

REPORT ON MACHINERY.

Port of Dundee

Received at London Office 19

THUR. 5 JUL 1900

No. in Survey held at Dundee Date, first Survey 14th June Last Survey 30th June 19

Reg. Book. 639 on the Steel 4 mt Bk "Sindia" (Number of Visits 6) Tons ^{Gross} 3068 _{Net} 2929

Master A. Mackenzie Built at Belfast By whom built Hartland & Wolff When built 1887-12

Engines made at ✓ By whom made ✓ when made ✓

Boilers made at Liverpool By whom made Messrs Dunlop Bell & Co when made 1887

Registered Horse Power ✓ Owners Anglo American Oil Co Ltd Port belonging to London

Nom. Horse Power as per Section 28 ✓ Is Refrigerating Machinery fitted ✓ Is Electric Light fitted ✓

ENGINES, &c.—Description of Engines

No. of Cylinders _____ No. of Cranks _____

Dia. of Cylinders _____ Length of Stroke _____ Revs. per minute _____ Dia. of Screw shaft ^{as per rule} _____ _{as fitted} _____ Lgth. of stern bush _____

Dia. of Tunnel shaft ^{as per rule} _____ _{as fitted} _____ Dia. of Crank shaft journals ^{as per rule} _____ _{as fitted} _____ Dia. of Crank pin _____ Size of Crank webs _____ Dia. of thrust shaft under collars _____

Dia. of screw _____ Pitch of screw _____ No. of blades _____ State whether moveable _____ Total surface _____

No. of Feed pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____

No. of Bilge pumps _____ Diameter of ditto _____ Stroke _____ Can one be overhauled while the other is at work _____

No. of Donkey Engines _____ Sizes of Pumps _____ No. and size of Suctions connected to both Bilge and Donkey pumps _____

In Engine Room _____ In Holds, &c. _____

No. 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 _____

What pipes are 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 _____

When 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 _____

OILERS, &c.— (Letter for record _____) Total Heating Surface of Boilers _____ Is forced draft fitted _____

No. and Description of Boilers _____ Working Pressure _____ Tested by hydraulic pressure to _____

Date of test _____ Can each boiler be worked separately _____ Area of fire grate in each boiler _____ No. and Description of safety valves to each boiler _____

Area of each valve _____ Pressure to which they are adjusted _____ Are they fitted with easing gear _____

Smallest distance between boilers or uptakes and bunkers or woodwork _____ Mean dia. of boilers _____ Length _____ Material of shell plates _____

Thickness _____ Range of tensile strength _____ Are they welded or flanged _____ Descrip. of riveting: cir. seams _____ long. seams _____

Diameter of rivet holes in long. seams _____ Pitch of rivets _____ Lap of plates or width of butt straps _____

Per centages of strength of longitudinal joint _____ Working pressure of shell by rules _____ Size of manhole in shell _____

Size of compensating ring _____ No. and Description of Furnaces in each boiler _____ Material _____ Outside diameter _____

Length of plain part ^{top} _____ _{bottom} _____ Thickness of plates ^{top} _____ _{bottom} _____ Description of longitudinal joint _____ No. of strengthening rings _____

Working pressure of furnace by the rules _____ Combustion chamber plates: Material _____ Thickness: Sides _____ Back _____ Top _____ Bottom _____

Pitch of stays to ditto: Sides _____ Back _____ Top _____ If stays are fitted with nuts or riveted heads _____ Working pressure by rules _____

Material of stays _____ Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ End plates in steam space: _____

Material _____ Thickness _____ Pitch of stays _____ How are stays secured _____ Working pressure by rules _____ Material of stays _____

Diameter at smallest part _____ Area supported by each stay _____ Working pressure by rules _____ Material of Front plates at bottom _____

Thickness _____ Material of Lower back plate _____ Thickness _____ Greatest pitch of stays _____ Working pressure of plate by rules _____

Diameter of tubes _____ Pitch of tubes _____ Material of tube plates _____ Thickness: Front _____ Back _____ Mean pitch of stays _____

Pitch across wide water spaces _____ Working pressures by rules _____ Girders to Chamber tops: Material _____ Depth and _____

Thickness of girder at centre _____ Length as per rule _____ Distance apart _____ Number and pitch of Stays in each _____

Working pressure by rules _____ 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— No. *one* Description *Vertical,*
 Made at *Liverpool* By whom made *Dunlop Bell & Co* When made *1887* Where fixed *in house on deck*
 Working pressure *40* tested by hydraulic pressure to *80* No. of Certificate Fire grate area *12.5 sq* Description of safety valves *spring*
 No. of safety valves *one* Area of each *7.07* Pressure to which they are adjusted *40* If fitted with easing gear *yes* If steam from main boilers can
 enter the donkey boiler Dia. of donkey boiler *5'-0"* Length *8'-7"* Material of shell plates *steel* Thickness *5/16* Range of tensile
 strength *not known* Descrip. of riveting long. seams *Lap double riveted* Dia. of rivet holes *13/16* Whether punched or drilled *Drilled* Pitch of rivets *2 3/4*
 Lap of plating *4* Per centage of strength of joint Rivets *102.8* Thickness of shell crown plates *3/8* Radius of do. *8 ft* No. of Stays to do. *6*
 Plates *70.5* Dia. of stays. *1 1/2" off* Diameter of furnace Top *50"* Bottom *52"* Length of furnace *40'* Thickness of furnace plates *1/2* Description of
 joint *Lap single* Thickness of furnace crown plates *5/16* Stayed by *as shell crown* Working pressure of shell by rules *55 lbs*
 Working pressure of furnace by rules *40 lbs* Diameter of uptake *12 1/2"* Thickness of uptake plates *1/2"* Thickness of water tubes *none*

SPARE GEAR. State the articles supplied:—

The foregoing is a correct description,
 Manufacturer.

Dates of Survey while building { During progress of work in shops - June 14, 21, 22, 25, 29-30th 1900
 { During erection on board vessel -
 Total No. of visits *6* Is the approved plan of main boiler forwarded herewith
 " " " donkey " " " *yes*

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

At the request of the Owners, examined internally and externally, the donkey boiler now on board this vessel with a view to assigning a working pressure. On examination the boiler was found to be slightly wasted and the remaining cross tube defective but otherwise sound; the defective cross-tube has now been removed and the holes for same patched, and manhole door renewed. The sizes and scantlings were ascertained and found to be as shown on the sketch attached hereto. The safety valve and mountings were overhauled and put in good condition. The boiler being considered satisfactory for a working pressure of 40 lbs per square inch was tested by hydraulic pressure to 80 lbs and found tight and sound and showed no signs of weakness at that pressure. The boiler was examined under steam, found satisfactory and the safety valve adjusted to a working pressure of 40 lbs per square inch.

As there is no evidence that the materials used in the construction of this boiler have been tested, the working pressure has been calculated as for an iron boiler.

In my opinion the boiler is in a good and safe condition for a working pressure of forty pounds (40 lbs) per square inch, subject to annual examination as required by the Rules of this Society.

It is submitted that as this is a donkey boiler fitted on a sailing vessel, no further action need be taken
 subject to annual exam. 20th July 1900

The amount of Entry Fee. £
 Special £
 Donkey Boiler Fee £ 2 : 2 : 0
 Travelling Expenses (if any) £ 1 : 18 : 0
 Total £ 3 : 4 : 0
 When received, 5.7.00

Wm Morrison
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute
 Assigned
 FRI. 6 JUL 1900
 As now

Certificate (if required) to be sent to Special Certificate to be returned to Survey Office

