

## REPORT ON MACHINERY.

Port of Greenock

WED. MAR 10 1897

Received at London Office

No. in Survey held at GreenockDate, first Survey 27<sup>th</sup> Mar 1896Last Survey 5<sup>th</sup> March 1897Reg. Book. 51(Number of Visits 90)on the Twin Screw Steamer, "Alinga"Gross 2241.86Net 1406.30Master R. S. TaylorBuilt at GreenockBy whom built Scott & Co.When built 1897Engines made at GreenockBy whom made Scott & Co.when made 1896 & 7Boilers made at DoBy whom made Do Dowhen made 1896Registered Horse Power 300Owners Adelaide S S Coy. (Lim<sup>d</sup>)Port belonging to GreenockNom. Horse Power as per Section 28 272Is Electric Light fitted yes

ENGINES, &c.—Description of Engines Inverted direct acting Triple Exp<sup>d</sup> No. of Cylinders Six No. of Cranks Three each

Diameter of Cylinders 15 1/2, 23 1/2, 23 1/2 Length of Stroke 30 Revolutions per minute 110 Diameter of Screw shaft as per rule 7.8

Diameter of Tunnel shaft as fitted 8 Diameter of Crank shaft journals 8 1/4 Diameter of Crank pins 8 1/4 Size of Crank webs 10 1/2 x 5 1/2

Diameter of screws 11 1/2 Pitch of screws 1 1/2 No. of blades Four State whether moveable yes Total surface 36 sq in each

No. of Feed pumps Two Diameter ofitto 3 1/4 Stroke 16 Can one be overhauled while the other is at work yes

No. of Bilge pumps Two Diameter ofitto 3 1/4 Stroke 16 Can one be overhauled while the other is at work yes

No. of Donkey Engines Two Duplex Sigs of Pumps 10 x 7 1/2 & 3 x 3 and size of Suctions connected to both Bilge and Donkey pumps no. 6 x 2 1/2

In Engine Room Under main boilers Four 2 3/4 In Holds, &c. Seven in holds 2 3/4 & one in tunnel

No. of bilge injections Two sizes 5 Connected to condenser, or to circulating pump as pump Is a separate donkey suction fitted in Engine room & size yes 2 3/4

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 to 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 below

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 bunker Bilge, ballast, &c. see separate list How are they protected Wood casing

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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock on slip before launching Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from top of engine room

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 4270 sq ft Is forced draft fitted yes

No. and Description of Boilers Two Cylindrical Multitubular Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs

Date of test 26.12.96 Can each boiler be worked separately yes Area of fire grate in each boiler 60 sq ft No. and Description of safety valves to each boiler Two Direct spring

Area of each valve 8.94 sq in Pressure to which they are adjusted 183 lbs Are they fitted with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 10" Mean diameter of boilers 15.6"

Length 10.5 Material of shell plates Steel Thickness 1 1/2 Description of riveting: circum. seams Lap double long. seams 9.12 straps treble

Diameter of rivet holes in long. seams 1 1/2 Pitch of rivets 10 & 5 Lap of plates or width of butt straps 2 1/4 straps

Per centages of strength of longitudinal joint rivets 87, plate 85 Working pressure of shell by rules 201 lbs Size of manhole in shell 16 x 12

Size of compensating ring 38 x 28 x 1 1/2 No. and Description of Furnaces in each boiler 3 Suspension Material Steel Outside diameter 50 3/4

Length of plain part top 3 1/2, bottom 3 1/2 Thickness of plates top 3 1/2, bottom 3 1/2 Description of longitudinal joint Welded No. of strengthening rings one bottom

Working pressure of furnace by the rules 210 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8 Back 7/8 Top 5/8 Bottom 3/4

Pitch of stays to ditto: Sides 8 5/8 x 8 5/8 Back 7 1/4 x 7 1/4 Top 8 5/8 x 8 5/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 to 204 lbs

Material of stays Steel Diameter at smallest part 1 1/2 Area supported by each stay 52 & 72 sq in Working pressure by rules 183 & 191 lbs End plates in steam space: Material Steel Thickness 1 3/4 Pitch of stays 16 1/2 x 15 1/2 How are stays secured double nuts Working pressure by rules 232 lbs Material of stays Steel

Diameter at smallest part 2 1/4 Area supported by each stay 256 sq in Working pressure by rules 182 lbs Material of Front plates at bottom Steel

Thickness 7/8 Material of Lower back plate Steel Thickness 3/4 Greatest pitch of stays 12 1/4 Working pressure of plate by rules 284 lbs

Diameter of tubes 3 Pitch of tubes 4 3/4 x 4 3/4 Material of tube plates Steel Thickness: Front 1 1/2 Back 1 1/2 Mean pitch of stays 8 3/8

