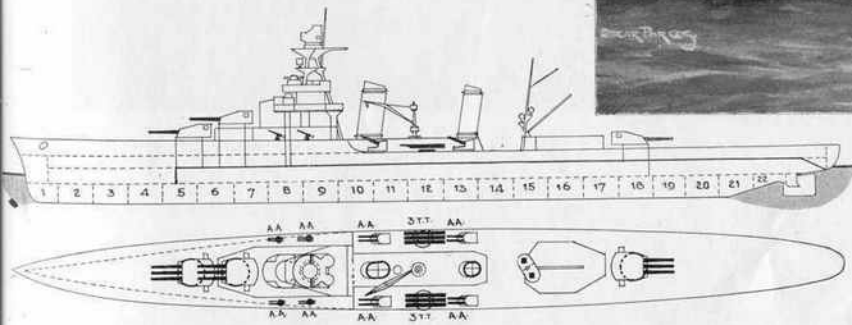
Length: 590 ft. (180 *m.*) Beam: 57·4 ft. (17·5 *m.*) Draught: 16·4 ft. (5 *m.*)

Guns:
9—6·1 inch (152 mm.)
8—3·5 inch AA. (90 mm.)
Tubes:
4—21·7 inch (550 mm.)
Aircraft:
2

Armour (unofficial):
4″—3″ Belt.
2″ Deck
5½″ Turret faces.



1933 *Drawing, Oscar Parkes*



Machinery: Turbines. 84,000 H.P. = 31 kts.

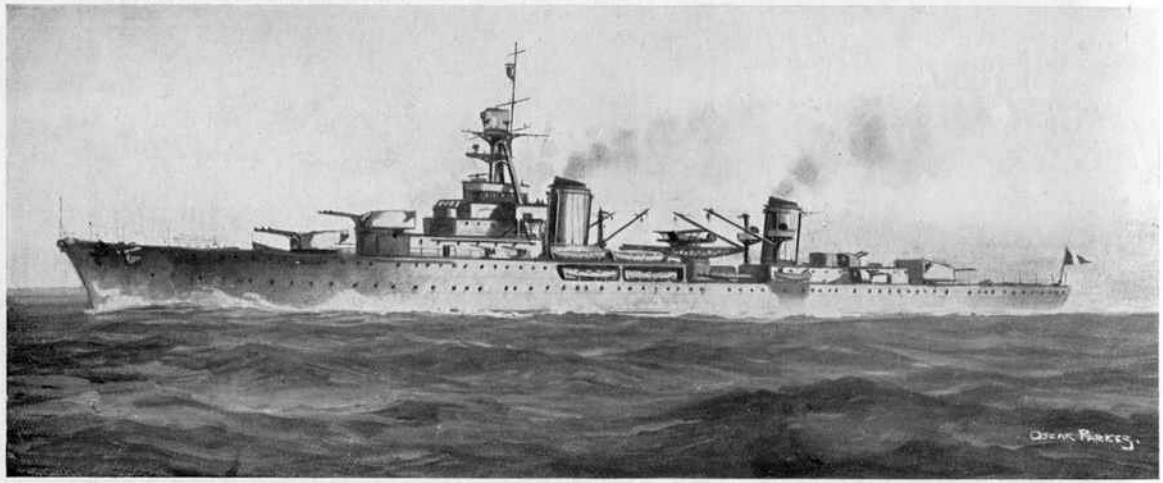
General Notes.—The delay in the construction of these ships is in part due to modifications having been introduced into the design, which is based on that of the *Emile Bertin* with additional protection which is said to be capable of resisting 6″ gun-fire. Details as to the catapult and crane arrangements are liable to alteration, otherwise the ships will be substantially as shown. A feature of the design is the long quarter-deck—possibly to allow a clear area for stowing a plane landed aft from a Hein mat, or else the catapult may be mounted there. Planes may be stowed on the after-shelter deck and at the base of the mainmast. The bow flare is angled and not curved. It is more than likely that the four later ships will differ from *La Galissonnière* and *Jean de Vienne* in minor details.

The first two belong to the 1930–31 Programme: the other four to the 1931–32 Programme. Ordered Apr. '33.

1931 MINELAYING CRUISER.

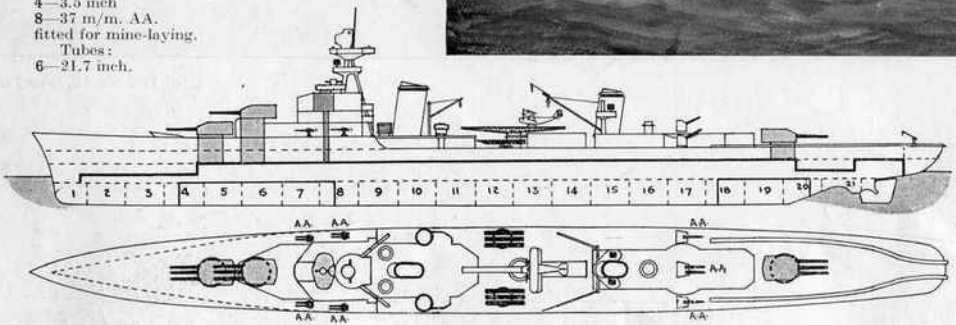
EMILE BERTIN, (Penhoët, St. Nazaire.) (May, 9, 1933.)

Displacement: 5,886 Tons. Complement ———. Length: 548 ft., (167 m.) Beam: 52·4 ft., (16 m.) Draught: 16·4 ft., (5 m.)



1933. *Drawing, Oscar Parkes.*

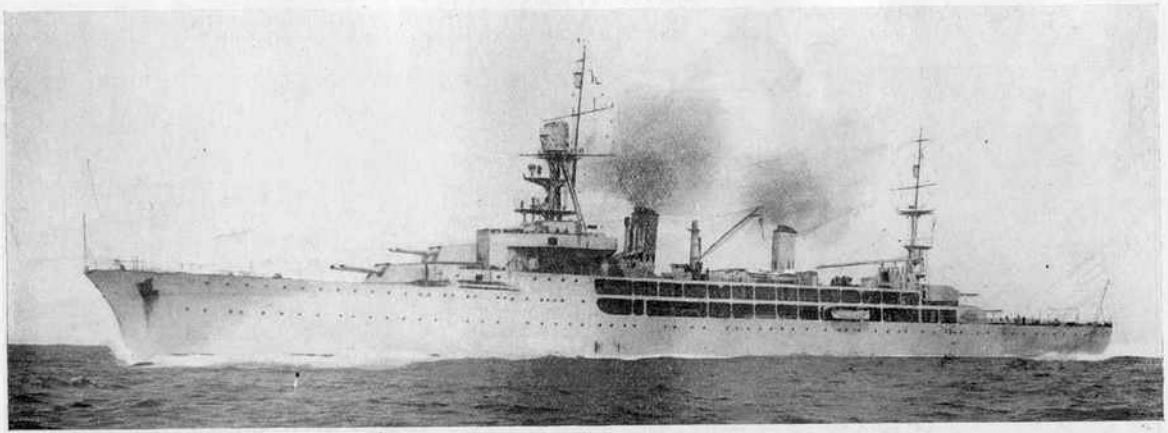
Guns:
9—6 inch.
4—3.5 inch
8—37 m/m. AA.
fitted for mine-laying.
Tubes:
6—21.7 inch.



Machinery: Turbines. S.H.P. 102,000 34 kts. Fuel: Boilers.

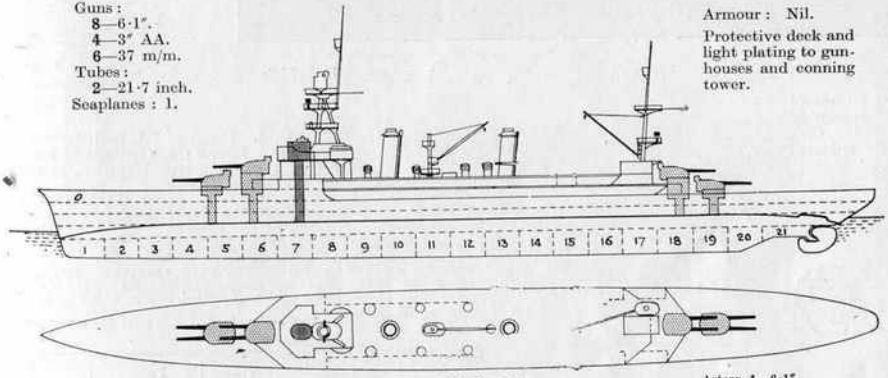
Notes.—Authorised under the 1930 Programme. Laid down 1931. To be completed in 1934. The triple mounting makes its first appearance in the French Navy in this ship. She is a development of the *Pluton* but the cruiser characteristics are not so much subordinated to those of the mine-layer.

JEANNE D'ARC (Penhoët, St. Nazaire.) (Feb. 14th, 1930.)
Standard Displacement, 6,496 tons. Dimensions, 525 × 57½ × 17¾ feet.
Complement: 505



1931 *Official Photo.*

Guns:
8—6·1″.
4—3″ AA.
6—37 m/m.
Tubes:
2—21·7 inch.
Seaplanes: 1.



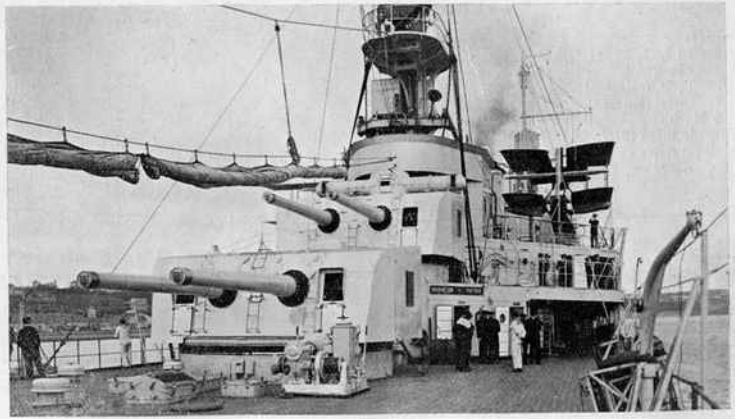
Armour: Nil.
Protective deck and light plating to gun-houses and conning tower.

Ahead 4—6·1″. Broadside 8—6·1″. Astern 4—6·1″.

Machinery: Penhoët, Parsons turbines. 4 screws. Designed H.P. 32,500=25·5 kts. Oil: 14,000. Radius, 5,000 miles at cruising speed (14–15 kts.). Boilers: 4 Penhoët.

