

## REPORT ON MACHINERY.

No. 26206

Received at London Office FRI. OCT. - 9. 1914

Date of writing Report 21-8-14 When handed in at Local Office 21-8-14 10 Port of Sunderland

No. in Survey held at Sunderland & Dublin Date, First Survey 17 Feb/14 East Survey Oct 1 1914.  
Reg. Book. on the S.S. "I. Duncan" Number of Vials 33 + 23. Gross 1832 lbs  
Tons Net 757

Master P.T. Alexander Built at Dublin By whom built Dublin Dockyard &amp; Co. (S/N 85) When built 1914

Engines made at Sunderland By whom made Maclellan &amp; Pollock Ltd (N° 253) when made 1914

Boilers made at Sunderland By whom made Maclellan &amp; Pollock Ltd (N° 253) when made 1914

Registered Horse Power Owners Messrs J. Duncan &amp; Co. Port belonging to Cardiff

Nom. Horse Power as per Section 28 213 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 19.21.52 Length of Stroke 36 Revs. per minute 76 Dia. of Screw shaft as per rule 11.1 Material of screw shaft 9. Steel  
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 3'-9 1/2"  
Dia. of Tunnel shaft as per rule 9.6 Dia. of Crank shaft journals as per rule 10.07 Dia. of Crank pin 10 3/8 Size of Crank webs 15 x 6 7/8 Dia. of thrust shaft under  
collars 10 3/8 Dia. of screw 14'-0" Pitch of Screw 14'-6" No. of Blades 4 State whether moveable No Total surface 62 # BRONZE  
No. of Feed pumps 2 Diameter of ditto 3" Stroke 19" Can one be overhauled while the other is at work Yes  
No. of Bilge pumps 2 Diameter of ditto 3" Stroke 19" Can one be overhauled while the other is at work Yes  
No. of Donkey Engines 4 Sizes of Pumps 1-8 x 5 1/2 x 8-1-6 x 4 1/2 x 6-2-8 x 8 x 8 No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room 2-3, 1-3 DIRECT, 1-5 BILGE IN: 2-3 IN BOILER ROOM In Holds, &c. Fore Hold 2-3, After Hold 4-3

No. of Bilge Injections 1 sizes 5 1/2 Connected to condenser or to circulating pump Is a separate Donkey Suction fitted in Engine room & size Yes 3"  
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 Valves  
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 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 21st July of Stern Tube 22nd July Screw shaft and Propeller 23rd July  
Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Above Main Deck Level

BOILERS, &amp;c.—(Letter for record) Manufacturers of Steel Thyssen &amp; Co. in Stahlwerke. Rheinische Stahlwerke. John Spencer &amp; Smith

Total Heating Surface of Boilers 3792 # Is Forced Draft fitted No No. and Description of Boilers Two single ended marine  
Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 18-14 & 6-8-14 No. of Certificates 3237 & 3238

Can each boiler be worked separately Yes Area of fire grate in each boiler 55 # No. and Description of Safety Valves to  
each boiler Two direct spring Area of each valve 5.90" Pressure to which they are adjusted 185 Are they fitted with easing gear Yes  
Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers 14'-0" Length 10'-6" Material of shell plates Steel

Thickness 1 1/8" Range of tensile strength 28 1/2 - 32 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams 15R  
long. seams WBS. TR Diameter of rivet holes in long. seams 7 1/16 Pitch of rivets 8 5/16 Lap of plates or width of butt straps 1 1/2"

Per centages of strength of longitudinal joint rivets 88 plate 85.7 Working pressure of shell by rules 184 Size of manhole in shell 16 x 12

Size of compensating ring 27 x 29 x 1 1/8 No. and Description of Furnaces in each boiler 3 plain Material Steel Outside diameter 3'-5 1/2"  
Length of plain part top 76 3/4 bottom 75 Thickness of plates crown 3 1/2 bottom 3 1/2 Description of longitudinal joint welded No. of strengthening rings none

Working pressure of furnace by the rules 190 Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 1 1/6" Top 5/8" Bottom 1"

Pitch of stays to ditto: Sides 8 1/8 x 8 1/4 Back 11 1/2 x 8 1/4 Top 8 1/8 x 9 If stays are fitted with nuts or riveted heads nuts in cas Working pressure by rules 182

Material of stays Steel Diameter at smallest part 2-36 1/2 Area supported by each stay 990" Working pressure by rules 210 End plates in steam space:

