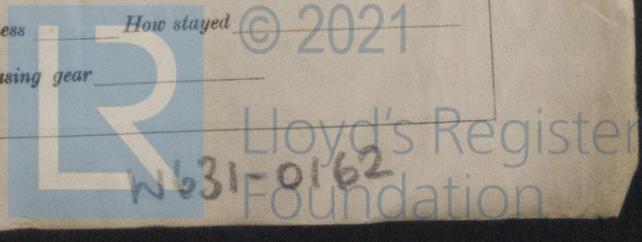


# REPORT ON MACHINERY.

Port of Belfast Received at London Office 10  
 No. in Survey held at Belfast Date, first Survey Feb 25 Last Survey Oct 10 1902  
 g. Book. S.S. "Keemun" (Number of Visits 49)  
 on the Belfast Built at Belfast By whom built Workman Clark when built 1902  
 Tons Gross 7642 Net 4894  
 Engines made at Belfast By whom made " when made "  
 Boilers made at " By whom made " when made "  
 Registered Horse Power 801 Owners China Mutual Steam Navigation Co Port belonging to Liverpool  
 Is Refrigerating Machinery fitted No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Twin Screw Triple Expansion of Cylinders 6 No. of Cranks 6  
 Dia. of Cylinders 22"-34"-63" Length of Stroke 48" Revs. per minute 75 Dia. of Screw shaft as per rule 13.34 Lgh. of stern bush 57 3/4  
 Dia. of Tunnel shaft as per rule 12.5 Dia. of Crank shaft journals as per rule 12.81 Dia. of Crank pin 13" Size of Crank webs 23 3/8 x 8 1/2 Dia. of thrust shaft under  
 rollers 13" Dia. of screw 15'-9" Pitch of screw 18'-6" No. of blades 3 State whether moveable Yes Total surface 62 sq ft.  
 No. of Feed pumps One Diameter of ditto 5 1/2" Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps One Diameter of ditto 6" Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 4 Sizes of Pumps 18 x 12 x 18 and size of Suctions connected to both Bilge and Donkey pumps  
 in Engine Room 4-3 1/2" 14 x 12 x 18 Holds, &c. 14-3 1/2"  
 No. of bilge injections 2 sizes 4 1/2" Connected to condenser, or to circulating pump Pump Is a separate donkey suction fitted in Engine room & size Yes-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 Yes  
 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 Fore 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  
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock Before launching the screw shaft tunnel watertight Stated to be  
 Is it fitted with a watertight door Yes worked from Top platform Engine Room

BOILERS, &c.— (Letter for record 7) Total Heating Surface of Boilers 116700 sq ft. Is forced draft fitted Yes-Flue doors  
 No. and Description of Boilers 3-Double Ended, Cylind Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs  
 Date of test 5-8-02 Can each boiler be worked separately Yes Area of fire grate in each boiler 97 1/2 sq ft No. and Description of safety valves to  
 each boiler 3- Direct Spring Area of each valve 12.56 sq in Pressure to which they are adjusted 200 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers 18'-9" Mean dia. of boilers 18'-9" Length 19'-0" Material of shell plates Steel  
 Thickness 1 1/2" Range of tensile strength 28-32 Are they welded or flanged No Descrip. of riveting: cir. seams Lap Rivet Butts Double  
 Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 3 1/2" Lap of plates or width of butt straps 20 3/8"  
 Per centages of strength of longitudinal joint rivets 87.9 Working pressure of shell by rules 229 lbs Size of manhole in shell 16" x 12"  
 plate 84.9 Material Steel Outside diameter 43 1/2"  
 Size of compensating ring W. Neils No. and Description of Furnaces in each boiler 6-Annular Material Steel Outside diameter 43 1/2"  
 Length of plain part top 6" Thickness of plates crown 3 1/2" Description of longitudinal joint Weld No. of strengthening rings 7  
 bottom 6" bottom 3 1/4" Working pressure of furnace by the rules 208 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/4" Back 3/4" Top 3/4" Bottom 3/4"  
 Pitch of stays to ditto: Sides 8 1/2" x 7 1/2" Back " Top 8 1/2" x 8" If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 219 lbs  
 Material of stays Iron Diameter at smallest part 1 1/2" Area supported by each stay 68 sq in Working pressure by rules 227 lbs End plates in steam space:  
 Material Steel Thickness 1 1/2" Pitch of stays 21 x 16 1/2" How are stays secured Nuts Working pressure by rules 261 lbs Material of stays Steel  
 Diameter at smallest part 3 1/2" Area supported by each stay 346 1/2 sq in Working pressure by rules 208 lbs Material of Front plates at bottom Steel  
 Thickness 1" Material of Lower back plate " Thickness " Greatest pitch of stays " Working pressure of plate by rules "  
 Diameter of tubes 2 1/2" Pitch of tubes 3 1/2" x 3 1/2" Material of tube plates Steel Thickness: Front 7/16" Back 1/16" Mean pitch of stays 7 1/2" x 7 1/4"  
 Pitch across wide water spaces 13 1/2" Working pressures by rules 34 lbs with double Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 7 1/2" x (1/2" x 2) Length as per rule 46 3/8" Distance apart 8" Number and pitch of Stays in each 4-8 1/2"  
 Working pressure by rules 337 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 "