General Notes.—Designed to carry two catapults as shown in plan, but these have been discarded and she will now have seaplane stowage amidships only. Will accommodate 156 midshipmen and cadets and 20 instructional officers, in addition to ordinary complement. Authorised under 1927 Programme and laid down at Penhoët Yard, St. Nazaire in 1928. Completed in 1931.

Trials:—3 hours' full power: 39,000 H.P.=27·84 kts.



Quarter Deck.

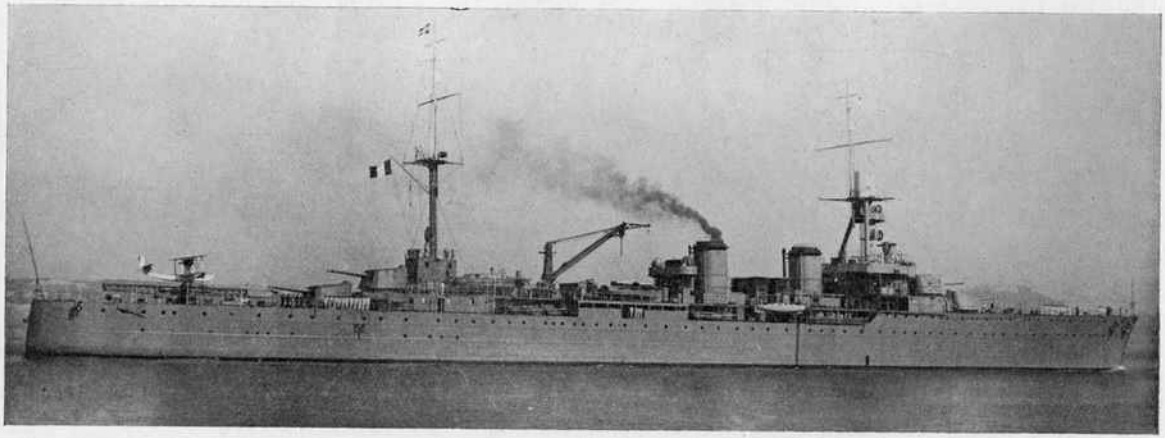
1932 *Photo, Mon. H. le Masson.*

1922 CRUISERS.

(Duguay-Trouin Class—3 Ships.)

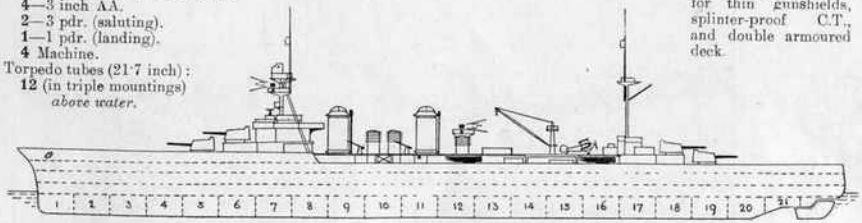
DUGUAY-TROUIN (14th Aug., 1923), **LAMOTTE-PICQUET** (21st March, 1924), **PRIMAUGUET** (21st May, 1924).

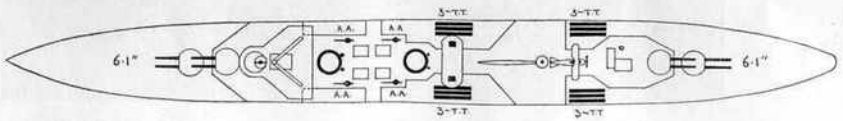
Standard displacement, 7,249 tons. Normal displacement, 7,880 tons. (*Full load*, 9,350.) Complement, 577.
Length (*p.p.*) 575 feet, (*o.a.*) 601 feet. Beam, 56¼ feet. Draught, 17¼ feet *mean*; 20 feet *maximum* at full load.



Primauguet. 1930 *Photo.*

uns:
8—6·1 inch, 55 cal. **(Dir. Con.)**
4—3 inch AA.
2—3 pdr. (saluting).
1—1 pdr. (landing).
4 Machine.
Torpedo tubes (21·7 inch):
12 (in triple mountings) *above water.*





Armour:
Practically nil, except for thin gunshields, splinter-proof C.T., and double armoured deck.

Machinery: 4 Parsons geared turbines. Boilers: 8 Guyot. Designed S.H.P. 100,000 = 34 kts. 4 screws. Oil: 500 tons *normal*, 1500 tons *maximum*. Radius: 880 miles at 34 kts.; 1290 at 30; 3000 at 20; 4500 at 15. Each vessel carries 2 scouting type seaplanes, and a launching catapult (abaft after turret). Depth charges carried.

Gunnery Notes.—6.1 inch guns are a new model with ballistic powers superior to old marks of 7.6 inch. Range reported to be 23,000 metres, elevation 35°. Reason for adoption of this calibre is said to have been its uniformity with Army type 6.1 inch, simplifying munition supply, more particularly of gas and incendiary shells. Gunhouses are reported to be gas-tight, and to have a special method of ventilation by forced draught.

Engineering Notes.—Trial results tabulated are averages of 6 hours with full complement of fuel and stores. *Maximum* speed for 1 hour, 34.5 kts. All three ships maintained 30 kts. for 24 hours' continuous steaming at half power with full load, and have proved very economical. Excellent sea-keeping qualities. Heating surface, 13,209 sq. feet.

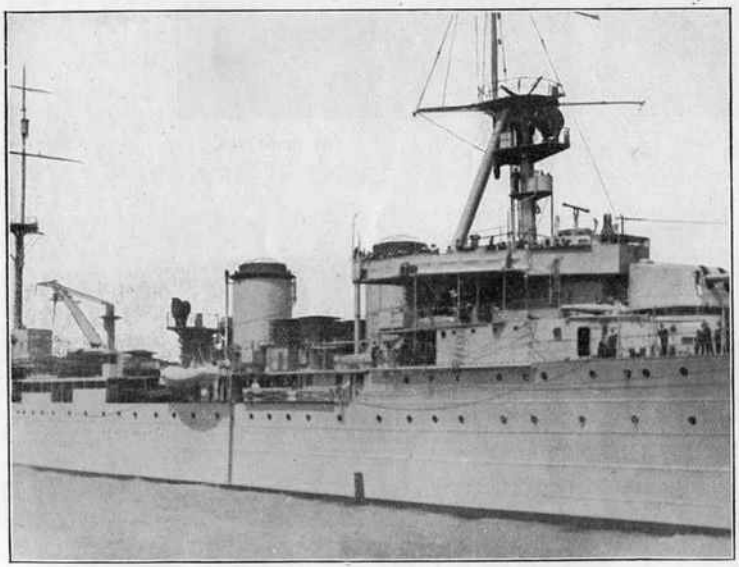
Torpedo Notes.—24 torpedoes carried (12 in tubes, 12 in magazine). In addition, 4—17.7 inch torpedoes are carried for picket boats.

Name.	*Builder.*	*Machinery.*	*Laid down.*	*Completed.*	*Trials. (6 hours)*	
Duguay-Trouin	Brest	F. & C. de la Méd.	4 Aug., '22	Aug., 1925	116,235 = 33·6	
Primauguet	Brest	A. & C. de la Loire	10 Aug., '23	Nov., 1925	116,849 = 33·06	
Lamotte-Picquet	Lorient	C. & A. de St. Nazaire (Penhoët).	17 Jan., '23	Dec., 1925	115,100 = 33·04	

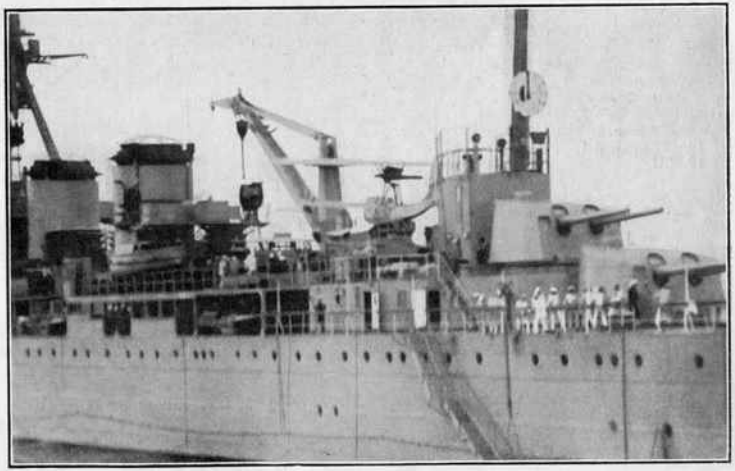
General Notes.—Completion dates given above do not represent actual passing into service, but merely dates of beginning trials. These ships have shown excellent sea-going qualities.

DUGUAY-TROUIN. 1927 *Official Photo.*

LAMOTTE PICQUET. 1930 *Photo.*



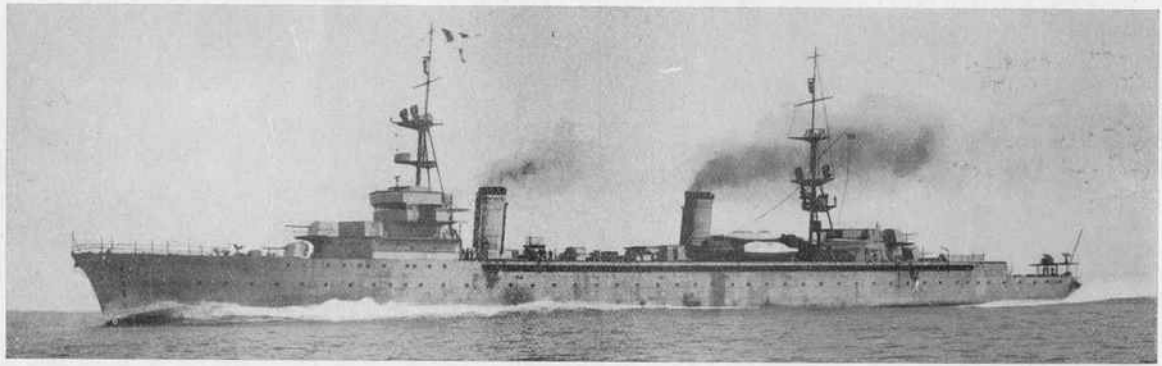
DUGUAY-TROUIN 1927 *Photo "Fighting Ships."*



DUGUAY-TROUIN. 1928 *Photo, W. A. Fuller Esq.*

1928 MINELAYING CRUISER.

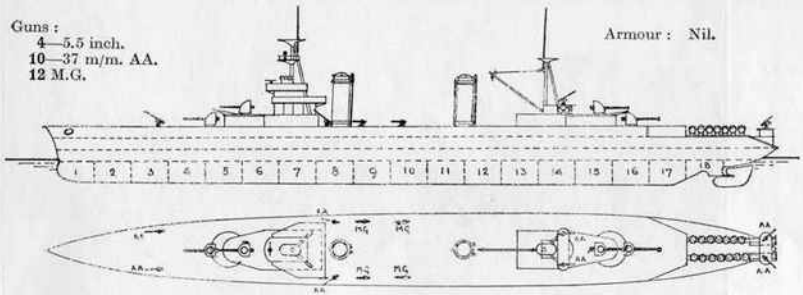
PLUTON (April 10th, 1929).
Displacement, 4,773 tons. Complement, 406. Length, 472½ feet. Beam, 51 feet.
Draught, 17 feet.



