

# REPORT ON MACHINERY.

Port of **MIDDLESBROUGH-ON-TEES**

Received at London Office **14th NOV 1908**

No. in Survey held at **Stockton-on-Tees** Date, first Survey **May 5** Last Survey **Nov 4 1908**  
 Reg. Book. **187** (Number of Visits **49**)  
 Master **M. Cimiano** Built at **Grangemouth** By whom built **Gpk. & Grangth. Sh. yd. Co.** When built **1908**  
 Engines made at **Stockton** By whom made **Blair & Co. Lim.** when made **1908**  
 Boilers made at **Stockton** By whom made **Blair & Co. Lim.** when made **1908**  
 Registered Horse Power **187** Owners **Gbarra & Co.** Port belonging to **Seville**  
 Nom. Horse Power as per Section 28 **187** Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **no**

**ENGINES, &c.**—Description of Engines **Triple Expansion** No. of Cylinders **3** No. of Cranks **3**  
 Dia. of Cylinders **17 1/2 - 32 1/2 - 52 1/2** Length of Stroke **36** Revs. per minute **—** Dia. of Screw shaft as per rule **11.37** Material of screw shaft **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 **yes**  
 If two liners are fitted, is the shaft lapped or protected between the liners **—** Length of stern bush **4'-3"**  
 Dia. of Tunnel shaft as per rule **9.78** Dia. of Crank shaft journals as per rule **10.27** Dia. of Crank pin **11** Size of Crank webs **17 1/2 x 6 3/8** Dia. of thrust shaft under collars **11** Dia. of screw **14'-6"** Pitch of Screw **16'-0"** No. of Blades **4** State whether moveable **no** Total surface **63 sq ft**  
 No. of Feed pumps **2** Diameter of ditto **2 1/2** Stroke **26** Can one be overhauled while the other is at work **yes**  
 No. of Bilge pumps **2** Diameter of ditto **3 1/2** Stroke **26** Can one be overhauled while the other is at work **yes**  
 No. of Donkey Engines **two** Sizes of Pumps **Ballast = 7 1/2" x 9"** **Feed = 4" x 8"** No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room **3 @ 2 1/4"** In Holds, &c. **Fore hold 2 @ 2 1/4"** **Main hold 2 @ 2 1/4"**  
 No. of Bilge Injections **1** sizes **6 1/4"** Connected to ~~condenser~~ circulating pump **yes** Is a separate Donkey Suction fitted in Engine room & size **yes 4"**  
 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 **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 **—**  
 What pipes are carried through the bunkers **for holds 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**  
 Dates of examination of completion of fitting of Sea Connections **see 2th Rpt. of Stern Tube 26. 10. 08** Screw shaft and Propeller **28. 10. 08**  
 Is the Screw Shaft Tunnel watertight **yes** Is it fitted with a watertight door **yes** worked from **top platform**

**OILERS, &c.**—(Letter for record **(5)**) Manufacturers of Steel **Messrs J. Muncie & Sons Lim.**  
 Total Heating Surface of Boilers **2980** Is Forced Draft fitted **no** No. and Description of Boilers **two single ended**  
 Working Pressure **180** Tested by hydraulic pressure to **360** Date of test **1. 9. 08** No. of Certificate **4178**  
 Can each boiler be worked separately **yes** Area of fire grate in each boiler **34 1/2 sq ft** No. and Description of Safety Valves to each boiler **2 direct spring**  
 Area of each valve **4. 91** Pressure to which they are adjusted **183 lbs** Are they fitted with easing gear **yes**  
 Smallest distance between boilers or uptakes and bunkers or woodwork **15"** Mean dia. of boilers **13'-0"** Length **10'-0"** Material of shell plates **steel**  
 Thickness **1 1/2** Range of tensile strength **28-32** Are the shell plates welded or flanged **no** Descrip. of riveting: cir. seams **2 Riv Lap**  
 long. seams **2 Riv - 3 Riv** Diameter of rivet holes in long. seams **1 1/8** Pitch of rivets **8"** ~~Top of plates~~ or width of butt straps **16 3/4**  
 Per centages of strength of longitudinal joint **86. 9** Working pressure of shell by rules **182. 9** Size of manhole in shell **17" x 13"**  
 plate **85. 9** Size of compensating ring **7" x 1 1/2"** No. and Description of Furnaces in each boiler **2 Ribbed** Material **steel** Outside diameter **42 1/2**  
 Length of plain part **top** Thickness of plates **crown** } **9/16** Description of longitudinal joint **welded** No. of strengthening rings **—**  
 bottom } **9/16**  
 Working pressure of furnace by the rules **191** Combustion chamber plates: Material **steel** Thickness: Sides **1/2** Back **1/2** Top **1/2** Bottom **1 1/2**  
 Pitch of stays to ditto: Sides **9 3/4 x 9** Back **9 3/8 x 9 3/8** Top **9 1/2 x 9 1/4** If stays are fitted with nuts or riveted heads **nuts** Working pressure by rules **185**  
 Material of stays **steel** Diameter at smallest part **1 1/2** Area supported by each stay **87. 8** Working pressure by rules **196** End plates in steam space:  
 Material **steel** Thickness **1 1/2** Pitch of stays **18 x 16 1/4** How are stays secured **nuts + loose washers** Working pressure by rules **182**. Material of stays **steel**  
 Diameter at smallest part **2 5/8** Area supported by each stay **292. 5** Working pressure by rules **192** Material of Front plates at bottom **steel**  
 Thickness **1 1/2** Material of Lower back plate **steel** Thickness **1 1/2** Greatest pitch of stays **18 1/4 x 9 3/8** Working pressure of plate by rules **185**  
 Diameter of tubes **3 1/4** Pitch of tubes **4 5/8 x 4 5/8** Material of tube plates **steel** Thickness: Front **1 1/2** Back **1 1/2** Mean pitch of stays **11 3/4**  
 Pitch across wide water spaces **14 1/2** Working pressures by rules **194** Girders to Chamber tops: Material **steel** Depth and thickness of girder at centre **7 1/2 x 1 1/2** Length as per rule **27"** Distance apart **9 1/4** Number and pitch of stays in each **2 @ 9 1/2**  
 Working pressure by rules **187** Superheater or Steam chest; ~~how connected to boiler~~ **none** 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 **—**