**DONKEY BOILER**— No. 1 Description *Cylindrical Single Ended.*  
 Made at *Belfast* By whom made *Northwood & Co. Belfast* When made *1902* Where fixed *Upper Deck*  
 Working pressure *100 lbs* by hydraulic pressure to *200 lbs* of Certificate *120* Fire grate area *45 sq ft* Description of safety valves *Two*  
 No. of safety valves *2* Area of each *0.29 sq ft* Pressure to which they are adjusted *100 lbs* If steam from main boilers enter the donkey boiler *No*  
 Dia. of donkey boiler *18'-6"* Length *10'-3"* Material of shell plates *Steel* Thickness *3/4"* Range of tensile strength *28-32* Descrip. of riveting long seams *Butt Double Riv* Dia. of rivet holes *7/8"* Whether punched or drilled *Drilled* Pitch of rivets *4 1/2"*  
*Butt* of plating *9/4"* Per centage of strength of joint *81.1* Thickness of shell *end* plates *3/4"* Radius of do. *Butt* Dia. of stays *2 1/2"* Diameter of furnace Top *38"* Bottom *✓* Length of furnace *7'-2"* Thickness of furnace plates *3/8"* Description of joint *Weld* Thickness of *comb. cham.* plates *3/4"* Stayed by *Iron Screw Stays 15 1/2"* Working pressure of shell by rules *105 1/2*  
 Working pressure of furnace by rules *122 lbs* Diameter of uptake *✓* Thickness of uptake plates *✓* Thickness of *water tube* plates *7/8"*

**SPARE GEAR.** State the articles supplied:— *Propeller shaft: 1 Shaft: 1 Crank shaft: 4 Propeller blades: pair Crank pin bushes: pair Crankhead bushes: 2 slide-valve spindles: air pump mod. guards & valves: sets Rams: rings for H.P. & I.P. pistons: centrifugal pump fan spindle: cyl. escape valves: tubes & all gear to and Rules extra.*  
 The foregoing is a correct description,  
 FOR WORKMAN, CLARK & CO., LIMITED. Manufacturer.  
*W. R. Bell*

Dates of Survey while building  
 During progress of work in shops: *Feb. 25, March 5, 17, 21, 25, April 5, 19, 14, 18, 22, 24, 25, 30, May 8, 14, 20, 22, 27.*  
 During erection on board vessel: *June 5, 12, 19, 27, July 1, 3, 7, 24, Aug 7, 11, 12, 18, 20, 21, 25, 28, 29, Sep 1, 3, 5, 8, 12, 14, 19.*  
 Total No. of visits *49* Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " " *Yes*

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

Material of screw shaft *Iron* 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 *✓*

The machinery of this vessel has been constructed under Special Survey, and is of good material, and workmanship throughout. It has been securely fitted on board, and worked satisfactorily on trial in Belfast Lough.

In my opinion, it is eligible to have record **+ L.M.C. 10-7** "Forced Draft" & "Electric Light".

The Electric Light installation has been fitted by Messrs. Charles Chapman & Co. Ld. Newcastle. A Report will be forwarded to the Committee.

It is submitted that this vessel is eligible for THE RECORD + L.M.C. 10-02 F.D. Elec. Light.

The amount of Entry Fee... £ 3 : - :  
 Special ... .. £ 60 : 1 :  
 Donkey Boiler Fee ... .. £ ✓ : :  
 Travelling Expenses (if any) £ ✓ : :  
 When applied for, 17/10/02  
 When received, 23.10.02

*R. F. Beveridge*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping  
 22.10.02

Committee's Minute **FRI. 24 OCT 1902**  
 Assigned **+ L.M.C. 10, 02 7D**

VE  
 These particulars  
 Signal Letters (if any)  
 Official Number  
 115, 32  
 No., Date, and Place of Build  
 Whether British or Foreign Built.  
 British  
 Number of Decks  
 Number of Masts  
 Rigged ...  
 Stern ...  
 Build ...  
 Galleries ...  
 Head ...  
 Framework and vessel ...  
 Number of Bulkheads  
 Number of water tanks and their capacities  
 Total to quarter ton at side amidships  
 No. of Engines  
 Description  
 Two Sets  
 Under Tonnage  
 Closed-in spaces  
 Space or spaces  
 Poop ...  
 Forecastle ...  
 Round House ...  
 Other closed-in spaces  
 Spaces for machinery Section 78 (2) of 1894, if required  
 Gross Tonnage  
 Deductions, as per Register  
 Name of Master  
 No. of Owners  
 Name, Residence  
 The ...  
 Dated 16 Oct

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