PLUTON. 1931 *Official Photo.*

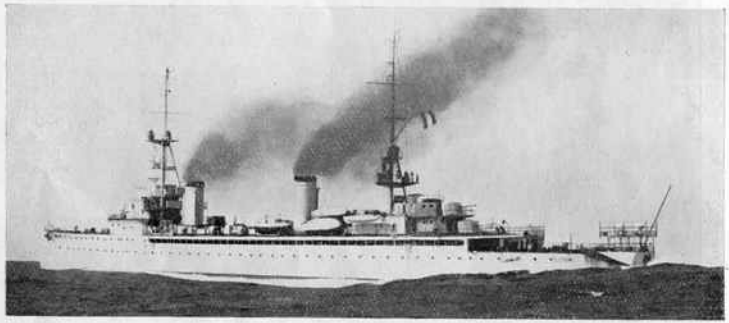
Guns :
4—5.5 inch.
10—37 m/m. AA.
12 M.G.

Armour : Nil.

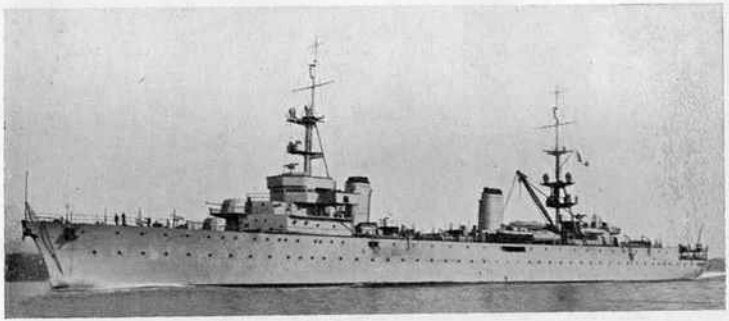


Machinery : 2 Breguet geared turbines. S.H.P. 57,000=30 kts. Oil=1,200 tons. Boilers : 4 small tube.

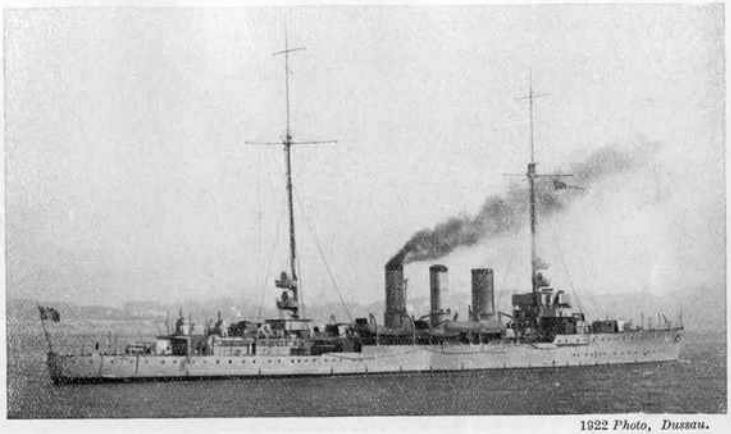
Note.—Authorised under 1925 Programme, and laid down at Lorient Dockyard in April, 1928, completed April, 1931.
Trials: H.P., 56,000=30·6 kts. Top speed 31·6 kts.



Mine deck plated in 1933. 1932 *Photo, Official.*



PLUTON (showing mine-deck plated in). 1933 *Photo.*



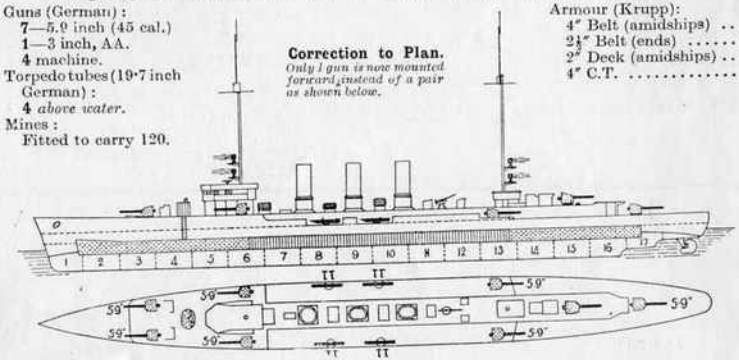
1922 *Photo, Dussau.*

STRASBOURG (ex-German *Regensburg*, April, 1914).
Standard displacement, 4,723 tons (5,511 *full load*). Complement, 420.
Length (*w.l.*), 456 feet. Beam, 45 feet. Draught, 16 feet *mean*, 17 feet *max.*

Guns (German):
7—5.9 inch (45 cal.)
1—3 inch, AA.
4 machine.
Torpedo tubes (19·7 inch German):
4 *above water.*
Mines:
Fitted to carry 120.

Correction to Plan.
Only 1 gun is now mounted forward instead of a pair as shown below.

Armour (Krupp):
4″ Belt (amidships) ....
2½″ Belt (ends) .....
2″ Deck (amidships) ....
4″ C.T. .....



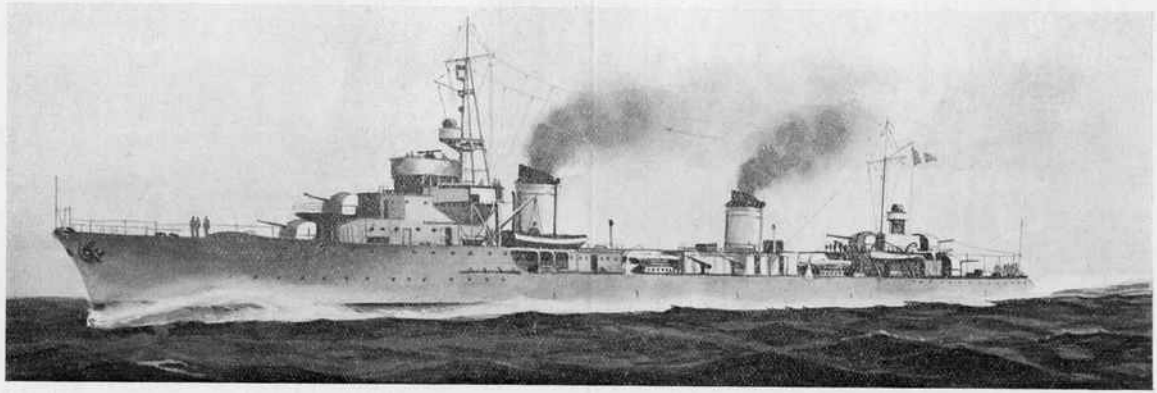
Machinery: German "Marine type" turbines. 4 screws. Boilers: 14 Schulz-Thornycroft: Designed S.H.P. 32,000 = 27.25 kts. Coal: *normal*, 470 tons; *maximum*, 1170 tons. Oil: 430 tons. Endurance: 4466 miles at 11 kts.: 918 miles at 25.5 kts.

Notes.—Begun under German 1912 Programme as *Ersatz Irene*, by Weser Co., Bremen. Completed late in 1914. Surrendered at Cherbourg, June, 1920. Armaments mounted in this ship, when in German Navy, were (*a*) 12—4·1 inch, 1914-15, (*b*) 2—5·9 inch, 8—4·1 inch, about 1915-17, (*c*) 7—5·9 inch, at end of war. Has done 26 kts. on trials, after refit (March, 1925) but is only good for about 22-23 kts. at sea now. Now in reserve.

DESTROYERS.

7 Improved Aigle Class.

1930 Programme.



1932 *Illustration.*

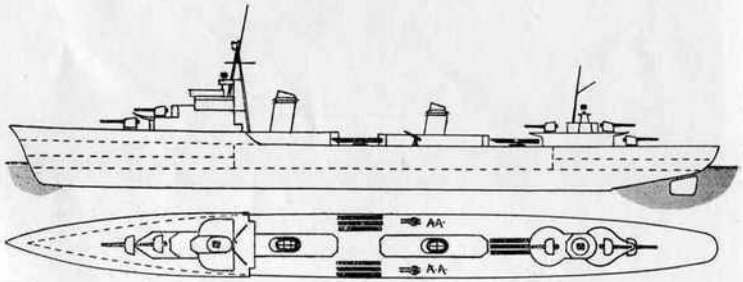
Le Fantasque	Lorient.	These ships are much behindhand and will average 4 years from placing of contracts to completion date.
L'Audacieux		
Le Malin	La Seyne. (Aug. 17, 1933).	
Le Terrible	C.N.F. Blainville	
Le Triomphant	Ch. de France (Dunkerque) (Dec. 1933).	
L'Indomptable	La Seyne. (Nov. 1933).	
Mogador	Lorient. (1932 programme).	

Displacement: 2,569 tons.
Dimensions: 410 × 39 × 30 ft. (125·4 × 11·9 × 9 m).
S.H.P. 74,000 = 37 kts.
Guns: 5—5·5 inch, 4—37 m/m, 4 D.C. throwers.
Tubes: 9—21·7 inch
Machinery: 2 sets geared turbines.
Rollers: 4 small tube.
Complement: 10/200.

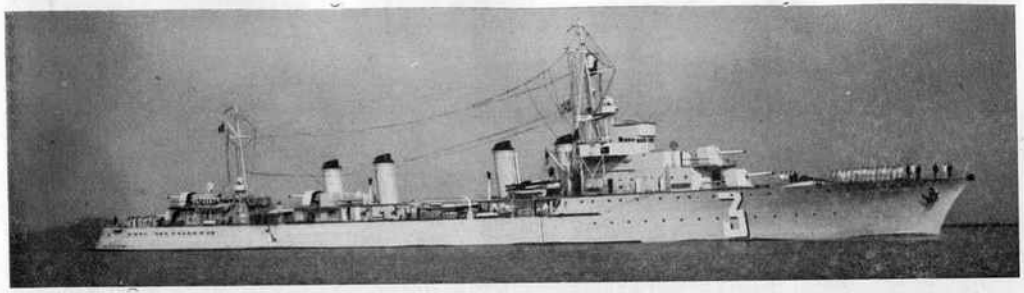
1 Experimental Type.

