

# REPORT ON MACHINERY.

No. 22714.

Port of *Hull.*

Received at London Office **WFIL 13 JUL 1910**

No. in Survey held at *Hull* Date, first Survey *Nov 20/09.* Last Survey *29<sup>th</sup> June 1910*  
 Reg. Book. *155* on the *Steel Ss. Danube II* (Number of Visits *86*)  
 Master *Built at Dartmouth* By whom built *Philip Son Ltd.* When built *1910*  
 Engines made at } *Hull* By whom made } *Messrs* when made *1910*  
 Boilers made at } *Hull* By whom made } *Earles & Co Ltd* when made *1910*  
 Registered Horse Power *J. Constant* Owners *J. Constant* Port belonging to *[Stamp]*  
 Nom. Horse Power as per Section 28 *94* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*  
 Dia. of Cylinders *15" 24" 40"* Length of Stroke *24"* Revs. per minute *120* Dia. of Screw shaft *9.5"* Material of screw shaft *Steel*  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No* Is the after end of the liner made water tight  
 Is the propeller boss *Yes* If the liner is in more than one length are the joints burned *—* 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 *50"*  
 Dia. of Tunnel shaft *7.4"* Dia. of Crank shaft journals *7.875"* Dia. of Crank pin *4 1/8"* Size of Crank webs *15" x 5 1/2"* Dia. of thrust shaft under  
 collars *7 1/8"* Dia. of screw *10'-0"* Pitch of Screw *12'-0"* No. of Blades *3* State whether moveable *No* Total surface *36 sq ft*  
 No. of Feed pumps *Two* Diameter of ditto *2 1/4"* Stroke *18"* Can one be overhauled while the other is at work *Yes*  
 No. of Bilge pumps *Two* Diameter of ditto *2 1/4"* Stroke *18"* Can one be overhauled while the other is at work *Yes*  
 No. of Donkey Engines *One* Sizes of Pumps *6" x 4" x 6"* No. and size of Suctions connected to both Bilge and Donkey pumps  
 in Engine Room *Two 2" & one 2" in Bl room* In Holds, &c. *One 2" in each, forward*  
*hold, aft hold, fore peak tank.*  
 No. of Bilge Injections *1* sizes *3 1/2"* Connected to condenser, or to circulating pump *pump* Is a separate Donkey Suction fitted in Engine room & size *Yes*  
 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 *awash*  
 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 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 *8.6.10* of Stern Tube *8.6.10* Screw shaft and Propeller *8.6.10*  
 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 *Phoenix Act. Westfalen Germany*  
 Total Heating Surface of Boilers *1590 sq ft* Is Forced Draft fitted *No* No. and Description of Boilers *One Cyl. Multi S. Ended*  
 Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *10.5.10* No. of Certificate *1740*  
 Can each boiler be worked separately *—* Area of fire grate in each boiler *50 sq ft* No. and Description of Safety Valves to  
 each boiler *Two Spring* Area of each valve *4.9 sq in* 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 *6"* Mean dia. of boilers *13'-6"* Length *11'-0"* Material of shell plates *Steel*  
 Thickness *1 3/32"* Range of tensile strength *28-32 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *L.D.*  
 Long. seams *O.B.S.J.R.* Diameter of rivet holes in long. seams *1 3/16"* Pitch of rivets *8 1/8"* Lap of plates or width of butt straps *17 1/2"*  
 Percentages of strength of longitudinal joint *92%* Working pressure of shell by rules *181 lbs* Size of manhole in shell *16" x 12"*  
 Size of compensating ring *7 1/2" x 1 3/32"* No. and Description of Furnaces in each boiler *2 Deighton's* Material *Steel* Outside diameter *4'-2 1/4"*  
 Length of plain part *—* Thickness of plates *19/32"* Description of longitudinal joint *Welded* No. of strengthening rings *—*  
 Working pressure of furnace by the rules *184 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *23/32"* Back *31/32"* Top *11/16"* Bottom *23/32"*  
 Pitch of stays to ditto: Sides *9 1/2" x 9 1/2"* Back *9 1/2" x 8"* Top *9 1/2" x 9 1/2"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *193 lbs*  
 Material of stays *Steel* Diameter at smallest part *1 1/2"* Area supported by each stay *76 sq in* Working pressure by rules *185 lbs* End plates in steam space:  
 Material *Steel* Thickness *1 1/8"* Pitch of stays *18" x 17"* How are stays secured *O.N.* Working pressure by rules *185 lbs* Material of stays *Steel*  
 Diameter at smallest part *2 1/16"* Area supported by each stay *306 sq in* Working pressure by rules *211 lbs* Material of Front plates at bottom *Steel*  
 Thickness *31/32"* Material of Lower back plate *Steel* Thickness *1/8"* Greatest pitch of stays *14 3/4" x 8"* Working pressure of plate by rules *184 lbs*  
 Diameter of tubes *3 3/4"* Pitch of tubes *5 1/4" x 5 1/4"* Material of tube plates *Steel* Thickness: Front *31/32"* Back *13/16"* Mean pitch of stays *10 1/2"*  
 Pitch across wide water spaces *14 3/4"* Working pressures by rules *184 lbs* Girders to Chamber tops: Material *Steel* Depth and  
 thickness of girder at centre *8" x 17 1/4"* Length as per rule *2'-6 3/32"* Distance apart *9 1/2"* Number and pitch of stays in each *Two 9 1/8"*  
 Working pressure by rules *192 lbs* 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  
 plates *—* 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 *—*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

