

# REPORT ON MACHINERY.

Std No. 22947  
New No. 51734  
Received at London Office SAT. 13 OCT 1906  
8<sup>th</sup> Oct 1906  
14 Sept 1906

Port of Sunderland

No. in Survey held at Sunderland

Date, first Survey 23<sup>rd</sup> January 06 Last Survey 14 Sept 1906

Reg. Book. on the S.S. "India"

(Number of Visits 39)

Master Wm Nightingale Built at North Shields By whom built Smith's Dock Co L<sup>d</sup>

Tons { Gross 215  
Net 87  
When built 1906

Engines made at Sunderland By whom made Green, Mac Coll & Pollock

when made 1906

Boilers made at Sunderland By whom made Green, Mac Coll & Pollock

when made 1906

Registered Horse Power \_\_\_\_\_ Owners G. H. D. But & R. H. Headall

Port belonging to M. J. Haver

Nom. Horse Power as per Section 28 70

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted no

**ENGINES, &c.**—Description of Engines Inverted triple expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 12", 20", 32" Length of Stroke 23" Revs. per minute 110 Dia. of Screw shaft as per rule 6.87 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 Yes 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 Yes Length of stern bush 2.5 3/8"

Dia. of Tunnel shaft as per rule 6.08 Dia. of Crank shaft journals as per rule 6.34 Dia. of Crank pin 6 3/4" Size of Crank webs 9 3/4" x 4 1/2" Dia. of thrust shaft under collars 6 3/4" Dia. of screw 8.6" Pitch of Screw 11.0" No. of Blades 4 State whether moveable no Total surface 29 1/2 sq ft

No. of Feed pumps one Diameter of ditto 2 1/2" Stroke 11 1/2" Can one be overhauled while the other is at work Yes

No. of Bilge pumps one Diameter of ditto 2 1/2" Stroke 11 1/2" Can one be overhauled while the other is at work Yes

No. of Donkey Engines one Sizes of Pumps 5 1/2" x 3 1/2" x 5" double acting No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room 2 of 2" 1 from ejector of 2 1/2" In Holds, &c. one of 2" from flush well

No. of Bilge Injections one sizes 2 1/2" Connected to condenser, or to circulating pump pump Is a separate Donkey Suction fitted in Engine room & size Yes - 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 one suction from flush well How are they protected wood clogs

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 27.8.06 of Stern Tube 7.9.06 Screw shaft and Propeller 7.9.06

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Yes

**BOILERS, &c.**—(Letter for record 5) Manufacturers of Steel Smith's Beardmore & Co

Total Heating Surface of Boilers 1330 sq ft Is Forced Draft fitted no No. and Description of Boilers one S.E. Cylindrical Mult

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 31.8.06 No. of Certificate 2521

Can each boiler be worked separately Yes Area of fire grate in each boiler 35 sq ft No. and Description of Safety Valves to each boiler 2 spring Area of each valve 3.98 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 9" Mean dia. of boilers 12.6" Length 10.3" Material of shell plates steel

Thickness 1 1/2" Range of tensile strength 28 1/2/32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d. & l. long. seams t. & d. & s. Diameter of rivet holes in long. seams 1 1/8" Pitch of rivets 7 3/4" Lap of plates or width of butt straps 15 3/4"

Per centages of strength of longitudinal joint rivets 92.5% plate 85.4% Working pressure of shell by rules 182.9 lbs Size of manhole in shell 16 x 12"

Size of compensating ring 7 x 1 1/2" No. and Description of Furnaces in each boiler 2 plain Material steel Outside diameter 41 1/2"

Length of plain part top 6.0" bottom 7.3" Thickness of plates crown 49/64" bottom 1/16" Description of longitudinal joint weld No. of strengthening rings Yes

Working pressure of furnaces by the rules 184 lbs Combustion chamber plates: Material steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 1"

Pitch of stays to ditto: Sides 9 x 9 3/4" Back 11 x 7 3/4" Top 8 1/4 x 9" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 180 lbs

Material of stays steel Diameter at smallest part 1.5 1/4 x 1.63" Area supported by each stay 85.94 sq in Working pressure by rules 2014/109 End plates in steam space: Material steel Thickness 1 3/8" Pitch of stays 18 3/4 x 18" How are stays secured d. & w. Working pressure by rules 187 lbs Material of stays steel