Le Hardi — 1931 Programme.

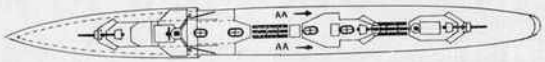
No official details available, but is reported as being designed along the lines of recent Italian destroyers with four 5·1" guns in twin mounts on a displacement of 1,600 tons.



Machinery Note.—Rateau-Bretagne turbines fitted in *Le Fantasque* and *Le Terrible*; Parsons in *Le Malin* and *L'Indomptable*.



VAUBAN. 1931 *Photo, M. Bar.*



BISON. 1931 *Photo, Capt. de C. M. Adam.*

MILAN, VAUTOUR AND CASSARD CLASS.

Average speed at normal displacement and designed H.P.

Guepard 35·9.
Valmy 37.
Verdun 36·7.
Gerfaut 40·5.
Bison 36·5.

MAILLÉ BRÉZÉ. 1933 *Photo, Capt. de C. M. Adam.*

6 GUÉPARD and 12 AIGLE Classes:

1925 Programme.

	Builders.	*Begun.*	*Launched.*	*Compl.*	*Top Speed.*
Bison	Lorient	Feb. '27	29/10/28	1929	=40·6
Guépard			19/4/28	1929	69,100=38·4
Lion	Ch. France	Apl. '27	5/8/29	1930	=40·4

1926 Programme.

Vauban	Ch. France	'27	1/2/29		=40·2
Valmy	Penhoët	'27	19/5/29		69,300=39·8
Verdun	Ch. Loire	'27	4/7/28		72,400=40·1

Displacement: 2,436 tons. About 2,900 tons full load.
Dimensions: 433·3×37·6×11·7 feet.
Guns:—5—5·5." 4—37 m/m. 4—Dc. Throwers. Tubes, 6—21·7".
S.H.P. 64,000=36 kts. Oil: 500-650 tons. Radius: 3,000 miles at 18 kts.
Turbines: Parsons in *Valmy, Verdun, Guépard* and *Bison*. Zoelly-Fives-Lille in *Vauban* and *Lion*.

1927 Programme.

Aigle	Ch. France	'29	19/2/31	1931	
Albatros	A. C. Loire	'29	28/6/30	1931	87,000=41·9
Epervier	Lorient	6/30	14/8/31	1932	=42·60
Gerfaut	Ch. Bretagne	'29	14/6/30	1931	=42·78
Milan	Lorient	6/30	14/10/31	1932	83,000=42·47
Vautour	F. C. Med. Havre	'29	26/8/30	1932	80,000=40·2

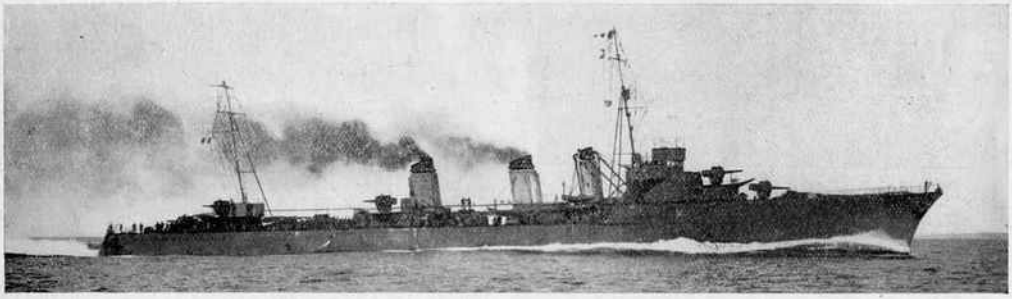
Turbines: Parsons in *Albatross, Vautour* and *Milan*. Rateau-Bretagne in *Gerfaut* and *Epervier*. Zoelly-Fives-Lille in *Aigle*.

1928—29 Programme.

Cassard	Ch. Bretagne	11/30	8/11/31	=42·9
Le Chevalier Paul	La Seyne	2/31	21/3/32	
Maillé Brezé	Penhoët	10/30	9/11/31	=42·0
Kersaint	Ch. Loire	9/30	14/11/31	
Tartu	Ch. Loire	/30	7/12/31	
Vauquelin	Ch. France	3/30	29/9/32	

Displacement: 2,441 tons. Dimensions: 423·5×38·6×12·7 feet.
S.H.P. 70,000=36 kts. (74,000 in *Milan* and *Epervier*).
Oil: 650 tons. Radius: 2,500–3,000 miles at 18 kts.

ARMAMENT in *Aigle* and *Cassard* groups.
Guns: 5—5·5 inch, 4—37 m/m, 4 D.C. Throwers.
Tubes: 7—21·7 inch (6 in *Aigle, Albatross, Epervier, Gerfaut*).
Machinery: 2 sets geared turbines. Parsons in *Kersaint, Tartu, M. Brézé* and *Ch. Paul*. Zoelly-Fives-Lille in *Vauquelin*. Rateau-Bretagne in *Cassard*.
Boilers: 4 small tube.



TIGRE. 1931 *Photo, R. Perkins.*

Note.—Classified on a tonnage basis these ships would rank as cruisers being above 2,000 tons **standard displacement.** They are employed in divisions and not as flotilla leaders.

1922 Programme

		Begun.	*Launched.*	*Compl.*	*Trials.*
Jaguar	Lorient		6/11/23	1926	52,000=34·7
Panthère	Dockyard		28/10/24	1926	=35·5
Léopard ..	Ch. de Loire		29/9/24	1927	
Lynx ..	St. Nazaire		25/2/25	1927	=35·5
Chacal ..	Penhoët		27/9/24	1926	52,000=36·1
Tigre ..	Ch. de Bretagne Nantes.		2/8/24	1926	58,000=36·7

Displacement: 2,126 tons; 2,700 tons full load.

Dimensions: 392¼ (*p.p.*), 416 (*o.a.*)×36×11·1 feet. Complement: 204.

Guns: 5—5·1 inch.
8—M.G. AA.
4—D.C. Throwers.

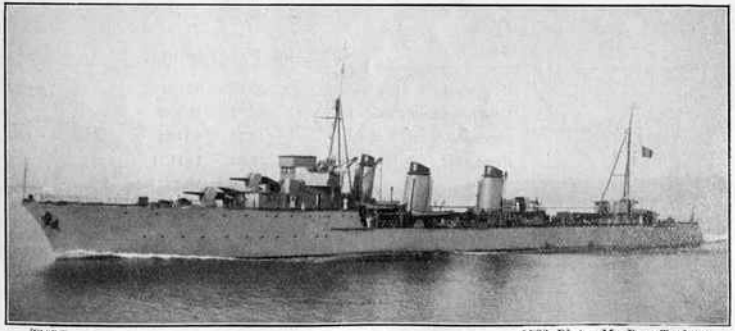
Tubes: 6—21·7 inch.

Oil: 250/540 tons.
Radius: 3,500 miles at 15 kts.
2,500 „ „ 18 „
900 „ „ full speed.

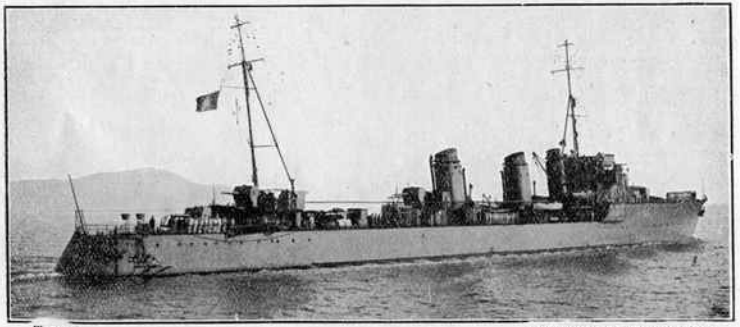
S.H.P. 50,000=35·5 kts. Breguet-Loire turbines (*Léopard* and *Lynx*). Rateau-Bretagne in other four. 5 small tube Du Temple boilers.

Average speed at normal displacement and H.P.

Jaguar 34·2	Chacal 34·7
Panthère 35·3	Tigre 35·9
Léopard 34·9	Lynx 34·5

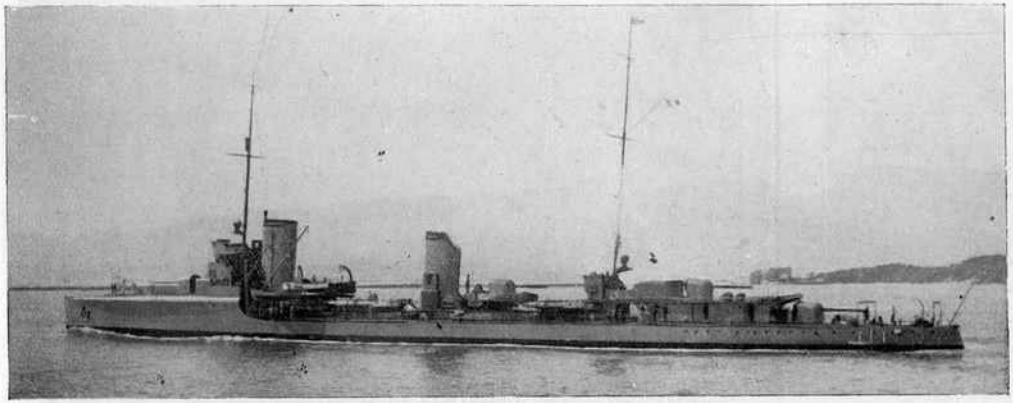


TIGRE. 1926 *Photo, M. Bar, Toulon.*



TIGRE. 1926 *Photo, M. Bar, Toulon.*

1 ex-German Boat. ("1916 Design.")



AMIRAL SÉNÈS

Photo added, 1931.