Material Steel Thickness 1 1/4 Pitch of stays 19 1/4 x 19 3/8 How are stays secured DN Working pressure by rules 183 Material of stays Steel

Diameter at smallest part 7-240 Area supported by each stay 2830" Working pressure by rules 196 Material of Front plates at bottom Steel

Thickness 13/16 Material of Lower back plate Steel Thickness 2 1/2 Greatest pitch of stays 14 1/4 x 8 1/4 Working pressure of plate by rules 182

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates Steel Thickness: Front 13/16 Back 13/16 Mean pitch of stays 11 1/4

Pitch across wide water spaces 14 1/8 W.P. Working pressures by rules 187 Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 20 7/8 x 25 1/2 Length as per rule 27 3/8 Distance apart 9" Number and pitch of stays in each 2 @ 8' 8"

Working pressure by rules 183 Superheater or Steam chest; how connected to boiler In Smoke 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 as per approved plans enclosed Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules 180 End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater 7 1/2 in. dia. Are they fitted with easing gear Yes



# 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:— 1-Set of Bottom End Bolts, 1-Set of Top End Bolts, 1-Set of Coupling Bolts, 2- Main Bearing Bolts, 6- Pin Ring Bolts, 1/2 cut of Bar Iron, 1/2 cut Iron plates, 1/2 cut Bolts Nuts & Washers

MAC COLL & POLLOCK LTD.

The foregoing is a correct description,

Manufacturer.

Managing Director.

Dates of Survey while building { During progress of work in shops -- 1914 Feb 17-27 Mar 3-16-24-26 Apr 27-29 May 8-11-15-22-26 June 4-10-11-18-23-29-30 Jul 1-3-10-15-21-27-29 Aug 1-6-8-10-14-19 July 16-20-21-23-25-29-31 Aug 4-11-21-26-27-28-29-31 Sept 4-7-8-9  
During erection on board vessel -- Aug 1-6-8-10-14-19 July 16-20-21-23-25-29-31 Aug 4-11-21-26-27-28-29-31 Sept 4-7-8-9  
Total No. of visits (33 x 23) Sept 11-17-22 Oct 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23  
Is the approved plan of main boiler forwarded herewith yes

Dates of Examination of principal parts—Cylinders 22-5-14 Slides 3-7-14 Covers 4-6-14 Pistons 10-6-14 Rods 10-7-14  
Connecting rods 10-7-14 Crank shaft 15-4-14 Thrust shaft 29-6-14 Tunnel shafts 6-8-14 Screw shaft 15-7-14 Propeller 15-7-14  
Stern tube 15-7-14 Steam pipes tested 31st Aug Engine and boiler seatings 31st Aug Engines holding down bolts 16 Sept  
Completion of pumping arrangements 22nd Sept Boilers fixed 11th Sept Engines tried under steam 22nd Sept  
Main boiler safety valves adjusted 22nd Sept Thickness of adjusting washers Port Boiler, Port 3/5 6.84 3/6 S. Boiler 5/16 1.9/16  
Material of Crank shaft Steel Identification Mark on Do. 3715 N. 10 H. Material of Thrust shaft Steel Identification Mark on Do. 3637 A.F.O.  
Material of Tunnel shafts Steel Identification Marks on Do. 3661 A.F.O. Material of Screw shafts Steel Identification Marks on Do. 2553 N. 3.7.14  
Material of Steam Pipes Cold drawn welded steel Test pressure 540 lbs per sq. in. (see certificate herewith)

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

The materials and workmanship are good.  
The machinery has been made under special survey and shipped to Dublin to be fitted in the vessel. Surveyors advised at that port.

The above Engines & Boilers have been securely fitted on board this vessel, and satisfactorily tried under steam.

This vessel is in my opinion eligible for the notation of + L.M.C. 10.14 in the Register Book.

It is submitted that this vessel is eligible for THE RECORD, + L.M.C. 10.14.

The amount of Entry Fee £ 2 : - :  
Special 2/3 F.F.F. £ 20 : 8 :  
Donkey Boiler Fee £ 10 : 5 :  
Travelling Expenses (if any) £  
TOTAL When applied for, 21 AUG 1914  
When received, 9/10/14

Committee's Minute TUE. OCT. 13. 1914

Assigned

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

MACHINERY CERTIFICATE  
WRITTEN.



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Foundation