

# REPORT ON MACHINERY.

Port of Dundee

Received at London Office **SAT. 30 APR 1898**

No. in Survey held at Dundee Date, first Survey 5<sup>th</sup> Aug. 1897 Last Survey 26<sup>th</sup> April 1898  
 Book. (Number of Visits 43)  
 28 on the Iron Paddle Steamer "Pharos" (Not classed) Tons <sup>Gross</sup> 574 <sub>Net</sub> 241  
 Master R. E. Simpson Built at Glasgow By whom built R. Napier & Sons When built 1874  
 Engines made at Dundee By whom made Messrs Gourlay Bros & Co when made 1898  
 Boilers made at Dundee By whom made Messrs Gourlay Bros & Co when made 1898  
 Registered Horse Power Owners Commissioners of 9<sup>th</sup> Lighthouse Port belonging to Leith

Registered Horse Power as per Section 28

**ENGINES, &c.**— Description of Engines Diagonal Compound No. of Cylinders 2  
 Diameter of Cylinders 33" - 64" Length of Stroke 54" Revolutions per minute \_\_\_\_\_ Diameter of Screw shaft \_\_\_\_\_  
 Diameter of Tunnel shaft \_\_\_\_\_ Diameter of Crank shaft journals \_\_\_\_\_ Diameter of Crank pin \_\_\_\_\_ Size of Crank webs \_\_\_\_\_  
 Diameter of screw \_\_\_\_\_ Pitch of screw \_\_\_\_\_ No. of blades \_\_\_\_\_ State whether moveable \_\_\_\_\_ Total surface \_\_\_\_\_  
 Diameter of Feed pumps \_\_\_\_\_ Diameter of ditto \_\_\_\_\_ Stroke \_\_\_\_\_ Can one be overhauled while the other is at work \_\_\_\_\_  
 Diameter of Bilge pumps \_\_\_\_\_ Diameter of ditto \_\_\_\_\_ Stroke \_\_\_\_\_ Can one be overhauled while the other is at work \_\_\_\_\_  
 Diameter of Donkey Engines \_\_\_\_\_ Sizes of Pumps \_\_\_\_\_ No. and size of Suctions connected to both Bilge and Donkey pumps \_\_\_\_\_  
 Engine Room \_\_\_\_\_ In Holds, &c. \_\_\_\_\_  
 Diameter of bilge injections \_\_\_\_\_ sizes \_\_\_\_\_ Connected to condenser, or to circulating pump \_\_\_\_\_ Is a separate donkey suction fitted in Engine room & size \_\_\_\_\_  
 Are all the bilge suction pipes fitted with roses \_\_\_\_\_ Are the roses in Engine room always accessible \_\_\_\_\_ Are the sluices on Engine room bulkheads always accessible \_\_\_\_\_  
 Are all connections with the sea direct on the skin of the ship \_\_\_\_\_ Are they Valves or Cocks \_\_\_\_\_  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates \_\_\_\_\_ Are the discharge pipes above or below the deep water line \_\_\_\_\_  
 Are they each fitted with a discharge valve always accessible on the plating of the vessel \_\_\_\_\_ Are the blow off cocks fitted with a spigot and brass covering plate \_\_\_\_\_  
 Are all pipes 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 \_\_\_\_\_  
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges \_\_\_\_\_  
 Were stern tube, propeller, screw shaft, and all connections examined in dry dock \_\_\_\_\_ Is the screw shaft tunnel watertight \_\_\_\_\_  
 Is it fitted with a watertight door \_\_\_\_\_ worked from \_\_\_\_\_

