

# REPORT ON MACHINERY.

No. 3432

LUES. 24 NOV 1903

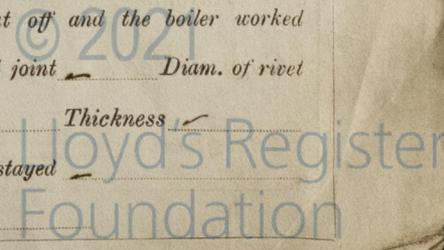
Port of MIDDLESBROUGH-ON-TEES.

Received at London Office

No. in Survey held at Stockton Date, first Survey 25<sup>th</sup> May Last Survey 14<sup>th</sup> Nov 1903  
 Reg. Book. 45 on the Steel S.S. "Cabo Torina" (Number of Visits 16)  
 Master Built at Graysmouth By whom built James & Greenock St. Gd. Co Tons Gross 1520  
Engines made at Stockton By whom made Blair & Co. Ltd when made 1903 Net 995.18  
Boilers made at Stockton By whom made Blair & Co. Ltd when made 1903  
 Registered Horse Power 133 Owners Ybarra & Co Port belonging to Seville  
 Nom. Horse Power as per Section 28 133 Is Refrigerating Machinery fitted No Is Electric Light fitted No

**ENGINES, &c.**—Description of Engines Direct acting Trip Expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 18" - 29 1/2" - 48 1/2" Length of Stroke 33 Revs. per minute 65 Dia. of Screw shaft as per rule 10" / as fitted 11" 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 No If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic soluble in water and non-corrosive No If two liners are fitted, is the shaft lapped or protected between the liners No Length of stern bush 3'-10"  
 Dia. of Tunnel shaft as per rule 8.64 / as fitted 9" Dia. of Crank shaft journals as per rule 9.06 / as fitted 9 1/2" Dia. of Crank pin 10" Size of Crank webs 16 1/4" x 6 1/4" Dia. of thrust shaft under collars 9 3/4" Dia. of screw 13-0 Pitch of screw 13-0 No. of blades 4 State whether moveable No Total surface 48 sq  
 No. of Feed pumps 2 Diameter of ditto 2 1/2" Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 3 1/2" Stroke 24" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines Two Sizes of Pumps Feed 4 x 8 Bilge 9 x 7 1/2 No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Three 2 1/2 diameter In Holds, &c. Two in each hold 2 1/4 diameter Funnel and Hold Shell 2 1/2  
 No. of bilge injections 1 sizes 4 1/2 Connected to condenser, or to circulating pump C.P. 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 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 None How are they protected No  
 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 See vessel Is the screw shaft tunnel watertight See ship report  
 Is it fitted with a watertight door Yes worked from Top platform

**OILERS, &c.**— (Letter for record (S) ) Total Heating Surface of Boilers 1952 sq Is forced draft fitted No  
 No. and Description of Boilers Two Cyl. Multitubular Single ended Working Pressure 160 lb Tested by hydraulic pressure to 320 lb  
 Date of test 4-9-03 Can each boiler be worked separately Yes Area of fire grate in each boiler 26 3/4 No. and Description of safety valves to each boiler Two Spring Area of each valve 4.9 sq Pressure to which they are adjusted 165 lb Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 24 Gen. dia. of boilers 10-0 Length 10-0 Material of shell plates Steel  
 Thickness 7/8 Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams 18 7/8 in long. seams 2 Butt Straps  
 Diameter of rivet holes in long. seams 1" Pitch of rivets 1 in 6 7/8 two 3 7/16 Lap of plates or width of butt straps 1-2 3/4  
 Per centages of strength of longitudinal joint rivets 97 plate 85.4 Working pressure of shell by rules 166.5 lb Size of manhole in shell 17 x 13  
 Size of compensating ring 31 x 27 x 7/8 No. and Description of Furnaces in each boiler 2 Down Material S Outside diameter 2-8 1/2  
 Length of plain part top 6-4 bottom 4 Thickness of plates 7/16 1/4 Description of longitudinal joint Welded No. of strengthening rings No  
 Working pressure of furnace by the rules 187 lb Combustion chamber plates: Material S Thickness: Sides 5 1/8 32 Back 5 1/8 32 Top 5 1/8 32 Bottom 1 1/16  
 Pitch of stays to ditto: Sides 9 x 9 3/4 Back 9 1/4 x 9 1/4 Top 9 1/2 x 9 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 164 lb  
 Material of stays S Diameter at smallest part 1 9/16 Area supported by each stay 85.5 sq Working pressure by rules 201 lb End plates in steam space: Material S Thickness 1 1/32 Pitch of stays 18 1/2 x 16 How are stays secured 72 x 10 Working pressure by rules 163 lb Material of stays S  
 Diameter at smallest part 2 3/4 Area supported by each stay 296 sq Working pressure by rules 200 lb Material of Front plates at bottom S  
 Thickness 1" Material of Lower back plate S Thickness 1" Greatest pitch of stays 16 3/4 Working pressure of plate by rules 162 lb  
 Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 7/8 Material of tube plates S Thickness: Front 1 Back 1 1/16 Mean pitch of stays 9 1/8  
 Pitch across wide water spaces 14 Working pressures by rules 196 lb Girders to Chamber tops: Material S Depth and thickness of girder at centre 6 3/4 x 1 3/8 Length as per rule 25 1/4 Distance apart 9 1/2 Number and pitch of Stays in each Two 9 1/2  
 Working pressure by rules 223 lb Superheater or Steam chest; how connected to boiler No Can the superheater be shut off and the boiler worked separately No  
 Diameter No Length No Thickness of shell plates No Material No Description of longitudinal joint No Diam. of rivet holes No Pitch of rivets No Working pressure of shell by rules No Diameter of flue No Material of flue plates No Thickness No  
 If stiffened with rings No Distance between rings No Working pressure by rules No End plates: Thickness No How stayed No  
 Working pressure of end plates No Area of safety valves to superheater No Are they fitted with easing gear No



