

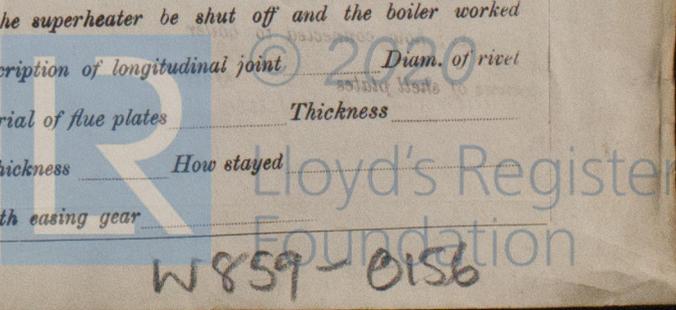
# REPORT ON MACHINERY.

Port of Belfast Received at London Office FRI. 16 NOV 1906  
 No. in Survey held at Belfast Date, first Survey 3<sup>rd</sup> May Last Survey 8<sup>th</sup> Nov 1906  
 Reg. Book. S.S. Hawth Head (Number of Visits 40) Gross 4440  
 on the S.S. Hawth Head Tons Net 2874  
 Master J.R. Moore Built at Belfast By whom built Northern Dock & Shipyard when built 1906  
 Engines made at Belfast By whom made - when made -  
 Boilers made at - By whom made - when made -  
 Registered Horse Power 462 Owners White Star Steamship Coy Ltd Port belonging to Belfast  
 Nom. Horse Power as per Section 454 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 26"-43"-72" Length of Stroke 48 Revs. per minute 70 Dia. of Screw shaft as per rule 14.35 Material of screw shaft S. Steel  
 as fitted 14.76  
 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 ✓ 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 4'-11"  
 Dia. of Tunnel shaft as per rule 13.05 Dia. of Crank shaft journals as per rule 13.71 Dia. of Crank pin 13 1/2" Size of Crank web 24 1/2" x 9 1/2" Dia. of thrust shaft under  
 as fitted 13.25 as fitted 13.75 collars 13 1/2" Dia. of screw 17'-0" Pitch of Screw 18'-0" No. of Blades 4 State whether moveable Yes Total surface 85 sq. ft.  
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 27" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4 1/2" Stroke 27" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 3 Sizes of Pumps 2 1/2" 9 1/2" x 7" x 21" No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room 4-3 1/2" General 7 x 5 x 4 in Holds, &c. 9-3 1/2" 1-2 1/2"  
 No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size 10-3 1/2"  
 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 Below  
 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 Fore hold suction How are they protected Wood casings  
 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 18-9-06 of Stern Tube 18-9-06 Screw shaft and Propeller 18-9-06  
 Is the Screw Shaft Tunnel watertight Sealed to be fitted with a watertight door Yes worked from Top platform to Room

**BOILERS, &c.**—(Letter for record S) Manufacturers of Steel W. Beardmore & Co  
 Total Heating Surface of Boilers 6318 sq. ft. forced Draft fitted Yes No. and Description of Boilers 3- Single End Cyl.  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 25-9-06 No. of Certificate 386  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 5 1/2 sq. ft. No. and Description of Safety Valves to  
 each boiler 2- 9 in. Spring Area of each valve 8.29 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 20" Mean dia. of boilers 14'-3" Length 11'-4 1/2" Material of shell plates Steel  
 Thickness 1 1/4" Range of tensile strength 28-32 tons the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap Rivet 4.  
 long. seams Butt Lap Rivet Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/16" Lap of plates or width of butt straps 18 1/16"  
 Per centages of strength of longitudinal joint rivets 90.2 Working pressure of shell by rules 184 lbs Size of manhole in shell 16" x 12"  
 plate 85.6 Size of compensating ring Mc Neil's No. and Description of Furnaces in each boiler 3- Brighton Material Steel Outside diameter 45 1/2"  
 Length of plain part top 5" bottom 10" Thickness of plates crown 3 1/16" bottom 3 1/16" Description of longitudinal joint Shell No. of strengthening rings 5  
 Working pressure of furnace by the rules 194 lbs combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 3/4" Top 5/8" Bottom 3/8"  
 Pitch of stays to ditto: Sides 8 1/2" x 8" Back 9 1/2" x 8 1/2" Top 9 1/2" x 8" If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 180 lbs  
 Material of stays Steel Diameter at smallest part 1 1/2" to 1 3/8" Area supported by each stay 77 1/2 sq. in. Working pressure by rules 198 lbs End plates in steam space:  
 Material Steel Thickness 1 1/16" Pitch of stays 22" x 16" How are stays secured Nuts inside Working pressure by rules 201 lbs Material of stays Steel  
 Diameter at smallest part 2 1/16" to 2 1/8" Area supported by each stay 352 sq. in. Working pressure by rules 188 lbs Material of Front plates at bottom Steel  
 Thickness 1" Material of Lower back plate Steel Thickness 5/8" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 196 lbs  
 Diameter of tubes 2 1/2" Pitch of tube 3 1/2" x 3 1/2" Material of tube plate Steel Thickness: Front 1" Back 3/4" Mean pitch of stays 11 1/4" x 7 1/4"  
 Pitch across wide water spaces 13 1/2" Working pressures by rules 196 lbs Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 8 1/2" x (7/8" x 2) Length as per rule 308 Distance apart 8" Number and pitch of stays in each 2-9 1/2"  
 Working pressure by rules 186 lbs Superheater or Steam chest; how connected to boiler - Can the superheater be shut off and the boiler worked  
 separately Yes 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 -

