

REPORT ON MACHINERY.

No. 14906.

Port of Greenock

Received at London Office TUES NOV 13^o 1906

No. in Survey held at Greenock Date, first Survey 10th Jan 1906 Last Survey 2nd Nov 1906
Reg. Book. on the SCREW STEAMER "BARDISTAN" (Number of Visits 73)

Master Davies Built at Greenock By whom built Scott's S.B. & Eng. Co. Ltd. When built 1906
Engines made at Greenock By whom made Scott's S.B. & Eng. Co. Ltd. when made 1906
Boilers made at Greenock By whom made Scott's S.B. & Eng. Co. Ltd. when made 1906
Registered Horse Power 370 Owners Anglo-Algerian Steamship Co. 1896 Ltd Port belonging to Swansea
Nom. Horse Power as per Section 28 370 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders Three No. of Cranks Three

Dia. of Cylinders 25"-40 1/2"-67" Length of Stroke 45" Revs. per minute 45 Dia. of Screw shaft 13 1/2" Material of screw shaft Steel
Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes. Is the after end of the liner made water tight
in the propeller boss Yes. If the liner is in more than one length are the joints burned Yes. If the liner does not fit tightly at the part
between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes. If two
liners are fitted, is the shaft lapped or protected between the liners Yes. Length of stern bush 54"

Dia. of Tunnel shaft 12 1/4" Dia. of Crank shaft journals 13 1/2" Dia. of Crank pin 13 1/2" Size of Crank webs 19 1/2" x 8 1/2" Dia. of thrust shaft under
collars 15 1/2" Dia. of screw 17 1/0" Pitch of Screw 16 1/2" No. of Blades 4 State whether moveable No. Total surface 90 sq. ft.

No. of Feed pumps 2 Diameter of ditto 3 1/2" Stroke 24" Can one be overhauled while the other is at work Yes. Two main feed pumps
No. of Bilge pumps 2 Diameter of ditto 4" Stroke 24" Can one be overhauled while the other is at work Yes. 2 9 1/2" x 4" x 18"

No. of Donkey Engines Three Sizes of Pumps 7 1/2 x 6" 9 x 10 x 10" 5 1/2 x 6 1/2" No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room & Stokehold: Five 3 1/2" dia. Two 2 1/2" dia. In Holds, &c. No. 1 Hold: Two 3 1/2" dia. No. 2 Hold: Two 3 1/2" dia.
No. 3 Hold: Two 5" dia. Two 3 1/2" dia. No. 4 Hold: Two 3 1/2" dia. No. 5 Hold: Two 3 1/2" dia. Tunnel Well: one 5" dia.

No. of Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump Yes. Is a separate Donkey Suction fitted in Engine room & size Yes. 3 1/2"

Are all the bilge suction pipes fitted with roses Yes. Are the roses in Engine room always accessible Yes. Are the sluices on Engine room bulkheads always accessible Yes.

Are all connections with the sea direct on the skin of the ship Yes. Are they Valves or Cocks Both.

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes. Are the Discharge Pipes above or below the deep water line Above.

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes. Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes.

What pipes are carried through the bunkers How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes.

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes.

Dates of examination of completion of fitting of Sea Connections of Stern Tube Screw shaft and Propeller

Is the Screw Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes. worked from Upper platform.

OILERS, &c.—(Letter for record S.) Manufacturers of Steel Steel Coy of Scotland.

Total Heating Surface of Boilers 5040 Is Forced Draft fitted Yes. No. and Description of Boilers Two: Cylind. Mult. Simple Sued.

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 lbs. Date of test 16/11/06. No. of Certificate 455-6.

Can each boiler be worked separately Yes. Area of fire grate in each boiler 55 sq. ft. No. and Description of Safety Valves to
each boiler 2: Direct Spring. Area of each valve 8.29" Pressure to which they are adjusted 185 lbs. Are they fitted with easing gear Yes.