Diameter at smallest part 2.78" Area supported by each stay 387 sq in Working pressure by rules 180.7 lbs Material of Front plates at bottom Steel

Thickness 27/32" Material of Lower back plate steel Thickness 13/16" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 193.5 lbs

Diameter of tubes 3 1/2" Pitch of tubes 4 5/8 x 4 7/8" Material of tube plates S Thickness: Front 27/32" Back 27/32" Mean pitch of stays 11 5/8"

Pitch across wide water spaces 15 1/2" Working pressures by rules 198 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 9 x 1 1/2" Length as per rule 31 3/4" Distance apart 9" Number and pitch of stays in each 2 - 2 3/4"

Working pressure by rules 183 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 —

VERTICAL DONKEY BOILER— Manufacturers of Steel *home fitted*

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 casing 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:— 1 Propeller, 2 top end, 2 bottom end, 2 main bearing & 1 set of Coupling bolts, 1 set feed and bilge pump Valves, 1 main feed Check & 1 Donkey feed check Valve, 1 set each air & circulating pump Valves, Bolts & nuts assorted & sizes

The foregoing is a correct description,  
**MAO GOLL & POLLOCK, LTD**

Manufacturer. *Maellachlan*

Dates of Survey while building: During progress of work in shops: Director 1906: Jan: 23, 25; Feb: 16, 23; Mch: 9, 27; Apr: 3, 5, 6, 12, 23; May: 2, 10, 15, 23, 29; June: 1, 7, 8, 15, 19, 23, 30

During erection on board vessel: July: 6, 12, 19, 26; Aug: 1, 10, 17, 22, 23, 31; Sept: 5, 6, 7, 10, 12, 14

Total No. of visits: **39**

Is the approved plan of main boiler forwarded herewith: **Yes**

Is the approved plan of donkey boiler forwarded herewith: **Yes**

Dates of Examination of principal parts—Cylinders 19.7.06 Slides 19.7.06 Covers 3.4.06 Pistons 10.8.06 Rods 19.7.06

Connecting rods 19.7.06 Crank shaft 30.6.06 Thrust shaft 30.7.06 Tunnel shafts nil Screw shaft 10.8.06 Propeller 6.9.06

Stern tube 30.7.06 Steam pipes tested 10.9.06 Engine and boiler seatings 7.9.06 Engines holding down bolts 10.9.06

Completion of pumping arrangements 14.9.06 Boilers fixed 10.9.06 Engines tried under steam 14.9.06

Main boiler safety valves adjusted 14.9.06 Thickness of adjusting washers S- $\frac{1}{2}$ ; P- $\frac{3}{16}$

Material of Crank shaft **Steel** Identification Mark on Do. **162 J.W.D.** Material of Thrust shaft **Steel** Identification Mark on Do. **233 P.A.**

Material of Tunnel shafts **✓** Identification Marks on Do. **✓** Material of Screw shafts **Steel** Identification Marks on Do. **234 P.A.**

Material of Steam Pipes **Copper** Test pressure **400 lbs**

General Remarks (State quality of workmanship, opinions as to class, &c. *The Machinery of this vessel has been constructed under special survey, the workmanship and materials used are both of good quality, the Engines have been tried under steam and worked satisfactorily*)

We beg to recommend that this vessel is eligible in our opinion, to have the record **L.M.C. 10.06** in the Register Book

It is submitted that this vessel is eligible for **THE RECORD L.M.C. 10.06**

The amount of Entry Fee. . . £ 1 : : When applied for. . . 18.9.06

Special . . . . . £ 10 13 : : When received. . . 13.10.06

Donkey Boiler Fee . . . . . £ : : : : : 15.10.06

Travelling Expenses (if any) £ : : : : : 19.10.06

*Leonard & Challors*  
**R. W. Coombes**  
 Engineer Surveyors to Lloyd's Register of British & Foreign Shipping.

TUES. 16 OCT 1906

Committee's Minute

Assigned

MACHINERY CERTIFICATE WRITTEN.



Sunderland

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