**DONKEY BOILER**— No. *One* Description *Vertical, 4 cross tubes.*  
 Made at *Stockton* By whom made *Niley Bros* When made *1903* Where fixed *Main SR*  
 Working pressure *90 lb* tested by hydraulic pressure to *180 lb* No. of Certificate *3074* Fire grate area *23 1/2* Description of safety valves *Spring*  
 No. of safety valves *2* Area of each *3.9* Pressure to which they are adjusted *90 lb* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Dia. of donkey boiler *6'-6"* Length *14'-0"* Material of shell plates *Steel* Thickness *15/32* Range of tensile strength *27/32* Descrip. of riveting long. seams *8 R lap* Dia. of rivet holes *15/16* Whether punched or drilled *X* Pitch of rivets *3/4*  
 Lap of plating *4 3/4* Per centage of strength of joint *71.2* Thickness of shell crown plates *9/16* Radius of do. *6 ft* No. of Stays to do. *7*  
 Dia. of stays *1 1/2* Diameter of furnace Top *4'-11"* Bottom *5'-6 3/4"* Length of furnace *5'-7"* Thickness of furnace plates *5/8* Description of joint *8 R lap* Thickness of furnace crown plates *9/16* Stayed by *a. above* Working pressure of shell by rules *98 lb*  
 Working pressure of furnace by rules *90.7 lb* Diameter of uptake *16"* Thickness of uptake plates *7/16* Thickness of water tubes *3/8*

**SPARE GEAR.** State the articles supplied:— *H T slide table spindle. Set Air pump valve. H & M T piston (Nambottom) imp. Top & bottom end connecting rods both & pins. Set of coupling bolts. Set of feet & bilge pump & dist. plate. Spare propeller. Both & nuts mounted.*

The foregoing is a correct description,  
**FOR BLAIR & CO., LIMITED.**  
*W. Borrie* Manufacturer. of main engines & boilers.

**SECRETARY.** 1903: May 25-29. June 23. July 10-21-24-29. Oct. 26-28. Nov. 2-5-5-6-10-12-14  
 Dates of Survey while building { During progress of work in shops - - }  
 { During erection on board vessel - - }  
 Total No. of visits *mdt (16)* Is the approved plan of main boiler forwarded herewith *no*  
 " " " donkey " " " *no*

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

*This vessel's machinery has been constructed under special survey. The materials and workmanship have been found good and efficient and when tested under steam were found satisfactory, and in my opinion now eligible for the notification + L.M.C. 11.03. in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD L.M.C. 11.03.

*msd*  
*24.11.03*  
*rs*  
*24.11.03*

The amount of Entry Fee..	£ 2 : 0 :	When applied for,
Special .. .. .	£ 19 : 19 :	23.11.03
Donkey Boiler Fee .. .. .	£ :	When received,
Travelling Expenses (if any) £	: 10 : 6	25.11.03

*Geo. A. Milner*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute **FRI. 27 NOV 1903**  
 Assigned *+ L.M.C. 11.03*



Certificate (if required) to be sent to Leith

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

MACHINERY CERTIFICATE WRITTEN.