**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 each top and bottom end connect rod bolts and nuts, two main bearing bolts and nuts, one set coupling bolts and nuts, one set each, air circulation feed and bilge pump valves, and a quantity of assorted bolts nuts etc*

The foregoing is a correct description,

FOR EARL'S  
SHIPBUILDING & ENGINEERING CO. LIMITED.  
Manufacturer. *F. J. Falgout*

Dates of Survey while building	During progress of work in shops—	1908:—Nov 20, 25, Dec 7, 9, 17, 23, 1909:—Jan 8, 11, 22, 30, Feb 9, 15, 24, Mar 12, 19, 27, 31, Apr 5, 14, 21, 27, May 1, 5, 8
	During erection on board vessel—	Jan 18, 20, 27, Feb 3, 10, 14, 17, 22, 23, 28, Mar 7, 9, 16, 23, Apr 4, 8, 21, 27, Mar 2, 4, 10, 25, 28, Jun 2, 4, 6, 10, 5, 9, 13, 1910:—Jan 5, 8
	Total No. of visits—	86.

Is the approved plan of main boiler forwarded herewith *Yes*  
" " " donkey " " "

Dates of Examination of principal parts—	Cylinders	11.5.09	Slides	24.2.09	Covers	20.7.09	Pistons	5.4.09	Rods	24.2.09	
Connecting rods	19.3.09	Crank shaft	1.9.09	Thrust shaft	2.6.10	Tunnel shafts	2.6.10	Screw shaft	2.6.10	Propeller	6.6.10
Stern tube	6.6.10	Steam pipes tested	15.6.10	Engine and boiler seatings	2.6.10	Engines holding down bolts	17.6.10				
Completion of pumping arrangements	28.6.10	Boilers fixed	17.6.10	Engines tried under steam	28.6.10						
Main boiler safety valves adjusted	17.6.10	Thickness of adjusting washers	3/8" - 7/16"								
Material of Crank shaft	Steel	Identification Mark on Do.	2186 ATC	Material of Thrust shaft	Steel	Identification Mark on Do.	2483 WD				
Material of Tunnel shafts	Steel	Identification Marks on Do.	2482 W	Material of Screw shafts	Steel	Identification Marks on Do.	2482 W				
Material of Steam Pipes	Solid drawn Copper	Test pressure	400 lbs per sq inch								

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The engines and boiler of this vessel have been constructed under special survey in accordance with the Rules, the materials and workmanship are sound and good. The boiler has been tested by hydraulic pressure, and with the engines secured on board and tested under steam they are now in good order, and safe working condition and respectfully submitted as being eligible in my opinion to be classed with the notation of L.M.C. 6.10 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + L.M.C. 6.10

The amount of Entry Fee.	£ 1	When applied for.	12.7.10
Special	£ 14	When received.	27.7.10
Donkey Boiler Fee	£		
Travelling Expenses (if any)	£		

*James Barclay*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute  
Assigned

FRI 15 JUL 1910

+ L.M.C. 6.10



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