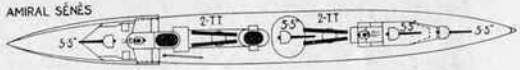
1 *Schichau, Danzig*: **Amiral Senès** (ex-German *S 113*, launched 1917, completed May, 1918). 1525 tons*. Dimensions: 334½ × 36 × 13 feet draught aft. Guns: 4—5·9 inch, 2—37 mm. AA. Torpedo tubes: 4—21·7 inch, in two twin deck mountings. Machinery: Turbine. Boilers: 4 Marine type (by Schichau). Designed S.H.P. 44,000=34 kts. (*trial* gave 36·9 kts.) 2 screws. Oil fuel: 210 tons *normal*, 720 tons *max.*=2500 miles at 20 kts.

* *Standard* displacement 1525 tons; *normal* is 2100 tons.

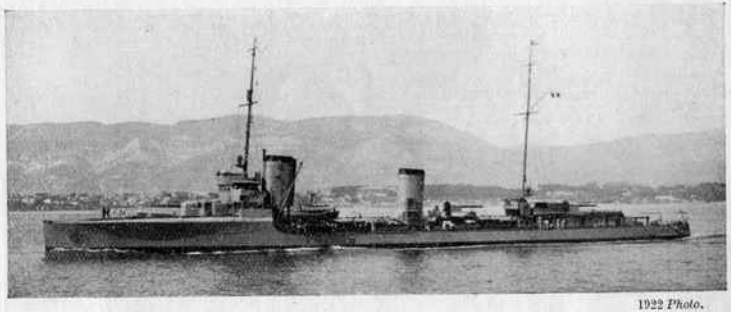
Gunnery Notes.—5·9 inch have large degree of elevation and can be used as AA. guns. German directors, fire controls, R.F. and electric transmitters, etc., stripped before surrender.

Torpedo Notes.—Tubes, 32 feet long, electrically operated, and with special electric motors for loading. Axes diverge 15°.

General Notes.—Originally a unit of the German "1916 Design" Class (*S 113—B 124*). A sister boat (*V 116*) now Italian *Premuda*. The class represents the largest and most powerful Destroyer type extant, but their sea performance as first completed was very bad indeed. Ran trials during spring of 1918, when engines and armament proved too powerful and heavy for the hull; they were sent back to the yards for alterations. The Germans are said to have lengthened these boats by about 11½ feet at bows in an attempt to improve stability. They never joined German Flotillas during the war. French reports also say they never got beyond 30 kts. on trials. Hull strengthening and minor modifications are reported to have considerably improved the qualities of *Amiral Sénès*, and she is now good for 32 kts.

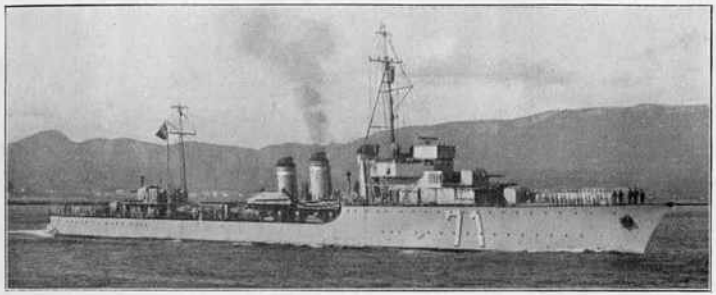


This vessel is rated in the Treaty cruiser category by virtue of her 5.9" armament, but France does not accept this classification.



1922 *Photo.*

14 Adroit Class.



LE MARS. 1929 *Photo, M. Bar, Toulon.*

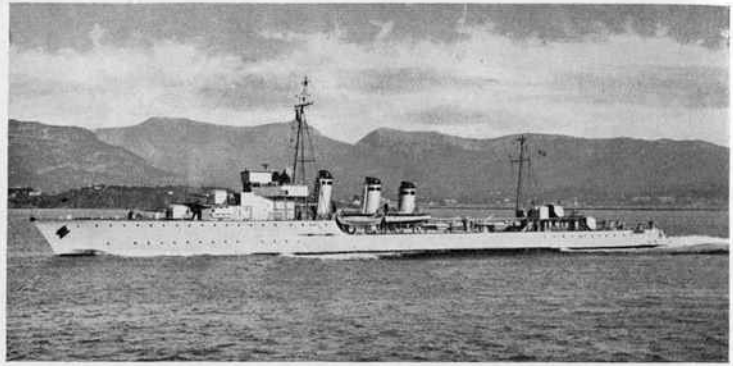
L'Adroit (April 1st, 1927).
Le Fortune (Nov. 15, 1926), ***Le Mars*** (Aug. 28, 1926).
La Palme (June 30th, 1926), ***La Railleuse*** (Sept. 9th, 1926).
L'Alcyon (June 26th, 1926). (Launched at Harfleur and towed to Bordeaux for completion.)
Basque (May 25th, 1929), ***Bordelais*** (May 23rd, 1928), ***Boulonnais*** (June 1st, 1927), ***Brestois*** (May 18th, 1927).
Forbin (July 17th, 1928), ***Foudroyant*** (April 24th, 1929), ***Fougueux*** (Aug. 4th, 1928), ***Frondeur*** (June 20th, 1929).

Displacement: 1378 tons *standard*, 1495 tons *normal* (*about* 1750 *full load*). Dimensions: 330·9 × 32½ × 9½ feet. Complement, 145. Guns: **4**—5·1 inch, **2**—37 m/m. AA. Torpedo tubes: **6**—21·7 inch, in triple deck mountings. 2 sets geared turbines of Zoelly type in *Adroit* and *Alcyon*, Parsons in *Brestois* and *Foudroyant*. Rateau-Bretagne in *Basque*. Designed H.P. 34,000 = 33 kts. Other particulars similar to those of *Simoun* class, but slightly increased boiler power is expected to give improved speed. On trials *Brestois* reached 34·5 kts., *Fougueux* 36.4. 16 Depth Charges carried.

Note.—Ordered under Programmes of 1924 (first six), 1925 (next four), and 1926 (last four). As compared with *Simoun* type, these vessels possess improved stability, higher rate of salvo firing, better aerial defence and lower fuel consumption. 5·1 inch guns said to possess a range of 19,000 yards and can fire eight rounds a minute.

Name	*Builders*	*Engines*	*Begun*	*Completed*
L'Adroit	Ch. de France, Dunkerque	Fives, Lille		1928
L'Alcyon	Ch. de la Gironde	Ch. de la Gironde		1927
Le Fortune	Ch. Navals Français, Blainville	A. & Ch. de la Loire	1925	Sept., 1927
Le Mars	Ch. Navals Français, Blainville	A. & Ch. de la Loire		April, 1927
La Palme	Ch. Dubigeon, Nantes	A. & Ch. de la Loire		1927
La Railleuse	Ch. Dubigeon, Nantes	A. & Ch. de la Loire		1927
Brestois	Ch. Navals Français, Blainville	A. & Ch. de la Loire		
Boulonnais	Ch. Navals Français, Blainville	A. & Ch. de la Loire	Sept.,	
Basque	Ch. de la Seine Maritime	A. & Ch. de Bretagne	1926	1928
Bordelais	Ch. de la Gironde, Bordeaux	Ch. de la Gironde		
Forbin	F. & Ch. de la Med., Havre			
Foudroyant	Dyle & Bacalan, Bordeaux			
Fougueux	A. & Ch. de Bretagne, Nantes		1927	1929
Frondeur	Ch. Navals Français, Blainville	A. & Ch. de la Loire		

12 Simoun Class.



SIMOUN. 1930 *Photo, M. H. le Masson.*

1 *Chantiers de France (Dunkerque):* ***Bourrasque*** (Aug. 5th, 1925).
2 *F. & Ch. de la Méditerranée (Havre):* ***Cyclone*** (Jan. 24th, 1925), ***Mistral*** (June 6th, 1925).
2 *Ch. Navals Français (Blainville).* ***Orage*** (Aug. 30th, 1924), ***Ouragan*** (Dec. 6th, 1924).
2 *A. & Ch. de St.-Nazaire (Penhoët):* ***Simoun*** (June, 3rd, 1924), ***Sirocco*** (October 3rd, 1925).

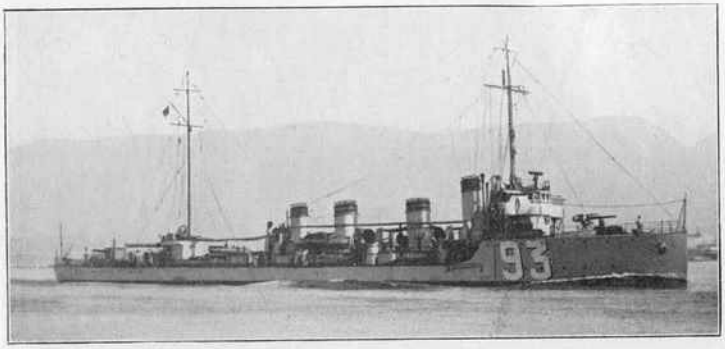
1 *Ch. Dubigeon:* ***Tempête*** (Feb. 21st, 1925).
3 *Ch. de la Gironde:* ***Tramontane*** (Nov. 29th, 1924), ***Typhon*** (May 22nd, 1924), ***Trombe*** (Dec. 29th, 1925).
1 *Dyle & Bacalan:* ***Tornade*** (March 12th, 1925).

Displacement: 1319 tons *standard*, 1458 tons *normal*, 1727 tons *full load*. Dimensions: 326 × 31½ × 9½ ft. Complement, 146. Guns: **4**—5·1 inch, **2**—37 mm. AA. Torpedo tubes: **6**—21.7 inch, in triple deck mountings. Geared turbines of Rateau type in *Orage* and *Ouragan*; Zoelly in *Typhon*, *Tramontane* and *Trombe*; Parsons in other seven boats. H.P. 33,000 = 33 kts. (over 34 reached on trials). Boilers: 3 small tube. 2 screws. Oil: 165 tons *normal*, 350 tons *max*. Radius: 3000 miles at 15 kts.

Notes.—Authorised by Law of 18th August, 1922. 8 hours' trials: *Orage*, 34,000 = 33·8 kts.; *Simoun*, 29,000 = 33·2 kts. (1 hour = 34.3); *Ouragan*, 35,000 = 34.4; *Bourrasque*, = 34.12 (36.4 for one hour); *Mistral* (12 hours), 34 kts. All completed 1926-27. It has been stated that these vessels lose their speed rapidly in a seaway. All have had funnels cut down by about 3 feet to improve stability.

Gunnery Notes.—*Sirocco* has been fitted experimentally with larger gun shields. All are being given bilge keels, increasing displacements as stated above by 20 tons without any reduction of speed.