If not, state whether, and when, one will be sent? In a Report also sent on the Hull of the Ship?



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  
 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:— *1 Propeller shaft, 2 Propeller blades, set of pump for 14. P. piston, fan spindle for Centrifugal Pump, and all gear to Lloyd's Rules extra.*

The foregoing is a correct description,  
 FOR WORKMAN, CLARK & CO., LIMITED.  
*W. H. Keef* Manufacturer.

Dates of Survey while building  
 During progress of work in shops— *May 3, 30. June 1, 5, 12, 13, 15, 20, 22, 26, 29 July 2, 5, 9 Aug 2, 8, 20, 22, 27, 28, 31, 1. Sept 4, 7, 7, 18 up to Nov 2-8.*  
 During erection on board vessel—  
 Total No. of visits *46* Is the approved plan of main boiler forwarded herewith *Yes*

Dates of Examination of principal parts—Cylinders *30<sup>th</sup> May* Slides *do* Covers *do* Pistons *do* Rods *do*  
 Connecting rods *28<sup>th</sup> Sept* Crank shaft *18<sup>th</sup> June* Shaft *do* Tunnel shafts *14<sup>th</sup> Sept* Screw shaft *do* Propeller *do*  
 Stern tube *7-9-06* Steam pipes tested *4-9-06* Engines and boiler seatings *16-9-06* Engines holding down bolts *22-9-06*  
 Completion of pumping arrangements *22-9-06* Boilers fixed *16-9-06* Engines tried under steam *23-9-06*  
 Main boiler safety valves adjusted *23-9-06* Thickness of adjusting washers *2.13 / 32*  
 Material of Crank shafts *S. Steel* Identification Mark on Do. *Lloyds 4-9-06* Material of Thrust shaft *do* Identification Mark on Do. *do*  
 Material of Tunnel shafts *do* Identification Marks on Do. *do* Material of Screw shafts *do* Identification Marks on Do. *do*  
 Material of Steam Pipes *W. Iron* Test pressure *450 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*The machinery of this vessel has been constructed under Special Survey, and in accordance with the Rules. The workmanship, and the materials, are of good description and on trial under steam, in Belfast Lough, the machinery worked satisfactorily. In my opinion, it is eligible for record + L.M.C. 11-06 with notation Forced Draft & Electric Light*

It is submitted that this vessel is eligible for THE RECORD. L.M.C. 11.06. FD. ELEC. LIGHT.

*W. H. Keef*  
 16.11.06

*R. J. Beveridge*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee..	£ 3	-	When applied for,
Special ..	£ 42	14	14.11.06
Donkey Boiler Fee ..	£		When received,
Travelling Expenses (if any) £			7.1.07

Committee's Minute TUES. NOV 20 1906  
 Assigned *Thmc 11.06*

Certificate (if required) to be sent to this office

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

