

# REPORT ON MACHINERY.

4673

Received at London Office THURSDAY 18 DEC 1883

No. 294  
 No. in Survey held at Dundee Date, first Survey 25/1/83 Last Survey 24<sup>th</sup> Nov 1883  
 Reg. Book. 296 on the S.S. "Virgo" (Number of Visits 1022.29) Tons 658.34  
 Master Zaing Built at Dundee By whom built Lourlay Bros & Co When built 1870  
 Engines made at Dundee By whom made Lourlay Bros & Co when made 1883  
 Boilers made at Dundee By whom made Lourlay Bros & Co when made 1883  
 Registered Horse Power 140 Owners General Steam Nav. Co Port belonging to London

**ENGINES, &c.—**

Description of Engines Direct acting Compound 2<sup>nd</sup> Cyl. Surface Condensing  
 Diameter of Cylinders 30" & 54" Length of Stroke 36" No. of Rev. per minute 80 Point of Cut off, High Pressure 9/16<sup>th</sup> Low Pressure 1/2  
 Diameter of Screw shaft 10 1/2" Diam. of Tunnel shaft 9 3/4" Diam. of Crank shaft journals 10 1/2" Diam. of Crank pin 10 1/2" size of Crank webs 7" x 11 3/4"  
 Diameter of screw 14" 0" Pitch of screw 14" 6" No. of blades 4 state whether moveable 2<sup>nd</sup> total surface 48 feet  
 No. of Feed pumps two diameter of ditto 3 1/2" Stroke 20" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps two diameter of ditto 3 1/2" Stroke 20" Can one be overhauled while the other is at work yes  
 Where do they pump from all compartments  
 No. of Donkey Engines one Size of Pumps 6" x 4" x 3 1/2" Where do they pump from sea, Hot tank, all compartments to boilers. thro ship side, and on deck  
 Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes  
 No. of bilge injections one and sizes 4 1/2" Are they connected to condenser, or to circulating pump Circulating  
 How are the pumps worked by levers from after engine  
 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 accessible at all times yes  
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock in dry dock  
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from top of cylinders

**BOILERS, &c.—**

Number of Boilers two Description Circular Tubular Whether Steel or Iron Steel & iron stays  
 Working Pressure 75 lbs Tested by hydraulic pressure to 150 lbs Date of test 23<sup>rd</sup> June 1883  
 Description of ~~superheating apparatus~~ steam chest Horizontal dome  
 Can each boiler be worked separately yes Can the superheater be shut off and the boiler worked separately —  
 No. of square feet of fire grate surface in each boiler 34 feet Description of safety valves Direct Spring load No. to each boiler two  
 Area of each valve 9.62<sup>sq</sup> Are they fitted with easing gear yes No. of safety valves to superheater — area of each valve —  
 Are they fitted with easing gear — Smallest distance between boilers and bunkers or woodwork 9" Diameter of boilers 11" 3"  
 Length of boilers 9' 3" description of riveting of shell long. seams Lap Ribble R circum. seams Lap D R Thickness of shell plates 5/8"  
 Diameter of rivet holes 1" steel R whether punched or drilled drilled pitch of rivets 3 7/8" Lap of plating 6 7/8" & 4 3/4"  
 Per centage of strength of longitudinal joint 74 & 76% working pressure of shell by rules 78 lbs size of manholes in shell 17" x 13"  
 Size of compensating rings angle 4" x 4" x 3/4" No. of Furnaces in each boiler two  
 Outside diameter 38 1/2" length, top 6' 6" bottom 6' 6" thickness of plates 1 5/8" description of joint butt S. R. if rings are fitted no  
 Greatest length between rings — working pressure of furnace by the rules 77 lbs combustion chamber plating, thickness, sides 7/16" back 1 5/8" top 1 5/8"  
 Pitch of stays to ditto, sides 9" x 8 1/2" back 9" x 9 1/2" top round If stays are fitted with nuts or riveted heads both both ends working pressure of plating by rules 79 lbs Diameter of stays at smallest part 1 5/8" side 1 5/8" working pressure of ditto by rules 56 7/8 lbs end plates in steam space, thickness 3/4"  
 Pitch of stays to ditto 17" x 15" how stays are secured thro ends both working pressure by rules 79 lbs diameter of stays at smallest part 2 3/8" & 2 3/16" working pressure by rules 57 6/8 lbs Front plates at bottom, thickness 7/16" Back plates, thickness 7/16"  
 Greatest pitch of stays 14" x 9 1/2" working pressure by rules 57 2/4 lbs Diameter of tubes 3 1/2" pitch of tubes 4 3/4" x — thickness of tube plates, front 7/16" back 7/16" how stayed both pitch of stays 14 1/2" x 9 1/2" width of water spaces 1 1/2"  
 Diameter of ~~superheater~~ Steam chest 3' 3" length 8' 0" thickness of plates 7/16" description of longitudinal joint Lap D. R. diam. of rivet holes 3/4"  
 Pitch of rivets 2 1/2" working pressure of shell by rules 154 lbs diameter of flue — thickness of plates — If stiffened with rings —  
 Distance between rings — working pressure by rules — end plates of ~~superheater~~ steam chest; thickness 4" how stayed by 4 bolts  
1 7/8" diam thro ends both Superheater or steam chest; how connected to boiler by two malleable heads

[State if Report is also sent on the Hull of the Ship]

[Form No. 8—2000—22/5/83.]

**DONKEY BOILER**— Description *one Round Vertical (not new) but has been repaired*  
 Made at *Repaired* by whom made *Lounlay Bros & Co* when made *1883* where fixed *on Deck*  
 Working pressure *50 lbs* tested by hydraulic pressure to *100 lbs* No. of Certificate — fire grate area — description of safety  
 valves *Direct Load* No. of safety valves *Two* area of each — if fitted with easing gear *Yes* if steam from main boilers can  
 enter the donkey boiler *No* diameter of donkey boiler *6.2* length *11.7* description of riveting  
 Thickness of shell plates — diameter of rivet holes — whether punched or drilled — pitch of rivets — lap of plating  
 per centage of strength of joint — thickness of crown plates — stayed by —  
 Diameter of furnace, top — bottom — length of furnace — thickness of 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 plates — thickness of water tubes —

**SPARE GEAR.** State the articles supplied:— *Half Crank Shaft, one screw Shaft 6 Coupling  
 bolts 2 each Top Bottom Connecting Rod bolts 2 main bearing bolts  
 lot of bolts assorted, piston springs, air-circulating pump valves  
 50 Condenser Tubes & C.C.*  
 The foregoing is a correct description,  
*Lou Lloyd & Co* Manufacturer

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The Engines and Boilers of this  
 Vessel have been built under special survey.  
 The material and workmanship are of the best description  
 The boilers have been tested under steam and the safety valves set  
 to 75 lbs per square inch working pressure. and the machinery seen at  
 work, and in my opinion all are in good and safe working order and  
 eligible to be entered into the Register Book with the distinctive mark  
 ✠ L.M.C 11.83.*

*It is submitted that this vessel  
 is eligible to have the notations  
 L.M.C and N.B. entered  
 M 6/12/83*

The amount of Entry Fee .. £ : : received by me,  
 Special .. .. £ 21 : 0 : 0  
 Donkey Boiler Fee .. .. £ : :  
 Certificate (if required) .. £ : 2 : 6 29<sup>th</sup> Nov 1883.  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ .. ..)

*John Sturrock*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.  
 Dundee & District

Committee's Minute

*+ Dub 11.83  
 + N.B. 83 + N.F.*