1 Ganz-Danubius Boat.

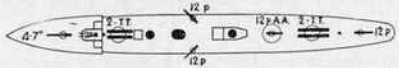


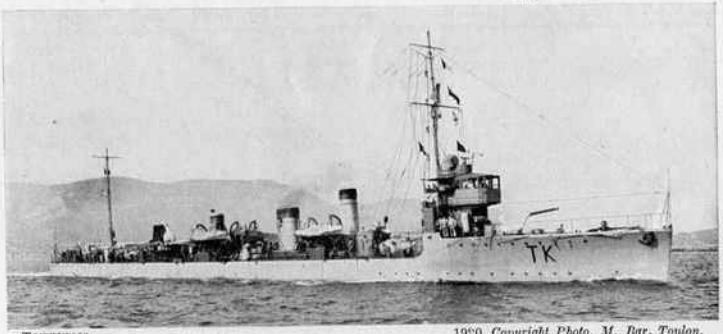
MAT. LEBLANC. 1929 *Photo, M. Bar, Toulon.*

1 *Ganz-Danubius* (Fiume 1915—17) boat: ***Matelot Leblanc*** (ex-Austrian *Dukla*). Dimensions: 275 × 25·7 × 8·3 feet. 836 tons. H.P. 17000 = 32·5 kts. Complement 102. Guns (Austrian): 2—3·9 inch, 4—11 pdr., 2—11 pdr. AA. Torpedo tubes (Austrian): 4—20·5 inch. 6 Yarrow boilers. Added to French Navy, September, 1920. Was unit of Austrian *Tatra* class. Four sister boats incorporated in Italian Navy. (For plan, vide Italian *Cortelazzo* class.)

10 Algérien Class.

(1917 War Programme.)





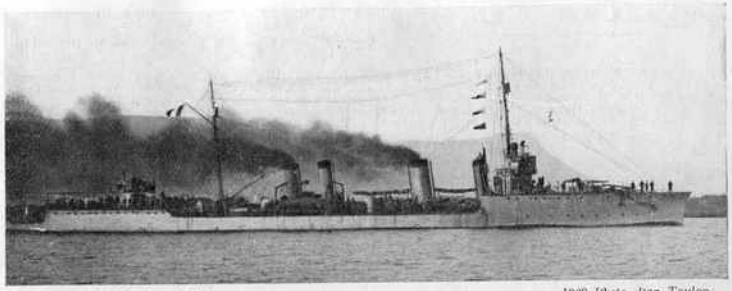
TONKINOIS. 1920 *Copyright Photo, M. Bar, Toulon.*

10 built by Japanese Yards: ***Algérien*** (by Yokosuka D.Y.), ***Arabe*** (by Kure. D.Y.), ***Hova, Kabyle*** (both by Sasebo D.Y.), ***Marocain, Sakalave, Sénégalais*** (all three by Maidzuru D.Y.), ***Somali*** (Kawasaki Co., Kobe), ***Tonkinois, Touareg*** (both by Mitsu Bishi Z K.). All begun March, 1917, launched May and July, 1917, and completed July and September, 1917. Average time of construction 5 months. *Standard* displacement, 601 tons, 830 *full load*. Dimensions: 260 (*p.p.*), 271¼ (*o.a.*) × 27¼ × 7¾ feet. *Normal* draught, 9⅝ feet; *load* draught, 8 feet. Armament: 1—4·7 inch, 4—12 pdr. (one 12 pdr. is AA.), 2 M.G. and 4—18 inch torpedo tubes in two twin deck mountings. Designed H.P. 10,000 = 29 kts.; made about 30 on trials. Machinery: 3 sets 4-cyl. triple expansion. 4 Kansei (Modified Yarrow) boilers. Fuel: 100 tons coal + 120 tons oil = 3000 miles at 15 kts. and 950 miles at *full* speed. Complement, 87.

Note.—These boats are practically replicas of the Japanese *Kaba* class T.B.D. and are often referred to as the "Type Japonais." Radius: 1950 miles at 14 kts., 1200 miles at 22 kts. Made 27 kts. at sea after refit (1925), but now good for only 25-26 kts. at best. *Annamite* and *Bambara*, struck off 1933.

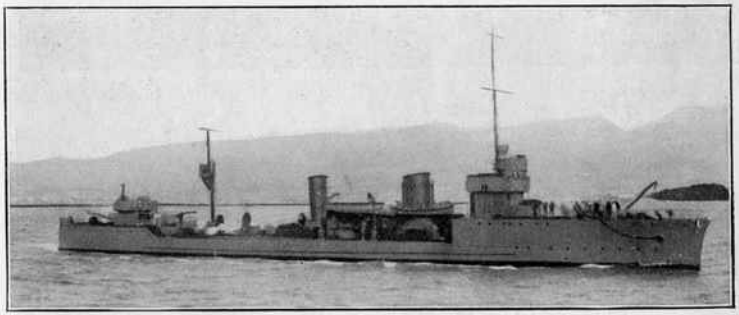
3 Téméraire type:—Purchased Boats.

(Fitted for Minesweeping).



OPINIÂTRE. (*Téméraire* similar). 1920 *Photo, Bar, Toulon.*

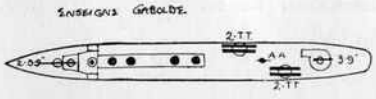
Note.—Now have raised fore funnel, and retain the four funnels after refitting.



INTRÉPIDE. (*Aventurier* similar). 1928 *Photo, M. Dubois.*

3 *Chantiers de Bretagne* (*Nantes*): ***Aventurier*** (ex-*Salta*), ***Intrépide*** (ex-*Rioja*), and ***Téméraire*** (ex-*Mendoza*) (all 1911). *Standard* displacement: 915 tons; *full load*, 1180 tons. Dimensions: 284½ × 28½ × 8⅝ feet *normal* draught. *Full load* draught, 10½ feet. Armament (Schneider-Canet): 4—3·9 inch, (*Téméraire* 1 — 3 pdr). 4 18 inch tubes. Designed H.P. 18,000 = 32 kts. (light). First pair now develop 24,00 + I.H.P. = 25 kts. at full load; *Téméraire* 12,600 = 21·5 kts. Machinery Rateau-Bretagne turbines. *Intrépide* = 3 Schulz-Thornycroft boilers. *Aventurier* = 2 German, 1 Guyot du Temple. *Téméraire* = 1 Du Temple + 3 Guyot du Temple (coal), 1 Normand (oil). Fuel capacity: 240 tons coal + 75 oil, in *Téméraire*; 280 tons oil in *Aventurier* and *Intrépide*. Radii of action: 3,000 miles at 15 kts.

Note.—Built for Argentine Navy and purchased by France immediately before outbreak of war. Refitted 1924-27 and *Aventurier* and *Intrépide* reboilered with boilers out of German Destroyers broken up, and are good now for an average speed of 25·83 kts. All are now fitted for minesweeping, and constitute a special division. (13th flotilla. *Opiniâtre* scrapped 1933.

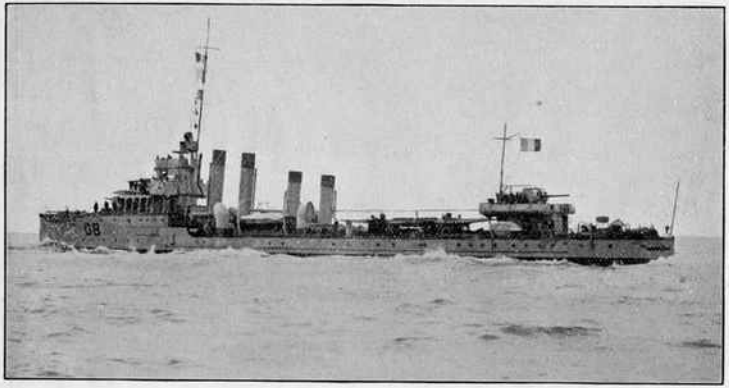


1 Special Boat. (1913 Programme).

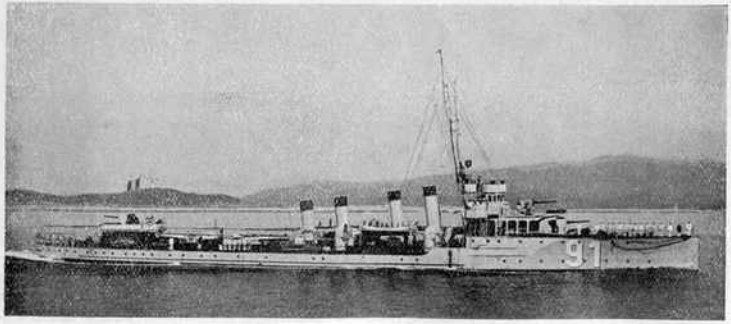
Note.—Torpedo tubes now mounted on centre line, *not* as in plan.

1 *Normand, Havre:* ***Enseigne Gabolde*** (22nd April, 1921). 802 tons. Dimensions: 269×26·9×10 feet. Armament: **3**—3·9 inch, **1**—14 pdr. AA., **4**—21·7 inch torpedo tubes in two twin deck mountings. Designed H.P. 20,000=33 knots (reached on trials). Parsons geared turbines. Normand boilers. Fuel: 200 tons oil. Complement, 98.
Note.—Began in December, 1913. Work on this T.B.D. was suspended during the War and not resumed until September, 1918. Completed in summer of 1923 and joined Fleet early in 1924. 6 hours' trial=32·45 kts. (*max.* 33.45).

Forward superfiring 3.9 inch reported to have proved an unsatisfactory arrangement.

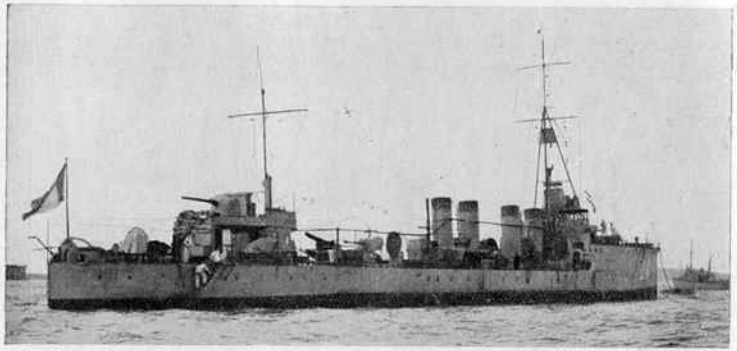


ENSEIGNE GABOLDE. 1925 *Photo, by courtesy of the Ministry of Marine.*



(Fore funnels lowered). 1931 *Photo.*

2 Bory Type.



M. P. LESTIN. (fore funnel now raised). 1921 *Photo, H. Freund, Brest.*

General Notes.—These boats are armed with **2**—3·9 inch, **4**—9 pdr., **1**—14 pdr. (AA.), **4**—18 inch tubes in pairs. All adapted for mine sweeping and carry D.C. Endurance: about 1,500 miles at 15 kts. and 400—500 at full speed. Complement, 98.

