

No. of Cylinders *Three* No. of Cranks *2*
 as per rule *14.25* Material of *steel*
 as fitted *14.25* screw shaft
 No. of Engines, &c.—Description of Engines *Immerman Triple Expansion*
 Dia. of Cylinders *25-41 1/2-70* Length of Stroke *48* Revs. per minute *86* Dia. of 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 — 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 — Length of stern bush *5-0*
 Dia. of Tunnel shaft as per rule *13.2* Dia. of Crank shaft journals as per rule *13.86* Dia. of Crank pin *14 5/8* Size of Crank webs *22 x 9 1/4* Dia. of thrust shaft under
 collars *14 3/4* Dia. of screw *16-6* Pitch of Screw *18-6* No. of Blades *3* State whether moveable *yes* Total surface *7 1/2*
 No. of Feed pumps *Two* Diameter of ditto *4 3/4* Stroke *27* Can one be overhauled while the other is at work *yes*
 No. of Bilge pumps *One* Diameter of ditto *5 1/2* Stroke *27* Can one be overhauled while the other is at work —
 No. of Donkey Engines *Two* Sizes of Pumps *Two 1 1/2 x 2 1/2 inch* No. and size of Suctions connected to both Bilge and Donkey pumps
 Is Engine Room *Three 3 1/2* *Two 3 1/2* *Boiler space* In Holds, &c. *Two 3 1/2* *Tunnel well one 3 1/2*
 No. of Bilge Injections *Two* sizes *9 3/4* 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 *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 *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 *23/10/11* of Stern Tube *16/10/11* Screw shaft and Propeller *19/10/11 + 27/10/11*
 Is the Screw Shaft Tunnel watertight *yes* Is it fitted with a watertight door *yes* worked from *upper platform*
 Signature of Steel *J Spencer & Sons Ltd. & Laid for C. Ltd.*

Manufacturers of Steel

BOILERS, &c. — (Letter for record S) Manufactures of Boilers by *Migle Engine & Foundry*
 Total Heating Surface of Boilers *15588* Is Forced Draft fitted *yes*. No. and Description of Boilers *by Migle Engine & Foundry*
 Working Pressure *200 lb.* Tested by hydraulic pressure to *400 lb.* Date of test *8/9/11 + 22/9/11* No. of Certificate *3256 + 3258*
 Can each boiler be worked separately *yes*. Area of fire grate in each boiler *62.6* No. and Description of Safety Valves to
 each boiler *two, direct spring* Area of each valve *11.02* Pressure to which they are adjusted *202 lb.* Are they fitted with easing gear *yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *30* Mean dia. of boilers *15-9 1/8* Length *20* Material of shell plates *steel*
 Thickness *1 9/16* Range of tensile strength *28 3/32 Tons* Are the shell plates welded or flanged *no* Descrip. of riveting: cir. seams *Lap & T.R.*
 long. seams *DRS. T.R.* Diameter of rivet holes in long. seams *1 9/16* Pitch of rivets *10 1/2* Lap of plates or width of butt straps *22 3/8*
 Per centages of strength of longitudinal joint rivets *86.8* Working pressure of shell by rules *234 lb.* Size of manhole in shell *16 1/2 x 13*
 Size of compensating ring *8 3/4 x 1 9/16* No. and Description of Furnaces in each boiler *three Impression* Material *steel* Outside diameter *49 3/4*
 Length of plain part top *—* Thickness of plates crown *11/16* Description of longitudinal joint *Weld* No. of strengthening rings *—*
 bottom *—* Working pressure of furnace by the rules *228 lb.* Combustion chamber plates: Material *steel* Thickness: Sides *5/8* Back *5/8* Top *5/8* Bottom *1*
 Pitch of stays to ditto: Sides *8 x 7 3/4* Back *8 1/4 x 7 3/4* Top *7 1/2 x 8 5/8* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *204 5/8 lb.*
 Material of stays *steel* Diameter at smallest part *1 1/2* Area supported by each stay *8 1/4 x 7 3/4* Working pressure by rules *210 lb.* Material of stays *steel*
 Material *steel* Thickness *1 3/16* Pitch of stays *18 1/8 x 16 1/2* How are stays secured *on* Working pressure by rules *224 lb.* Material of Front plates at bottom *steel*
 Diameter at smallest part *22 1/32* Area supported by each stay *18 1/8 x 16 1/2* Working pressure by rules *224 lb.* Material of Front plates at bottom *steel*
 Thickness *7/8* Material of Lower back plate *steel* Thickness *3/4* Greatest pitch of stays *13 1/2 x 7 3/4* Working pressure of plate by rules *208 1/2 lb.*
 Diameter of tubes *2 1/2* Pitch of tubes *3 3/4 x 3 1/16* Material of tube plates *steel* Thickness: Front *7/8 + 1* Back *3/4* Mean pitch of stays *9 3/8*
 Pitch across wide water spaces *13 1/2* Working pressures by rules *211 lb.* Girders to Chamber tops: Material *steel* Depth and
 thickness of girder at centre *9 x 1 3/4* Length as per rule *32 1/2* Distance apart *8 5/8* Number and pitch of stays in each *three 7 1/2*
 Working pressure by rules *201 lb.* 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 *—*
 11-14-0214

