

# REPORT ON MACHINERY.

Received at London Office TUE. JUL 2 - 1912

Date of writing Report 10 When handed in at Local Office 29-6-12 Port of Hull  
 No. in Survey held at Hull Date, First Survey Mar 12<sup>th</sup> Last Survey June 26<sup>th</sup> 1912  
 Reg. Book. 85 up on the Steam Trawler "BONAR LAW"  
 Master Built at Selby By whom built Cochrane & Sons. When built 1912  
 Engines made at Hull By whom made Messrs. Charles D. Holmes & Co. Ltd. when made 1912  
 Boilers made at Hull By whom made when made 1912.  
 Registered Horse Power Owners Peterson & Haldane's Ship Trading Co. Ltd. Port belonging to Hull.  
 Nom. Horse Power as per Section 28 49. Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted No.

**ENGINES, &c.**—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 17 3/4" - 22" - 36" Length of Stroke 24" Revs. per minute 112 Dia. of Screw shaft as per rule 4.44" Material of screw shaft as fitted 4 3/4" 8  
 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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 36"  
 Dia. of Tunnel shaft as per rule 6.44" 6.72" Dia. of Crank shaft journals as per rule 4.068" 4.4" Dia. of Crank pin 7/8" Size of Crank webs 4 1/2" x 14" Dia. of thrust shaft under collars 7/8" Dia. of screw 9'-0" Pitch of Screw 11'-0" No. of Blades 4 State whether moveable No. Total surface 29 sq ft  
 No. of Feed pumps 1 Diameter of ditto 2 3/8" Stroke 14 1/4" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 1 Diameter of ditto 2 3/8" Stroke 14 1/4" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 1 Sizes of Pumps 6" x 4 1/4" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Two 2" - One forward & one aft. In Holds, &c. One 2 1/2" slush well, one 2 1/2" main hold, one 2 1/2" fore-castle. Ejecting suction from all bilges with discharge on deck.  
 No. of Bilge Injections 1 sizes 3" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size Yes 2 1/2" dia.  
 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 No  
 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 18.4.12 of Stern Tube 18.4.12 Screw shaft and Propeller 18.4.12  
 Is the Screw Shaft Tunnel watertight No Is it fitted with a watertight door No worked from No

**BOILERS, &c.**—(Letter for record S.) Manufacturers of Steel Phoenix A.L. & Co. Ltd. Horden Towing of Horden  
 Total Heating Surface of Boilers 1295 sq ft Is Forced Draft fitted No. No. and Description of Boilers One cyl. multi. simple ended  
 Working Pressure 200 lbs. Tested by hydraulic pressure to 400 lbs. Date of test 3.6.12 No. of Certificate 1903  
 Can each boiler be worked separately No Area of fire grate in each boiler 46 sq ft No. and Description of Safety Valves to each boiler Two Spring Area of each valve 4.90" Pressure to which they are adjusted 200 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 10'-6" Material of shell plates S  
 Thickness 1 3/16" Range of tensile strength 29 tons. Are the shell plates welded or flanged No. Descrip. of riveting: cir. seams L.A.  
 long. seams R.D.S. 199 Diameter of rivet holes in long. seams 1 3/16" Pitch of rivets 8" Lap of plates or width of butt straps 16 5/8"  
 Per centages of strength of longitudinal joint rivets 85% plate 85% Working pressure of shell by rules 203 lbs. Size of manhole in shell 16" x 12"  
 Size of compensating ring 4" x 1 3/16" No. and Description of Furnaces in each boiler 3 plain Material S Outside diameter 38"  
 Length of plain part top 6'-5 1/2" bottom 6'-5 1/2" Thickness of plates crown 5/16" bottom 5/16" Description of longitudinal joint Welded No. of strengthening rings 0  
 Working pressure of furnace by the rules 212 lbs. Combustion chamber plates: Material S Thickness: Sides 3/32" Back 3/32" Top 3/4" Bottom 3/32"  
 Pitch of stays to ditto: Sides 8" x 10" Back 8 1/2" x 10" Top 8" x 11" If stays are fitted with nuts or riveted heads No Working pressure by rules 212 lbs.  
 Material of stays S Diameter at smallest part 2.40" Area supported by each stay 101.060 Working pressure by rules 213 lbs. End plates in steam space: Material S Thickness 1 3/16" Pitch of stays 18" x 18" How are stays secured R.D.S. Working pressure by rules 206 lbs. Material of stays S  
 Diameter at smallest part 6.33" Area supported by each stay 324.0 Working pressure by rules 203 lbs. Material of Front plates at bottom S  
 Thickness 1 5/16" Material of Lower back plate S Thickness 29/32" Greatest pitch of stays 4 1/2" x 8 1/2" Working pressure of plate by rules 204 lbs.  
 Diameter of tubes 3 1/2" Pitch of tubes 5 1/2" x 5" Material of tube plates S Thickness: Front 15/16" Back 8/8" Mean pitch of stays 10"  
 Pitch across wide water spaces 14" 8 ddy Working pressures by rules 315 lbs. Girders to Chamber tops: Material S Depth and thickness of girder at centre 10 3/4" - 1 3/4" Length as per rule 2-11 3/8" Distance apart 11" Number and pitch of stays in each 3-8"  
 Working pressure by rules 203 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 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 \_\_\_\_\_ Radius of do. \_\_\_\_\_ 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 & bottom end connecting rod bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set each fuel & tripping pump valves, iron of various sizes, a quantity of assorted bolts, nuts, etc.*

