

REPORT ON MACHINERY.

Port of *Dundee*

15 MAY 93

No. in Survey held at *Dundee*
eg. Book.

Date, first Survey *Jan'y 10th* Last Survey *May 9th* 18 *93*
(Number of Visits *31*)

56 on the *Iron S.S. Gordonia*

Tons { Gross *2382*
Net *1555*

aster *✓* Built at *Sunderland* By whom built *J. L. Thompson & Sons*

When built *1881-2*

Engines made at *Gateshead* { By whom made *Black Hawthorn & Co* when made *1881*
Tripled by *Gourley Bros & Co* *1893*

ilers made at *Dundee* By whom made *Gourley Bros & Co* when made *1893*

Registered Horse Power *✓* Owners *P. Gordon & Co*

Port belonging to *London*

m. Horse Power as per Section 28 *460*

GINES, &c.— Description of Engines *Tri-Compound*

No. of Cylinders *3*

diameter of Cylinders *21"-35"-58"* Length of Stroke *45"* Revolutions per minute *58* Diameter of Screw shaft *as per rule 10.7*
as fitted 11.5

diameter of Tunnel shaft *as per rule 10.16* Diameter of Crank shaft journals *11 1/4"* Diameter of Crank pin *12 1/4"* Size of Crank webs *8 1/2 x 20*
as fitted 12"

diameter of screw *15.3"* Pitch of screw *17.0"* No. of blades *4* State whether moveable *no* Total surface *72.4 sq ft*

of Feed pumps *2 (new)* Diameter of ditto *3"* Stroke *22"* Can one be overhauled while the other is at work *yes*

of Bilge pumps *2* Diameter of ditto *4 5/16"* Stroke *22"* Can one be overhauled while the other is at work *yes*

of Donkey Engines *2 (old) 1 new duplex worthington* Sizes of Pumps *5-3 1/2 x 5* No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room *✓* In Holds, &c. *✓*

of bilge injections *1* sizes *✓* Connected to condenser, or to circulating pump *yes* Is a separate donkey suction fitted in Engine room & size *no*

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*

all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *both*

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*

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*

at pipes are carried through the bulkheads *none* How are they protected *✓*

all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times *yes*

the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *no*

en were stern tube, propeller, screw shaft, and all connections examined in dry dock *now* Is the screw shaft tunnel watertight *✓*

at fitted with a watertight door *yes* worked from *main deck*

Boilers, &c.— (Letter for record *S*) Total Heating Surface of Boilers *3518 sq ft*

and Description of Boilers *2. Single ended* Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs*

of test *18/4/93* Can each boiler be worked separately *yes* Area of fire grate in each boiler *48 sq ft* No. and Description of safety valves to

boiler *2 spring loaded* Area of each valve *4.9 sq in* Pressure to which they are adjusted *185 lbs* Are they fitted

easing gear *yes* Smallest distance between boilers or uptakes and bunkers or woodwork *15 ins* Mean diameter of boilers *13.3"*

gth *11.0"* Material of shell plates *steel* Thickness *1 3/16"* Description of riveting: circum. seams *lap double riv long. seams double butt*
2 1/2 rows

diameter of rivet holes in long. seams *1 1/4"* Pitch of rivets *8 5/16"* Lap of plates or width of butt straps *2.4 1/2"*

centages of strength of longitudinal joint rivets *92.4* Working pressure of shell by rules *181.5 lbs* Size of manhole in shell *13 x 17"*
plate *84.9*

of compensating ring *6 1/2 x 1 3/16"* No. and Description of Furnaces in each boiler *3 plain* Material *steel* Outside diameter *37 1/2"*
26 to 24 tons

gth of plain part top *4.0"* Thickness of plates crown *4.9* Description of longitudinal joint *double butt straps* No. of strengthening rings *none*
bottom *13.9* bottom *6.4* welded at ends

working pressure of furnace by the rules *149.6* Combustion chamber plates: Material *steel* Thickness: Sides *5/8"* Back *5/8"* Top *5/8"* Bottom *1/8"*

h of stays to ditto: Sides *8 x 7 3/4"* Back *8 x 7 3/4"* Top *8 1/2 x 7 1/2"* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *196 lbs*

erial of stays *steel* Diameter at smallest part *1 3/8"* Area supported by each stay *62 sq in* Working pressure by rules *191 lbs* End plates in steam space:

erial *steel* Thickness *25 25 doubling* Pitch of stays *18 1/2 x 16 3/4"* How are stays secured *double nuts* Working pressure by rules *180 lbs* Material of stays *steel*

diameter at smallest part *2 1/16"* Area supported by each stay *307 sq in* Working pressure by rules *181* Material of Front plates at bottom *steel*

ckness *3/4"* Material of Lower back plate *steel* Thickness *3/4"* Greatest pitch of stays Working pressure of plate by rules

diameter of tubes *3 1/4"* Pitch of tubes *4 1/2" x 4 1/2"* Material of tube plates *steel* Thickness: Front *1 3/16"* Back *3/4"* Mean pitch of stays *9"*

h across wide water spaces *14 1/4"* Working pressures by rules *260 lbs* Girders to Chamber tops: Material *steel* Depth and

ckness of girder at centre *9 x 1 3/16"* Length as per rule *31"* Distance apart *8 1/2"* Number and pitch of Stays in each *3 7/8"*

working pressure by rules *201 lbs* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler worked

Material Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

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

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 casing gear _____ 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 punched or 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 of 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:—

The foregoing is a correct description,
Gaulay Brothers & Co. Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. Secretaries letters dated Dec 24. Jan 4. 11 Feb 15 March 8.

This vessel has now been fitted, under special survey— with two new steel boilers and the engines tri-compounded; the parts renewed being 3 Cylinders; 3 pistons; 3 slide valves; 2 feed pumps; feed donkey pump duplex; 1 piston rod; 1 connecting rod; 1 pair eccentrics, straps, rods and wiper shaft for HP engine; 1 bilge pump air vessel; propeller and part reversing gear. The crank shaft (3 throw) is built up in one piece, one old throw being used: one back column and guide Thrust shaft and 2 old piston rods trued in lathe. Morrisons evaporator and feed heater fitted. Boilers are constructed of steel, which has been tested by a Surveyor to this Society at the steel works, and the test certificates are annexed. Materials and workmanship are good.

Certificate (if required) to be sent to _____

The amount of Entry Fee. . . £ : : When applied for, _____
 Special *per letter* £ 13 : : _____
 Donkey Boiler Fee . . . £ : : _____
 Travelling Expenses (if any) £ : : _____
 When received, *18/3/93*

Harry Clarke
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *FRIDAY 27 JUL 1894* *FRI 19 MAY 1893* *FRI 1 JUN 1894* *FRI 16 JUN 1893*

Assigned

TUES. 15 MAR 1894 *FRI 25 MAY 1894*