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: (for one Engine) Two top end, two bottom end. & two beam bearing bolts & nuts. Full set of coupling bolts two sets of feed & bilge pump valves. One Propeller shaft, two C.I. propeller blades. Full Air Pump rod, two slide valve spindles, one set Air pump valve & two guards, one spindle & disc for circulating pump. one set of piston pump & springs for H.P. M.P. & L.P. cylinders. One pump rod & bucket for duplex Ballast Engine & one set injection & delivery valves.

FOR RICHARDSONS, WESTGARTH & Co. LIMITED.

Stumpfe

ASSISTANT GENERAL MANAGER.

1911

Dates of Survey while building	During progress of work in shops - -	Apr 13, 20, 24, 26, 29, May 12, 3, 4, 6, 10, 11, 12, 13, 16, 19, 23, 26, 29, 30, Jun 8, 12, 14, 15, 19, 20, 21, 23, 26, 27, 29, 29, 30, Jul 2, 4, 5, 6, 7, 10, 11, 12, 13, 17, 18, 19, 20, 21, 24, 25
	During erection on board vessel - -	26, 27, 28, 31, Aug 1, 2, 4, 14, 15, 16, 17, 18, 21, 22, 24, 25, 31, Sept 4, 7, 8, 13, 14, 18, 19, 20, 22, 26, 27, 29, Oct 2, 4, 5, 9, 10, 12, 16, 17, 18, 19, 20, 22, 24, 25, 26, 27, 31, Nov 1, 12, 16, 17, 19, 20, 21, 23, 24
	Total No. of visits	123.

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

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

Dates of Examination of principal parts—Cylinders $2/11$ $22/8/11$ Slides $20/6/11$ Covers $20/6/11$ Pistons $25/7/11$ Rods $4/9/11$
 Connecting rods $4/9/11$ Crank shaft $12/2/11$ $14/8/11$ Thrust shaft $13/9/11$ Tunnel shafts $12/2/11$ Screw shaft $18/8/11$ Propeller $14/9/11$
 Stern tube $1/8/11$ $7/9/11$ Steam pipes tested $12/12/11$ Engine and boiler seatings $3/11/11$ Engines holding down bolts $28/10/11$
 Completion of pumping arrangements $18/1/12$ Boilers fixed $16/1/12$ Engines tried under steam $16/1/12$
 Main boiler safety valves adjusted $16/1/12$ Thickness of adjusting washers Port in $\frac{1}{8}$ Center in $\frac{3}{8}$ Stem in $\frac{5}{8}$
 Material of Crank shaft steel Identification Mark on Do. $P. 5042$ $17/7/11$ Material of Thrust shaft steel Identification Mark on Do. $P. 45$ 5042 $13/9/11$
 Material of Tunnel shafts steel Identification Marks on Do. 5042 $14/8/11$ Material of Screw shafts steel Identification Marks on Do. $P. 5042$ 5042 $13/9/11$ $19/9/11$
 Material of Steam Pipes not iron, lap welded, $7/8$ bore Test pressure 600 lb.

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

The Evaporator Body tested to 50 tons and Copper coils tested to 400 tons marked

The Engines & Boilers of this Vessel have been constructed under Special Survey in accordance with the Rules, the Material & Workmanship sound & good. The Boilers have been tested by Hydraulic pressure to double the working pressure & the whole of the Machinery worked satisfactorily at the moorings & the Safety Valves have been adjusted under steam to their working pressure & easing gear fitted.

This Vessel is Eligible in my Opinion for the Notation
*LMC 6-12 in the Register Book.

*It is submitted that
this vessel is eligible for
THE RECORD.* + LMC. 6.12

The amount of Entry Fee	.. £ 3	:	:	When applied for,	F.D. 80/1
Special £ 4/1	:	:	26.6.1912	28.6.12
Donkey Boiler Fee £	:	:	When received,	
Travelling Expenses (if any)	£	:	:	29/6/1912	En

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

Committee's Minute

FRI. JUN. 28. 1912

Assigned

+ Lm. 6. 12

[illegible]