**MR. CHARLES D. HOLMES & Co. LTD.**  
The foregoing is a correct description,  
*Arthur Holmes* DIRECTOR Manufacturer.

Dates of Survey while building { During progress of work in shops - { 1912: Mar 12, 19, Apr 3, 12, 17, 18, 23, 25, May 1, 3, 7, 15, 17, 22, 30, June 3, 5, 7, 15, 18.  
During erection on board vessel - { Jun 24, 25, 26  
Total No. of visits 23

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

Dates of Examination of principal parts—Cylinders 25.4.12 Slides 5.6.12 Covers 4.6.12 Pistons 4.6.12 Rods 5.6.12  
Connecting rods 30.5.12 Crank shaft 15.5.12 Thrust shaft 17.5.12 Tunnel shafts ✓ Screw shaft 12.4.12 Propeller 12.4.12  
Stern tube 12.4.12 Steam pipes tested 18.6.12 Engine and boiler seatings 18.4.12 Engines holding down bolts 21.6.12  
Completion of pumping arrangements 26.6.12 Boilers fixed 21.6.12 Engines tried under steam 24.6.12  
Main boiler safety valves adjusted 24.6.12 Thickness of adjusting washers *found 3/8" all 3/8"*  
Material of Crank shaft *S.* Identification Mark on Do. *Nº 890 T.G.D.* Material of Thrust shaft *S.* Identification Mark on Do. *Nº 890 T.G.D.*  
Material of Tunnel shafts ✓ Identification Marks on Do. ✓ Material of Screw shafts *S.* Identification Marks on Do. *Nº 890 T.G.D.*  
Material of Steam Pipes *Solid drawn copper.* Test pressure *400 lbs. pressure per sq. inch.*

General Remarks (State quality of workmanship, opinions as to class, &c. *The engines & boiler of this vessel have been constructed under special survey in accordance with the Rules. The materials & workmanship are sound & good. The boiler tested by hydraulic pressure, & with the engines secured on board & worked under steam they are now in good order & safe working condition & respectfully submitted as being eligible in my opinion to be classed with the notation of + L.M.C. 6.12 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 6.12.

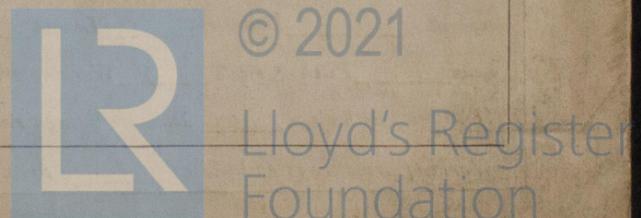
*J.W.D.* *ARR*  
27/7/12

*J.W.D.*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee . . . £ 1 : 0 :  
Special . . . . . £ 11 : 14 :  
Donkey Boiler Fee . . . . . £ : :  
Travelling Expenses (if any) £ : 8/2 :  
When applied for, 1.7.12  
When received, 31.7.12

Committee's Minute FRI. JUL. 5--1912

Assigned + L.M.C. 6.12



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