

REPORT ON MACHINERY.

Port of Sunder

Received at London Office SAT. 11 AUG 1895

No. in Survey held at Sunder Date, first Survey 21st Feb. Last Survey 20th Aug. 1895

Reg. Book Luft. (Number of Visits 33)

11 on the S.S. Sardinia

Tons ^{Gross} 1118
_{Net} 575

Master Wm Slater Built at Sunder By whom built Goulay Bros & Co When built 1896

Engines made at Sunder By whom made Goulay Bros & Co when made 1896

Boilers made at Sunder By whom made Goulay Bros & Co when made 1895

Registered Horse Power 170 Owners John Bull & Co Port belonging to Leith

Nom. Horse Power as per Section 28 169 = NP.

ENGINES, &c.— Description of Engines Triple Expansion No. of Cylinders 3

Diameter of Cylinders 19.31.50 Length of Stroke 36 Revolutions per minute 80 Diameter of Screw shaft as per rule 9.24
as fitted 10.58

Diameter of Tunnel shaft as per rule 8.78 Diameter of Crank shaft journals 10 Diameter of Crank pin 10 1/2 Size of Crank webs 4 1/2
as fitted 9 1/2

Diameter of screw 13-0 Pitch of screw 15-0 No. of blades 4 State whether moveable No Total surface 48.2 sq ft

No. of Feed pumps 2 Diameter of ditto 3 Stroke 20 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 3 Stroke 20 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps 5" & 3" salt of pumps No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Four 2" In Holds, &c. Fore Hold two 2 1/4"
No 2 hold two 2 1/4" No 3 hold two 2 1/4" Tunnel well one 2 1/4"

No. of bilge injections Three sizes 5 1/2" 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 None

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 None 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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Before being launched Is the screw shaft tunnel watertight Yes

Is it fitted with a watertight door Yes worked from Upper platform

OILERS, &c.— (Letter for record 0) Total Heating Surface of Boilers 2806 sq ft

No. and Description of Boilers One Multitubular Horizontal Working Pressure 165 Tested by hydraulic pressure to 330

Date of test 13/4/95 Can each boiler be worked separately Yes Area of fire grate in each boiler 92 sq ft No. and Description of safety valves to

each boiler Two sprung Area of each valve 9.62 Pressure to which they are adjusted 165 lbs. Are they fitted

with easing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 12" Mean diameter of boilers 17-0"

Length 10-6" Material of shell plates steel Thickness 1 1/2" Description of riveting: circum. seams double rivet long. seams double rivet
with butt straps

Diameter of rivet holes in long. seams 1 1/16" Pitch of rivets 10" Lap of plates or width of butt straps 22 1/4"

Per centages of strength of longitudinal joint rivets 94.0 Working pressure of shell by rules 186 Size of manhole in shell 16x12"
plate 84.4 at end

Size of compensating ring in: ribs frame & door No. and Description of Furnaces in each boiler 4 Furness Material steel Outside diameter 47 1/8"

Thickness 9 1/16" crown 9 1/16" Description of longitudinal joint Welded No. of strengthening rings —

Length of plain part bottom 9 1/16" Thickness of plates bottom 9 1/16" Working pressure of furnace by the rules 173 Combustion chamber plates: Material steel Thickness: Sides 9 1/16" Back 9 1/16" Top 9 1/16" Bottom 3 1/4"

Pitch of stays to ditto: Sides 4 1/2" Back 4 1/2" Top 8" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 171 lbs

Material of stays steel Diameter at smallest part 1 1/2" Area supported by each stay 62.0" Working pressure by rules 194 lbs End plates in steam space:

Material steel Thickness 1 1/16" Pitch of stays 15" How are stays secured single nuts Working pressure by rules 174 lbs Material of stays Iron

Diameter at smallest part 3 1/8" Area supported by each stay 225.0" Working pressure by rules 185.5" Material of Front plates at bottom steel

Thickness 3 1/4" Material of Lower back plate steel Thickness 3 1/4" Greatest pitch of stays 12" Working pressure of plate by rules 171"

Diameter of tubes 3" Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 3 1/4" Back 1 1/8" Mean pitch of stays 9.6"

Pitch across wide water spaces 14 1/2" Working pressures by rules 216 Girders to Chamber tops: Material Iron Depth and

thickness of girder at centre 9+1 1/4" Length as per rule 33 3/4" Distance apart 8" Number and pitch of Stays in each 3-4 3/4"

