

REPORT ON MACHINERY.

No. 18456

FRI. 28 SEP 1906

Port of Hull

Received at London Office

No. in Survey held at Selby & Hull Date, first Survey May 18th Last Survey Sep. 3rd 1906
 Reg. Book. 5 on the Screw Steamer "Ophir" (Number of Visits 15)
 Master Built at Selby By whom built Cochrane & Sons Tons Gross 213
 Net 105
 Engines made at Hull By whom made Charles S. Holmes & Co. when made 1906
 Boilers made at do By whom made do when made 1906
 Registered Horse Power Owners A. Bannister Port belonging to Grimby
 Nom. Horse Power as per Section 28 68.4 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Triple No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 12 1/2", 22", 35" Length of Stroke 24" Revs. per minute 112 Dia. of Screw shaft as per rule 7.14" Material of Iron
as fitted 7 1/4" screw shaft
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube yes Is the after end of the liner made water tight
 in the propeller boss yes If the liner is in more than one length are the joints burned yes If the liner does not fit tightly at the part
 between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive ✓ If two
 liners are fitted, is the shaft lapped or protected between the liners ✓ Length of stern bush 31"
 Dia. of Tunnel shaft as per rule 6.4" Dia. of Crank shaft journals as per rule 6.75" Dia. of Crank pin 6 7/8" Size of Crank webs 13 1/2" x 4 1/2" Dia. of thrust shaft under
 collars 6 7/8" Dia. of screw 8.7 1/2" Pitch of Screw 11.0" No. of Blades 4 State whether moveable No Total surface 28 sq. ft.
 No. of Feed pumps 1 Diameter of ditto 2 1/8" Stroke 24" Can one be overhauled while the other is at work ✓
 No. of Bilge pumps 1 Diameter of ditto 2 1/8" Stroke 24" Can one be overhauled while the other is at work ✓
 No. of Donkey Engines Two Sizes of Pumps 2 3/4" x 5" & 2 3/4" x 4" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room Two 2" dia. In Holds, &c. Two 2" dia.
Ejector suction from all bilges & discharge on deck.
 No. of Bilge Injections 1 sizes 3 Connected to condenser, or to circulating pump Pumps a separate Donkey Suction fitted in Engine room & size 2 1/2" ejector
 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 Hold suction How are they protected wood casing
 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
 Dates of examination of completion of fitting of Sea Connections 18.6.06 of Stern Tube 18.6.06 Screw shaft and Propeller 18.6.06
 Is the Screw Shaft Tunnel watertight None Is it fitted with a watertight door ✓ worked from ✓

BOILERS, &c.—(Letter for record (5)) Manufacturers of Steel Wm. Beardmore & Co. Ltd.
 Total Heating Surface of Boilers 11034 sq. ft. Forced Draft fitted No No. and Description of Boilers One S.E. Cyl. Multi.
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 9.8.06 No. of Certificate 1495
 Can each boiler be worked separately ✓ Area of fire grate in each boiler 32 sq. ft. No. and Description of Safety Valves to
 each boiler Two spring Area of each valve 3.9" Pressure to which they are adjusted 185 lbs Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 7" Ext. Mean dia. of boilers 12.6" Length 10.0" Material of shell plates Steel
 Thickness 1 1/2" Range of tensile strength 28 1/2 - 32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams DR lap
 long. seams DR 5 Rivet Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 7" Lap of plates or width of butt straps 15"
 Per centages of strength of longitudinal joint 86 Working pressure of shell by rules 183 lbs Size of manhole in shell 16" x 12"
 Size of compensating ring 7" x 1 1/2" No. and Description of Furnaces in each boiler Two Holmes Material Steel Outside diameter 3.7"
 Length of plain part top ✓ Thickness of plates bottom ✓ 11/16" Description of longitudinal joint Welded No. of strengthening rings ✓
 Working pressure of furnace by the rules 198 lbs Combustion chamber plates: Material Steel Thickness: Sides 23/32" Back 11/16" Top 23/32" Bottom 23/32"
 Pitch of stays to ditto: Sides 9" x 9" Back 9" x 8 3/4" Top 8" x 8 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 207 lbs
 Material of stays Steel Diameter at smallest part 1 3/4" Area supported by each stay 105" Working pressure by rules 204 lbs and plates in steam space:
 Material Steel Thickness 1 1/16" Pitch of stays 16" x 16" How are stays secured DR + W Working pressure by rules 208 lbs Material of stays Steel
area at smallest part 5.78" Area supported by each stay 256" Working pressure by rules 225 lbs Material of Front plates at bottom Steel
 Thickness 7/8" Material of Lower back plate Steel Thickness 15/16" Greatest pitch of stays 14 3/4" Working pressure of plate by rules 197 lbs
 Diameter of tubes 3 1/4" Pitch of tubes 4 5/8" x 4 1/2" Material of tube plates Steel Thickness: Front 7/8" Back 7/8" Mean pitch of stays 9 1/4" x 9"
 Pitch across wide water spaces 14 1/2" Working pressures by rules 180 lbs Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 8 3/4" x 1 3/4" Length as per rule 2.8 2/8" Distance apart 8" Number and pitch of stays in each 3 @ 8 1/2"
 Working pressure by rules 188 lbs 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 ✓



VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____

Made at _____ By whom made _____ When made _____ Where fixed _____

Working pressure tested by hydraulic pressure to _____ Date of test _____ No. of Certificate _____ Fire grate area _____ Description of Safety _____

Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Date of adjustment _____

If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____

Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long. seams _____

Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____ Plates _____

Working pressure of shell by rules _____ 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 _____

Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Stayed by _____

Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— *Two top + two bottom-end connecting rod bolts + nuts. Two main bearing bolts + nuts. One set of coupling bolts + nuts. One set of feed + bilge pump valves. Main + donkey feed check valves. Assorted bolts + nuts etc.*

The foregoing is a correct description,
Charles D. Holmsey Manufacturer.

Dates of Survey while building: During progress of work in shops - 1906: - May 18. Jun 7. 14. 18. 19. 25. July 13. 17. 19 Aug. 9. 18. 22. 25. 30 Sep 3

During erection on board vessel - _____

Total No. of visits 15

Is the approved plan of main boiler forwarded herewith *yes*

" " " donkey " " " *✓*

Dates of Examination of principal parts—Cylinders *9. 8. 06* Slides *9. 8. 06* Covers *18. 8. 06* Pistons *9. 8. 06* Rods *13. 7. 06*

Connecting rods *13. 7. 06* Crank shaft *18. 8. 06* Thrust shaft *18. 8. 06* Tunnel shafts *✓* Screw shaft *14. 6. 06* Propeller *18. 6. 06*

Stern tube *18. 6. 06* Steam pipes tested *25. 8. 06* Engine and boiler seatings *18. 6. 06* Engines holding down bolts *22. 8. 06*

Completion of pumping arrangements *30. 8. 06* Boilers fixed *22. 8. 06* Engines tried under steam *30. 8. 06*

Main boiler safety valves adjusted *30. 8. 06* Thickness of adjusting washers *F 3/8" A 3/8"*

Material of Crank shaft *Iron* Identification Mark on Do. *J.K. 263 18. 8. 06* Material of Thrust shaft *Iron* Identification Mark on Do. *J.K. 263 18. 8. 06*

Material of Tunnel shafts *✓* Identification Marks on Do. *✓* Material of Screw shafts *Iron* Identification Marks on Do. *J.K. 263 14. 6. 06*

Material of Steam Pipes *Solid drawn copper* Test pressure *360 lbs*

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

The Engines and Boiler of this vessel have been constructed under Special Survey, are of good material and workmanship, and have been fitted and secured on board in accordance with the Rules. They are now in good working condition and in my opinion eligible to have the notation of + L M C 9. 06 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD *L.M.C. 9.06.*

W. S. P. J. S. 28. 9. 06
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee.. £ 1 : : : When applied for, *20/9/06*

Special £ 10 4 : : : *19. 06*

Donkey Boiler Fee £ : : : When received, *25. 9. 06*

Travelling Expenses (if any) £ : : : *2*

TUES. OCT 2 1906

Committee's Minute
 Assigned *+ L.M.C. 9.06*



Certificate (if required) to be sent to Hull