War Losses: *Boutefeu, Faulx, Fourche, Renaudin, Dague.*

Removed from List: *Magon, Francis-Garnier, Capitaine Mehl, Commandant Bory, Dehorter, Mangini, Protet, Commandant Lucas, Bisson, Commandant Rivière, Bouclier, Cimeterre, Casque.*

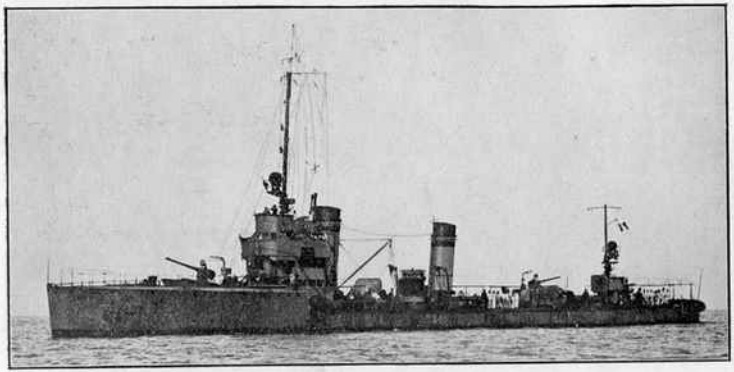
(1913 Programme).

E. ROUX. 1920 *Photo, M. Bar, Toulon.*

2 *Rochefort Dockyard:* ***Enseigne Roux*** (1915), ***Mécanicien-Principal Lestin*** (1915). 787 tons. Dimensions: 271×29·9×10 feet. Designed H.P. 17,000=30 kts. Fuel: 200 tons oil. Endurance for these two boats: about 2,000 miles at 15 kts. and 550 miles at full speed. Begun as *M86* and *M87*. Still good for 30 kts. if pressed.

(*Continued on next page*)

2 Deligny Class (ex-German "Mobilisation" type).

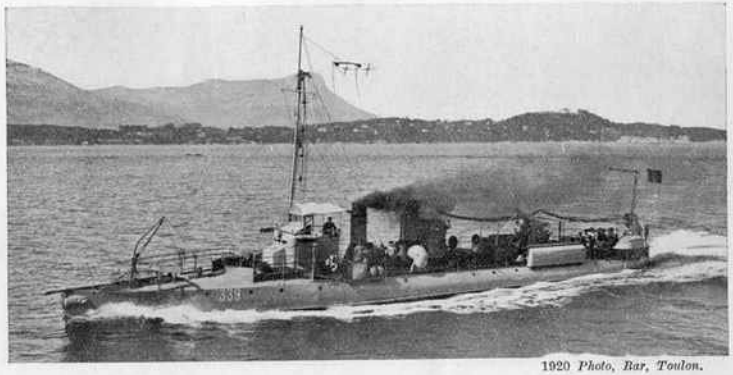


DELIGNY.

1925 *Photo, by courtesy of the Ministry of Marine.*

2 *Schichau* (Elbing) boats 1916–18: ***Mazare*** (ex-German *S* 135) and ***Vesco*** (ex-German *S* 134). Dimensions: 272·3 ×27·3×8·4 feet. 1,030 tons. H.P. 24,500=34·6 kts. Complement 113. Guns: 3—4·1″/45 cal. AA., 1—2 pdr. Tubes: 6—19·7″. Oil fuel: 162 tons *normal*, 305 tons *max.*=1,760 miles at 20 kts. Surrendered at Cherbourg and added to French Navy, September, 1920. Were units of German *S* 131—139 class.

Torpedo Boats.



1920 *Photo, Bar, Toulon.*

4 *Normand Type*: ***Nos. 321, 336, 349, 369.*** Built 1903—1907. Displ. 100 tons. H.P. 2000=25 kts. Compl. 23. Armament: 321=1—75 M/M. 1—15″ TT., 336=no guns but 3—15″ TT., others 1—75 m/m., 1—37 M/M., 1—15″ TT.

CONVOYERS (Escorteurs).

12 boats: ***Melpomene*** (Ch. de Bretagne, Nantes)
Pomone (Ch. de Loire, Nantes)
Flore (Ch. de Bretagne, Nantes)
Iphigenie (Ch. de Loire, Nantes)
La Poursuivante (Ch. de F. Dunkirk)
L'Incomprise (Ch. de la Seine Worms)
La Bayannaise (Ch. Sud Ouest. Bordeaux)
La Cordeliere, ***Branlebas*** } (Augustin Normand)
Bombrade (Ch. de la Loire, Nantes)
Bouclier
Baliste

All ordered 1933. Provided for under 1930-31-32 Programmes.

Displacement: 600 tons. Length about 236·2 feet (72m.).

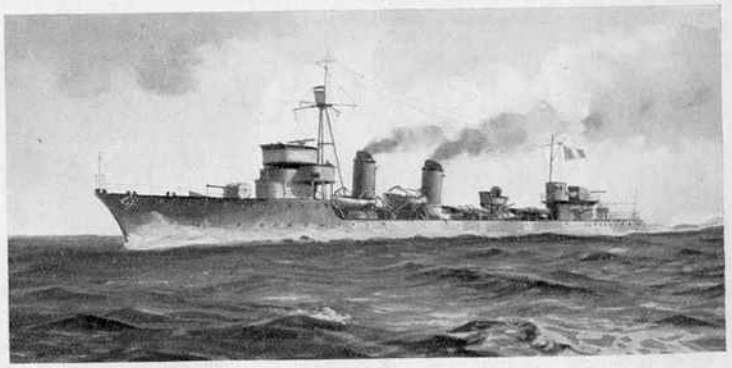
Guns: 2—90 m/m. 2—37 m/m., 2 Twin M.G.

Tubes: 4—16″ (400 m/m), in 2 single and 1 twin mount.

H.P.=35 kts.

Radius: 1,800 at 18 kts.; 700 at 35 kts.

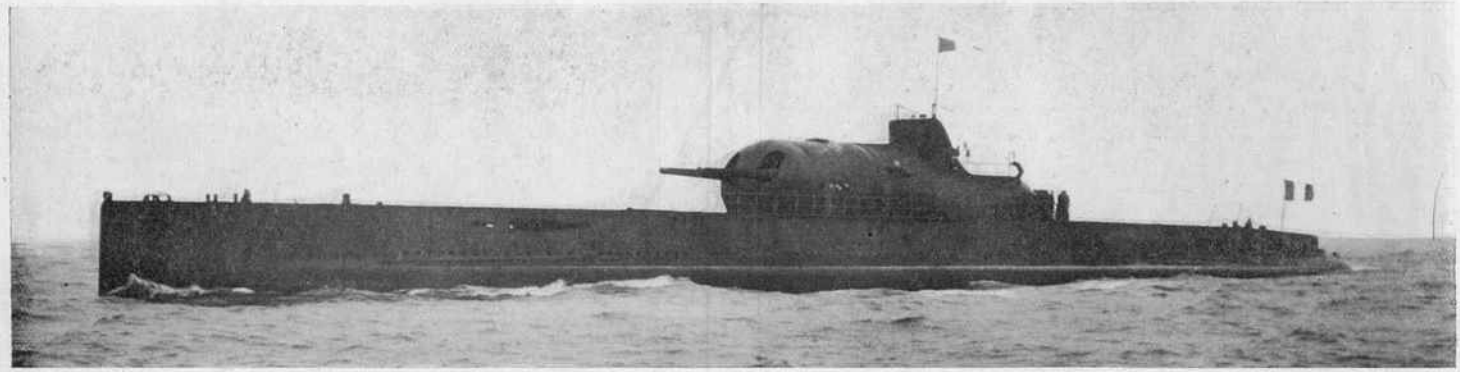
NOTE.—The forward beam Tubes are single: the after is a centre-line twin mounting.



1933 *Drawing, Oscar Parkes.*

SUBMARINES—I: FIRST CLASS.

1 Cruiser Type.



SURCOUF. 1931, *Official Photo.*

SURCOUF (November 18, 1929). Cherbourg. 1926 Programme. Completed 1931.

Dimensions: 393·7×29·5×23 feet (110×9×7·19 *m.*)

Displacement: 2,880/4,300 tons.

Machinery: Diesels, 7,600 B.H.P. = 18 kts. *surface.*
Motors, 3,400 H.P. = 10 kts. *submerged.*

Guns: **2**—8 inch (203 mm.)
2—37 mm. AA.
4—M.G.

Tubes: **14**—21·7 inch (550 mm.)
22 Torpedoes carried.

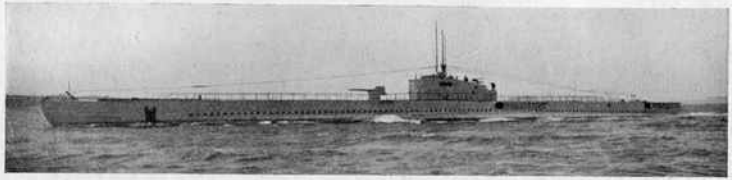
Compl.: 150.

Radius: 10,000 miles at 10 kts.

1932 *Photo.*

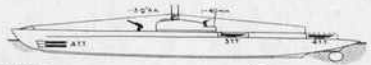
Notes:—Is the largest submarine in the world, representing an experimental type not likely to be repeated. Designed as a corsair and carries the largest guns allowed by the Treaty. Is to carry a small seaplane. Can dive in 2 minutes. The Torpedo armament appears to be disposed as follows: **6** in bows, 8 in 2 sets of training tubes aft.

30 Redoubtable Class.



1932 *Photo*

VENGEUR. 1930 *Photo, favour of M. of Marine.*



30 *Roquebert type.*

1924 Programme.

Redoubtable (Feb. 24th, 1928) } Cherbourg.
Vengeur (Sept. 1st, 1928)

1925 Programme.

Pascal }
Pasteur } (July 19th, 1928), Brest.
Henri Poincare }
Poncelet } (April 10th, 1929), Lorient.
Fresnel (June 8th, 1929), St. Nazaire (Penhoët).
Archimede (Sept. 6th, 1930), Ch. Nav. Fr. Blainville.
Monge (June 25th, 1929), La Seyne.