Pitch across wide water spaces 15 Working pressures by rules 236 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 1/2 x 1 1/2 Length as per rule 32 Distance apart 8 5/8 Number and pitch of Stays in each Three 8 3/8

Working pressure by rules 206 lbs Superheater or Steam chest; how connected to boiler — Can the superheater be shut off and the boiler worked separately —

Diameter — Length — Thickness of shell plates — Material — Description of longitudinal joint — Diam. of rivet holes — Pitch of rivets — Working pressure of shell by rules — Diameter of flue — Material of flue plates — Thickness —

If stiffened with rings — Distance between rings — Working pressure by rules — End plates: Thickness — How stayed —

Working pressure of end plates — Area of safety valves to superheater — Are they fitted with easing gear —



## DONKEY BOILER—

Description *no Donkey Boiler in this vessel.*

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of safety valves \_\_\_\_\_

No. of safety valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ If fitted with easingear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_

Diameter of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_

Description of riveting long. seams \_\_\_\_\_ Diameter of rivet holes \_\_\_\_\_ Whether puncheon drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_

Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ 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 \_\_\_\_\_

joint \_\_\_\_\_ Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_

SPARE GEAR. State the articles supplied:— 1 Length Crank Shaft. 1 propeller Shaft. 2 propeller  
bronzes blades. 1 piston rod. 1 pair main bearing bushes. 1 pair bushes for connecting  
rod bottom end. 2 do for top end. 2 bolts & nuts for bottom end. 4 do for top end.  
2 do for main bearings. 12 do for shaft couplings. 1 eccentric shaft & pulley. 1 air pump rod.

The foregoing is a correct description,

Manufacturer.

Scott &amp; Co.

Dates of Survey while building

During progress of work in shops—	1896—May 21. June 16. 29. July 1. 12. 21. 27. 28. Aug. 14. 17. 18. 19. 22. 24. 26. 28. 31. Sept. 1. 4. 11. 14. 20. Oct. 2. 6.
During erection on board vessel—	8. 12. 16. 19. 21. 22. 24. 27. 29. 30. 31. Nov. 2. 5. 6. 7. 9. 10. 12. 16. 17. 18. 20. 24. 25. 26. 27. Dec. 1. 3. 9. 18. 21. 23. 24. 26. 1897—Jan. 11. 12. 14. 15. 19.
Total No. of visits	20. 21. 27. 28. 29. 30. 31. 1. 4. 5. 6. 9. 10. 12. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. = 90 visits

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

These Engines and Boilers have been specially surveyed during Construction. Workmanship good. Shafts examined when being turned and found apparently sound. Main steam pipes tested by hydraulic pressure to 360 lbs per square inch and found satisfactory. The Engines and Boilers are satisfactorily fitted in vessel, and have been tested under full steam. They are now in good order and safe working condition and are in my opinion eligible to be noted in Register Book. **LMC 3. 97.**

This vessel's Main Boilers are fitted with forced draught, (Howden's system)

## Spare gear continued

1 air pump bucket & foot valve. 1 set of valves for air pump. 2 feed or bilge pump plungers. 2 feed & 2 bilge pump valves & seats. 2 slide valve spindles. 1 set packing rings for each piston valve. 3 springs for cylinder escape valves. 1 do for feed pump. 2 do for safety valves. 1 do for safety valve on auxiliary steam pipes. 1 set junk ring pin and packing rings for each piston of Main & Auxiliary Engines. 50 tubes & 100 packing ferrules for Condenser. 8 studs & nuts for piston rod glands. 4 do for valve spindle glands. 2 do for air pump rod glands. 4 do for feed & bilge pump glands. 18 studs & nuts for cylinder covers. 6 do for valve casing covers. 1 piston rod & piston. 1 valve spindle & 1 pump disc with spindle for Centrifugal pump & Engine. 2 valves and other working parts for water pumping Donkey. 1 set furnace bars & hearers for Main Boilers. a quantity of bolts studs nuts and iron assorted.

It is submitted that  
this vessel is eligible for  
**THE RECORD + L.M.C. 3. 97. F.D.**

The amount of Entry Fee.. £ 2 : 10 :  
Special .. £ 2 : 10 :  
Donkey Boiler Fee .. £ 1 : 10 :  
Travelling Expenses (if any) £ 1 : 10 :

When applied for

When received

Engineer Surveyor to Lloyd's Register of British &amp; Foreign Shipping.

Committee's Minute

FRI, MAR 12 1897

Assigned

+ LMC 3. 97 7D. Elec light

Lloyd's Register  
Foundation