VERTICAL DONKEY BOILER— *Manufacturers of Steel See Subd Pkt No 5514*

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 Sc \_\_\_\_\_

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 \_\_\_\_\_ Stayed by \_\_\_\_\_

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

SPARE GEAR. State the articles supplied:— *Two each of main bearing, top-end and bottom end bolts & nuts; one set coupling bolts & nuts; one set feed & bilge pump valves; one set piston rings for HP & one set M.P cylinders; assorted bolts & nuts & iron of various size One cast iron propeller and one valve spindle*

The foregoing is a correct description,  
**FOR BLAIR & CO., LIMITED**  
*Geo Nettleship* Manufacturer.

Assistant Secretary. 1908: May 5.7.17.20.26 June 1.3.4.6.16.23.25 July 2.6.16.21.30 Aug 11.14.24.31 Sep. 1.4.10. of  
 Dates of Survey while building: During progress of work in shops - - - - -  
 During erection on board vessel - - - - -  
 Total No. of visits *48*

Is the approved plan of main boiler forwarded herewith *none*  
 " " " donkey " (See Subd Pkt 5514) *yes*

Dates of Examination of principal parts—Cylinders *4.9.08* Slides *4.9.08* Covers *30.7.08* Pistons *30.7.08* Rods *4.9.08*  
 Connecting rods *4.9.08* Crank shaft *11.8.08* Thrust shaft *11.8.08* Tunnel shafts *30.7.08* Screw shaft *6.10.08* Propeller *30.7.08*  
 Stern tube *2.10.08* Steam pipes tested *31.10.08* Engine and boiler seatings *at Leith* Engines holding down bolts *4.11.08*  
 Completion of pumping arrangements *7.11.08* Boilers fixed *4.11.08* Engines tried under steam *6.11.08*  
 Main boiler safety valves adjusted *6.11.08* Thickness of adjusting washers *Port Blk PU 5/8" S.U. = 7/8" ✓  
 Star Blk PU 3/8" S.U. = 3/8"*

Material of Crank shaft *Steel* Identification Mark on Do. *6451* Material of Thrust shaft *Steel* Identification Mark on Do. *6451*  
 Material of Tunnel shafts *steel* Identification Marks on Do. *6447/6450* Material of Screw shafts *steel* Identification Marks on Do. *6054*  
 Material of Steam Pipes *solid drawn Copper* { 5" dia = 1/4" thick Test pressure *400 lbs.*  
 { 4 1/2" = 7/32"

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*The machinery has been built under special survey in accordance with the Rules. The materials and workmanship are sound and good. The Boilers and main steam pipes were tested by hydraulic pressure and the engines and boilers examined under steam and all found satisfactory.*  
*The machinery is now in a good and safe working condition and renders the vessel eligible in my opinion to have the notation of LMC-11.08 in the Register Book.*

It is submitted that this vessel is eligible to remain as **OLASSED. + LMC 11.08.**

*J.R.R.*  
*J.W.D.*  
 13.11.08 13/11/08

The amount of Entry Fee..	£ 2-0-0	When applied for,
Special ..	£ 28-1-0	11.11.19.08
Donkey Boiler Fee ..	£ :	When received,
Travelling Expenses (if any) £	✓ :	16.11.19.08

Committee's Minute **FRI. 20 NOV 1908**  
 Assigned *+ LMC 11.08*

*Wm Morrison*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping



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