Smallest distance between boilers or uptakes and bunkers or woodwork about 18" Mean dia. of boilers 14 1/2" Length 11 1/2" Material of shell plates Steel

Thickness 1 3/16" Range of tensile strength 28 to 32 tons. Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams Lap Double
long. seams Old Butt Strap Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8 1/2" 4 1/2" Lap of plates or width of butt straps 1 1/2"

Per centages of strength of longitudinal joint rivets 87 Working pressure of shell by rules 181 lbs. Size of manhole in shell 16" x 12"
plate 85 1/2

Size of compensating ring 38" x 30" x 1 3/16" No. and Description of Furnaces in each boiler 3: Morrison's. Material Steel Outside diameter 45"

Length of plain part top 8 1/2" Thickness of plates crown 1 1/4" Description of longitudinal joint Weld. No. of strengthening rings None.
bottom 8 1/2" bottom 3/2"

Working pressure of furnace by the rules 182 lbs. Combustion chamber plates: Material Steel Thickness: Sides 3/2" Back 3/2" Top 3/2" Bottom 4"

Pitch of stays to ditto: Sides 7/8" x 8 1/2" Back 7/8" x 8 1/2" Top 7/8" x 8 1/2" If stays are fitted with nuts or riveted heads Nuts. Working pressure by rules 184 lbs.

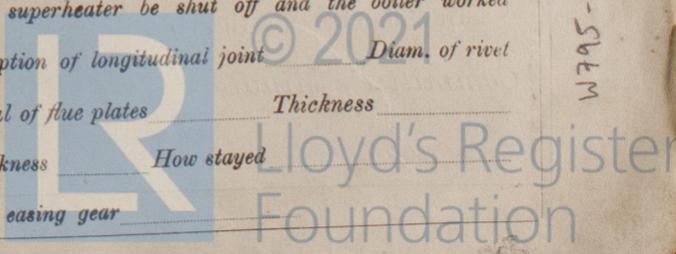
Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 65" Working pressure by rules 180 lbs. End plates in steam space:
Material Steel Thickness 1" Pitch of stays 15" x 16 1/2" How are stays secured Old hub & washers Working pressure by rules 191 lbs. Material of stays Steel
Diameter at smallest part 2 1/4" Area supported by each stay 24 1/2" Working pressure by rules 189 lbs. Material of Front plates at bottom Steel
Thickness 1 1/2" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 13 1/4" Working pressure of plate by rules 184 lbs.

Diameter of tubes 2 1/2" Pitch of tubes 5 1/8" x 3 5/8" Material of tube plates Steel Thickness: Front 13/16" with Back 13/16" Mean pitch of stays 11 3/8"
Pitch across wide water spaces 14" Working pressures by rules 207 lbs. 183 lbs. Girders to Chamber tops: Material Steel Depth and
thickness of girder at centre 9 1/8" x 1 1/2" Length as per rule 33" Distance apart 8 1/4" Number and pitch of stays in each 3: 7/8"

Working pressure by rules 181 lbs. Superheater or Steam chest; how connected to boiler None. Can the superheater be shut off and the boiler worked
separately Yes. Diameter 18" Length 18" Thickness of shell plates 3/2" Material Steel Description of longitudinal joint Weld. Diam. of rivet
holes 1 1/2" Pitch of rivets 8" Working pressure of shell by rules 181 lbs. Diameter of flue 18" Material of flue plates Steel Thickness 3/2"
If stiffened with rings Yes. Distance between rings 18" Working pressure by rules 181 lbs. End plates: Thickness 3/2" How stayed Weld.

Working pressure of end plates 181 lbs. Area of safety valves to superheater None. Are they fitted with easing gear Yes.

W795-0038



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. *✓* Description *See second sheet.*

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safety _____

Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____

If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____

Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____

Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Plates _____

Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____

Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____

Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Stayed by _____

Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— Propeller, 2 Connecting Rod Bolt Nuts, 2 Piston Rod Bolt Nuts, 2 Main Bearing Bolt Nuts, 1 set Coupling Bolt Nuts, 1 set each Feed & Bilge pump valves, 1 main H.D. Boiler Check Valve, 2 Eccentric Strap Bolts, 1 pair Crosshead Brasses, 1 set Connecting Rod Brasses, 1 Lead Guide for L.A. Eng., 1 Feed Escape Valve Spring, 2 Main Boiler Safety Valve Springs, 6 Cyl. Crank Shaft Nuts, 6 Casing Cover Stud Nuts, 1 set Sail Shaft complete, 24 Condenser tubes, 12 Boiler tubes, 1 set H.P. Piston Ring, 12 Junk Ring Bolts, 4 Four Bars which metal, 100 painting Bolt etc etc.