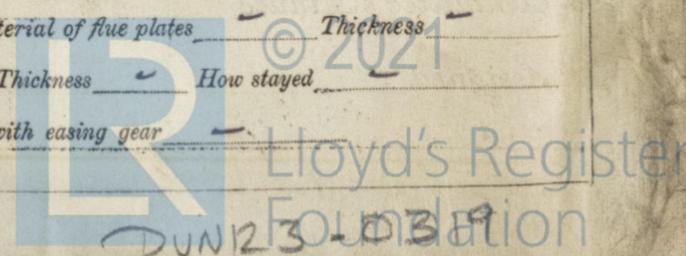
Working pressure by rules 182 Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked

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 *Horizontal multitubular (2 Plan furnace)*
 Made at *Dundee* By whom made *Gowley Bros & Co* When made *1894* Where fixed *stoke hold*
 Working pressure *85* tested by hydraulic pressure to *170* No. of Certificate *685* Fire grate area *22* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *4.91* Pressure to which they are adjusted *85 lbs.* If fitted with easing gear *Yes* If steam from main boilers
 enter the donkey boiler *No* Diameter of donkey boiler *9'-0"* Length *8'-0"* Material of shell plates *steel* Thickness *9/16*
 Description of riveting long seams *Double riveted lap* Diameter of rivet holes *3/32"* Whether punched or drilled *drilled* Pitch of rivets *3*
 Lap of plating *6 1/8"* Per centage of strength of joint Rivets *72.4* Thickness of shell crown plates *13/16* Radius of do. — No. of Stays to do. —
 Dia. of stays. *1 1/4"* Diameter of furnace *Top 34 Bottom* Length of furnace *4-0* Thickness of furnace plates *1/2"* Description
 joint *Double* Thickness of furnace crown plates *✓* Stayed by *—* Working pressure of shell by rules *86 1/2*
 Working pressure of furnace by rules *94.25* Diameter of uptake *✓* Thickness of uptake plates *✓* Thickness of water tubes *✓*

SPARE GEAR. State the articles supplied:—
as per rule

The foregoing is a correct description
Gowley Brothers & Co Manufacturer

General Remarks (State quality of workmanship, opinions as to class, &c. *The workmanship is good.*
The machinery and boilers of this vessel have been constructed under special survey, in accordance with the Rules, the plans forwarded herewith, and the Secretary's letters dated 21st Jan and 9th Feb. 1895. On completion, the safety valves were adjusted, and the engines tried under steam with satisfactory results.
*The machinery is therefore in our opinion eligible to be classed and to have the notation of **L M C 8,95** recorded in the Register Book.*

It is submitted that
 this vessel is eligible for
THE RECORD + L.M.C. 8,95.
S.S.
26.8.95.

Large blue handwritten signature

MACHINERY CERTIFICATE
 WRITTEN
 Certificate (if required) to be sent to *Dundee Office.*

The amount of Entry Fee. . . £ *2 : 0* :
 Special £ *25 : 4* :
 Donkey Boiler Fee £ *✓* :
 Travelling Expenses (if any) £ *✓* :
 When applied for, *22nd Aug. 1895*
 When received, *23rd Aug. 1895*

Maurice Wilson & J. Thomson
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

TUES. 27 AUG 1895

Committee's Minute
 Assigned *+ L.M.C. 8,95*

The Surveyors are requested not to write on or before the space for Committee's Minute.

Official No. <i>10491</i>	
No., Date, and I	
Whether British or Foreign Built.	
British	
Number of Deck	
Number of Mast	
Rigged	
Stern	
Build	
Galleries	
Head	
Framework and vessel	
Number of Bulk	
Number of water and their capa	
Total to quarter at side amidsh	
No. of Engines	Desc
	En
<i>Three</i>	<i>bo</i>
	Bo
	Number
	Iron or Steel
	Pressure when
GR	
Under Tonnage D	
Closed-in spaces a	
Space or spaces	
Poop	
Forecastle	
Round House	
Other closed-in	
Sec. 78 of a	
Gross T	
Deductions, as pe	
Register	
Name of M	
No. of Owners	
Name, Residence,	
<i>Wm. W</i>	
<i>James bur</i>	
Dated <i>20 Au</i>	