**BOILERS, &c.**— (Letter for record (S)) Total Heating Surface of Boilers 3492  
 Name and Description of Boilers Two, Cyl. single ended, Multitub<sup>l</sup> Working Pressure 120 Tested by hydraulic pressure to 240  
 Date of test 8.2.98 Can each boiler be worked separately  Area of fire grate in each boiler  No. and Description of safety valves to \_\_\_\_\_  
 boiler  Area of each valve  Pressure to which they are adjusted  Are they fitted \_\_\_\_\_  
 Casing gear  Smallest distance between boilers or uptakes and bunkers or woodwork  Mean diameter of boilers 13'-9"  
 Length 10'-3" Material of shell plates Steel Thickness 29/32" Description of riveting: circum. seams Lap Double long. seams D.B.T. Riv  
 Diameter of rivet holes in long. seams 1" Pitch of rivets 7 3/16" Lap of plates or width of butt straps 14 3/4"  
 Percentages of strength of longitudinal joint \_\_\_\_\_ rivets 89.0 Working pressure of shell by rules 130.3 Size of manhole in shell 16" x 12"  
 plate 86.0 Description of longitudinal joint \_\_\_\_\_ No. of strengthening rings 8  
 Diameter of compensating ring Mc Neil's No. and Description of Furnaces in each boiler 3 Ribbed Material steel Outside diameter 40 3/4"  
 Length of plain part \_\_\_\_\_ Thickness of plates \_\_\_\_\_ Description of longitudinal joint welded No. of strengthening rings 8  
 Working pressure of furnace by the rules 128 Combustion chamber plates: Material steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 3/4"  
 Diameter of stays to ditto: Sides 9" x 8" Back 9" x 8" Top 8" x 8" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 152  
 Material of stays steel Diameter at smallest part 1 1/4" Area supported by each stay 72 sq" Working pressure by rules 137 End plates in steam space: \_\_\_\_\_  
 Material steel Thickness 7/8" Pitch of stays 15 1/2" x 14 1/4" How are stays secured D.N. Loose W. Working pressure by rules 160 Material of stays steel  
 Diameter at smallest part 2 3/16" Area supported by each stay 228.6 Working pressure by rules 146 Material of Front plates at bottom steel  
 Thickness 1/16" Material of Lower back plate steel Thickness 9/16" Greatest pitch of stays 14 1/2" x 9" Working pressure of plate by rules 167 lbs  
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" Material of tube plates steel Thickness: Front 1/16" Back 1/16" Mean pitch of stays 9"  
 Width across wide water spaces 14 1/4" Working pressures by rules 200 lbs Girders to Chamber tops: Material steel Depth and \_\_\_\_\_  
 Thickness of girder at centre 9" x 1" Length as per rule 31" Distance apart 8" Number and pitch of Stays in each 3-8"  
 Working pressure by rules 140 lbs Superheater or Steam chest; how connected to boiler none Can the superheater be shut off and the boiler worked \_\_\_\_\_  
 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 \_\_\_\_\_  
 Strengthened 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 casing gear



DUNDEE-012

**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 easing 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,  
*Gawley Brothers* Manufacturer.

**General Remarks** (State quality of workmanship, opinions as to class, &c. *These boilers have been built under*  
*Special Survey, in accordance with the approved plan and Secretary's letter "E"*  
*dated 24<sup>th</sup> June, 1897. The steel has been tested by the Society's Surveyors and the*  
*materials and workmanship are sound and good. On completion the boiler was*  
*tested by hydraulic pressure to 240 lbs. also examined under steam and found to*  
*be tight and sound.*  
*As these boilers are placed on board the unclassed vessel "Pharos"*  
*of Leith, it is submitted that further action on the case is unnecessary.*

*This Boiler has been constructed under special survey, but as it does not appear to be intended for a classed vessel, it is submitted that no further action need be taken.*

*WMS*  
 30/4/98

Certificate (if required) to be sent to *Special certificate to be returned to Dundee Office*

The amount of Entry Fee..	£	✓	:	When applied for,
Special .. .. .	£	8	:	29/4/1898
Donkey Boiler Fee .. .	£	✓	:	When received,
Travelling Expenses (if any) £	✓	:	:	8/5/98 8/5/98

*W M Morrison*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
 Assigned

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