The foregoing is a correct description.

SCOTT'S SHIPBUILDING & ENGINEERING COMPANY

J. H. [Signature] Manufacturer.

Assistant Secretary: 1906. Jan 10. 12. 13. 19. 23. 26. 31. Feb 5. 12. 15. 19. 28. March 2. 6. 12. 14. 15. 16. 20. 22. 26. 27. April 2. 6. 10. 16. 20. 25. 30. May 4. 7. 10. 16. 18. 20. 26. 28. June 5. 7. 12. 14. 18. 20. 26. 28. July 18. 21. Aug 7. 9. 14. 16. 17. 21. 28. Sep 29. Oct 3. 5. 12. 18. 24. 27. Nov 1. 4. 5. 9. 10. 11. 16. 18. 25. 31. Dec 1. 2.

Dates of Survey while building

During progress of work in shops - -	16. 18. 23. 30. 31.
During erection on board vessel - -	29. Sep. 3. 5. 12. 18. 24. 27.
Total No. of visits	73.

Is the approved plan of main boiler forwarded herewith *Yes.*

Is the approved plan of donkey boiler forwarded herewith *Yes.*

Dates of Examination of principal parts—Cylinders _____ Slides _____ Covers _____ Pistons _____ Rods _____

Connecting rods _____ Crank shaft _____ Thrust shaft _____ Tunnel shafts _____ Screw shaft _____ Propeller _____

Stern tube _____ Steam pipes tested *18/10/06.* Engine and boiler seatings *28/10/06.* Engines holding down bolts *25/10/06.*

Completion of pumping arrangements *31/10/06.* Boilers fixed *25/10/06.* Engines tried under steam *1/11/06. R.S.*

Main boiler safety valves adjusted *28/10/06.* Thickness of adjusting washers *Port side 7 1/2" diam. 3 1/2" Start. 2 1/2" S.C. 2 1/2" Star. 2 1/2" S.C. 2 1/2" Star. 2 1/2" S.C. 2 1/2" Star. 2 1/2" S.C.*

Material of Crank shaft *Steel* Identification Mark on Do. *375* Material of Thrust shaft *Steel* Identification Mark on Do. *386*

Material of Tunnel shafts *Steel* Identification Marks on Do. *388-393* Material of Screw shafts *Steel* Identification Marks on Do. *387*

Material of Steam Pipes *Copper 5" dia x 3/16"* Test pressure *400 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Engines and Boilers of this vessel have been built under special survey and the materials and workmanship are good. When completed they were examined under steam and found to work satisfactorily.

The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of **LMC 11.06** marked in the Society's Register Book.

It is submitted that this vessel is eligible for THE RECORD **LMC 11.06** F.D. ELEC: LIGHT.

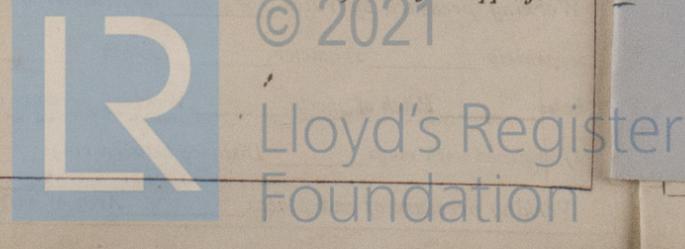
R.S.
14. 11. 06

The amount of Entry Fee..	£ 3 : : :	When applied for,	
Special	£ 38. 10 : :	When received,	<i>2/11/1906</i>
Donkey Boiler Fee .. .	£ : : :		
Travelling Expenses (if any) £	: : :		<i>8/11/1906</i>

Wm. Austin
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *Glasgow 12 NOV 1906*

Assigned *+ L.M.C. 11.06.*



Greenock

Certificate (if required) to be sent to (The Surveyors are requested not to write on or below the space for Committee's Minute.)