1926 Programme.

Acteon (April 10th, 1929) }
Acheron (Aug. 6th 1929) } A. C. Loire.
Argo (April 11th, 1929), Ch. Dubigeon, Nantes.
Achille }
Ajax } (May 28th, 1930) Brest.

1927 Programme.

Persée (May 23rd, 1931), C. N. F. Blainville.
Protee (July 31st, 1930), F. C. Havre.

Pégase (July 28th, 1930), A. C. Loire.
Phénix (April 12th, 1930), Dubigeon.

1928 Programme.

L'Espoir } Cherbourg. July 18th, 1931.
Le Glorieux } Nov. 29th, 1932.
Le Centaure } Brest. Oct. 14th, 1932.
Le Héros }
Le Conquerant A. C. Loire.
Le Tonnant La Seyne.

1930 Programme.

Agosta }
Beveziers } Cherbourg.
Ouessant }
Sidi-Ferruch }
Sfax }
Casablanca } A. C. Loire.

Displacement: 1,644 tons *surface*; 2,080 tons *submerged* for first two; remainder 1,678 tons *surface*; 2,060 tons *submerged*. Dimensions: 302½ × 30½ × 15½ feet. Diesels: 2 sets Sulzer or Schneider H.P. 2 × 3,000 = 18 kts. (Trials, 19.5 kts.) Electric motors of H.P. 2,000 = 10 kts. *submerged*. 1 auxiliary Diesel, H.P. 750. 2 screws. Armament: 1—3·9" AA., 1—37 m/m AA., 1—M.G., 11—21·7" tubes, including 2 sets of revolving tubes, 1 bow, 1 stern.

1930 boats have two 4,200 H.P. Diesels. Radius of action = 30 days cruising.

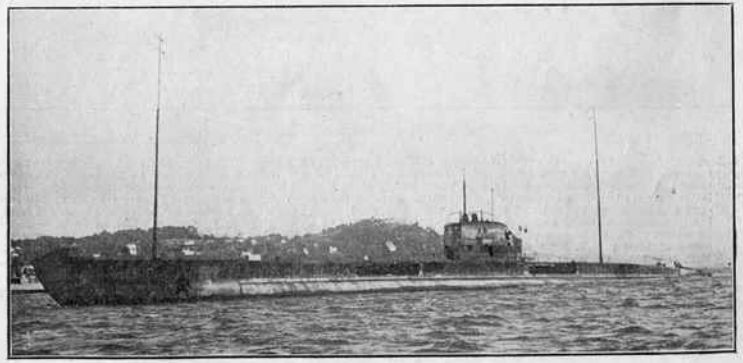
Notes.—Have proved very successful on trials. *Vengeur* and *Redoubtable* performed a cruise to the West Indies in 1930 without mishap, and were able to make 19 kts. easily without being pressed. *H. Poincaré* maintained an average of 17·60 kts. for 48 hours on trials. 1927 and 1928 boats reach 20 kts. and 1930 boats with 8,400 H.P. are expected to exceed 21 kts. *Promethée* sunk on trials, July 8th, 1932.

9 Requin Class.

MARSOUIN. 1926 *Photo.*

9 *Fuzier-Roquebert* type: ***Requin*** (19th July, 1924), ***Morse*** (11th Nov., 1925), ***Narval*** (9th May, 1925), ***Souffleur*** (Oct. 1st, 1924), ***Caiman*** (3rd March, 1927), (all Cherbourg), ***Dauphin*** (1925), ***Espadon*** (28th May, 1926), (both Toulon), ***Marsouin*** (Dec. 27th, 1924), ***Phoque*** (16th March, 1926), (both Brest). 974 tons (*on surface*), 1410 tons (*submerged*). Dimensions: 256½ (p.p.) × 21½ × 15 feet. Complement, 51. Machinery: 2 Diesel motors, of Sulzer or Schneider-Carels type, each 1450 H.P. Total 2900 H.P. = 16 kts. Electric drive: 248 " D " type batteries, 1800 H.P. = 10 kts. Radius: 7000 miles at 9 kts. (*on surface*), 105 miles at 5 kts. (*submerged*). Endurance: equal to 30 days' cruising. Guns: **1**—3.9 inch, **2** M.G. AA. Torpedo tubes: **10**—21.7 inch (4 bow and 2 stern submerged; 4 above water, revolving in pairs before and abaft C.T.). 32 torpedoes (24 of 1922 model, 8 of 1919 model) carried by *Caiman, Espadon, Phoque*; 16 by others.

Notes.—*Requin, Souffleur, Morse, Narval, Marsouin, Dauphin* begun as *Q* 115—120 of 1922-1923 Programme. Other three came under Coast Defence Vote of June 30, 1923. All completed 1926-27. Freeboard about 7 feet. Top of C.T. is 13 feet above water. Can dive with safety to 100 metres (say, 55 fathoms). On commissioning, *Requin* carried out a 5,000 mile cruise, occupying 31 days in African waters, without mishap of any kind.



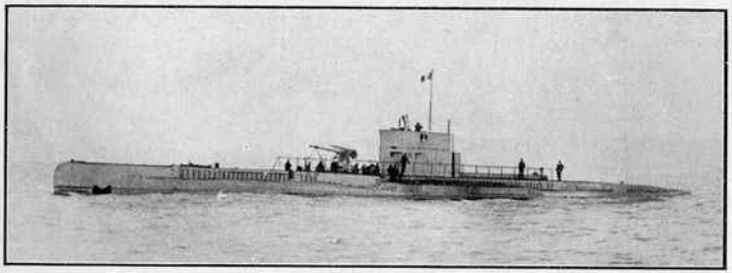
DAUPHIN. 1926 *Photo, M. Bar, Toulon.*

6 Saphir Class (Minelayers.)

TURQUOISE. 1930 *Photo, A. Ganda.*

6 *Normand-Fenaux* type : ***Saphir*** (Dec. 20th, 1928) ; ***Turquoise*** (May 16th, 1929), Toulon, 1926 ; ***Nautilus*** (Mar. 21st, 1930), Toulon, 1927 ; ***Rubis*** (Sept. 30th, 1931), Toulon, 1928 ; ***Diamant*** (Toulon, 1929) ; ***Perle*** (Toulon, 1930). Displacement : 669 tons *on surface*, 925 tons *submerged*. Dimensions : 210½ × 23½ × 13¼ feet. Machinery : 2 sets Vickers-Normand 4-cycle Diesels. B.H.P. 1300 = 12 kts. *Submerged* speed, 9 kts. Armament : **1**—3 inch AA., **5**—21.7 inch tubes, 32 minelaying chutes, arranged on Normand-Fenaux system. Carry **6** torpedoes and **32** mines of 460 lbs. weight. First two authorised under 1925 Programme, third under 1926, fourth 1927, fifth 1928-29.

1 Special Boat (Minelayer.)

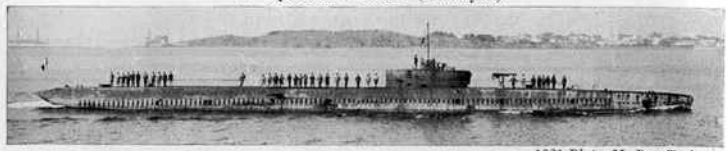


PIERRE CHAILLEY. 1925 *Photo, by courtesy of Messrs. Normand.*

1 *Normand-Fenaux* type : ***Pierre Chailley*** (Ch. A. Normand Le Havre, 19th Dec., 1922). Displacements : 798 tons *on surface*, 1181 tons *submerged*. Dimensions : 229¾ × 26¼ × 13 feet. Guns : **1**—3·9 inch. Torpedo tubes : **2**—18 inch bow and **2**—18 inch immediately abaft C.T. in twin mounting on a revolving platform. (The latter pair are normally hidden by a cover which matches the deck.) Mines carried : 64 Sautter-Harle of 440 lbs. each (maximum stowage) in 32 chutes or cells—disposed 16 on each beam, 2 mines in each, about centre of boat, between inner and outer hulls. Laying rate has been *stated* to be 40 mines in 4 minutes, which at 6 kts. = 15 to 30 metres spacing between planted mines. Machinery : 2 sets of 900 H.P. 2-cycle 6-cylinder Sulzer-Diesel motors, totalling 1800 B.H.P. for a *max. surface* speed of 14 kts. When *submerged*, electric motors + batteries of 1200 H.P. = 9 kts. Oil fuel : 60 tons (sufficient for 20 days' cruising). Endurances : 2800 miles *on surface*, at 10 kts., 80 miles *submerged* at 9 kts. Built under 1917 Programme.

Note.—Actual number of mines normally carried in service is understood to be 40.

1 Special Boat (Minelayer.)



1921 *Photo, M. Bar, Toulon.*

1 *Schneider-Laubeuf* type : ***Maurice Callot*** (Ch. de la Gironde, Bordeaux ; launched March 26th, 1921). Displacements : 842 tons *on surface* ; 1298 tons *submerged*. Dimensions : 247½ × 22 × 12½ feet. Guns : **1**—14 pdr. on AA. mount. Torpedo tubes : **4**—18 inch bow and **2**—18 inch midway between C.T. and stern. 8 torpedoes carried. Mines carried : 27—200 kg., in "wet" stowage on 3 horizontal belt conveyors (9 mines to each row) abaft C.T., above pressure hull and below superstructure deck. Laying rate believed to be one mine from each row at 12 seconds' intervals, which at 5 kts = 30 metres spacing between planted mines.

Machinery : For *surface* running, 2 sets of 8 cyl. 2 cycle Schneider-Carels Diesel motors (16.1" bore × 17.7" stroke), each engine developing *about* 1450 B.H.P. at 330 r.p.m. Total B.H.P. 2900 = 16.5 kts. speed *on surface*. These are the same type of motors as those mounted in *Fulton* and *Joessel*, which have proved remarkably reliable after an extended series of trials. Electric motors + batteries of 1640 H.P. = 10.5 kts. *submerged*.

Endurance : 44.87 tons oil fuel carried, giving following endurances *on surface* : (*a*) 1960 miles at 13 kts. with both motors running ; (*b*) 2800 miles at 11 kts. with one engine running. When *submerged*, 118 miles at 5 kts.

Complement : 4 officers + 40 men. Double-hull design built on Laubeuf principle. Begun under 1917 Programme ; began acceptance trials, August, 1921. On a 50 day cruise is said to have maintained average speeds of $\frac{16}{16\frac{1}{4}}$ kts.