

# REPORT ON MACHINERY.

No. 24893

TUES. FEB 19 1907

Port of Glasgow

Received at London Office

No. in Survey held at Dumbarton Date, first Survey 26<sup>th</sup> July 06 Last Survey 8<sup>th</sup> Feby 1907

Reg. Book. on the S.S. "Culina" (Number of Visits)

Master Built at Dumbarton By whom built Tom Denny & Co Tons } Gross  
Net

Engines made at Dumbarton By whom made Denny & Co when made 1907

Boilers made at Dumbarton By whom made Denny & Co when made 1907

Registered Horse Power 760 Owners British India P. & O. Co Ltd Port belonging to

Nom. Horse Power as per Section 28 760 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 33" 53 1/2" 86" Length of Stroke 60" Revs. per minute 75 Dia. of Screw shaft 17 1/2" 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 — If two

liners are fitted, is the shaft lapped or protected between the liners — Length of stern bush 5' 11 1/2"

Dia. of Tunnel shaft 16 3/8" as per rule 16 3/8" as fitted 16 3/8" Dia. of Crank shaft journals 17 1/4" as per rule 17 1/4" as fitted 17 1/4" Dia. of Crank pin 17 1/4" Size of Crank webs 11 1/2" x 2 7/8" Dia. of thrust shaft under

collars 17 1/4" Dia. of screw 19 1/2" Pitch of Screw 21-3" No. of Blades 4 State whether moceable yes Total surface 120 sq ft

No. of Feed pumps 2 Diameter of ditto 5 1/4" Stroke 30" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 5 1/4" Stroke 30" Can one be overhauled while the other is at work yes

No. of Donkey Engines 4 Sizes of Pumps 8 x 6 x 8, 4 1/2 x 2 1/2 x 4, (1) 10 x 12 1/2 x 10" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room four 3 1/2" In Holds, &c. two in each hold 3 1/2" two in

tunnel 2 1/2"

No. of Bilge Injections 1 sizes 10" Connected to condenser, or to circulating pump no 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 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 two bilge 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 19/12/06 of Stern Tube 19/12/06 Screw shaft and Propeller 19/12/06

Is the Screw Shaft Tunnel watertight yes Is it fitted with a watertight door yes worked from upper platform.

## BOILERS, &c.—(Letter for record) Manufacturers of Steel Lanark Dumbell & Co

Total Heating Surface of Boilers 10920 Is Forced Draft fitted yes No. and Description of Boilers 4, P.S.E. return tube

Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 14/12/06 No. of Certificate 8668

Can each boiler be worked separately yes Area of fire grate in each boiler 66.5 sq ft No. and Description of Safety Valves to

each boiler 2 direct opening Area of each valve 9.62 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 15" Mean dia. of boilers 15-6" Length 11-6" Material of shell plates steel

Thickness 1 1/16" Range of tensile strength 28 to 32 tons Are the shell plates welded or flanged no Descrip. of riveting: cir. seams double

long. seams sub-butt Diameter of rivet holes in long. seams 1 1/32" Pitch of rivets 9 3/4" Lap of plates — width of butt straps 21 3/4"

Per centages of strength of longitudinal joint 89.5 Working pressure of shell by rules 200 lbs Size of manhole in shell 16 1/2" x 12"

Size of compensating ring 34" x 24" x 1 1/2" No. and Description of Furnaces in each boiler 3 masonry Material steel Outside diameter 4-3 1/4"

Length of plain part — Thickness of plates 1 1/16" Description of longitudinal joint weld No. of strengthening rings none

Working pressure of furnace by the rules 196 Combustion chamber plates: Material steel Thickness: Sides 3/16" Back 3/16" Top 3/16" Bottom 15/16"

Pitch of stays to ditto: Sides 8 x 7 1/2" Back 7 1/2 x 7 3/4" Top 7 1/2 x 7 1/2" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182

Material of stays iron Diameter at smallest part 1.69" Area supported by each stay 60 sq in Working pressure by rules 210 End plates in steam space:

Material steel Thickness 1" Pitch of stays 17" x 15" How are stays secured 2 nuts Working pressure by rules 200 lbs Material of stays steel

Area at smallest part 5.41 sq in Area supported by each stay 17" x 15" Working pressure by rules 212 Material of Front plates at bottom steel

Thickness 3/8" Material of Lower back plate steel Thickness 13/16" Greatest pitch of stays 14" Working pressure of plate by rules 180 lbs

Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates steel Thickness: Front 13/16" Back 13/16" Mean pitch of stays 7 1/2"

Pitch across wide water spaces 13 1/2" Working pressure by rules 180 lbs Girders to Chamber tops: Material steel Depth and

thickness of girder at centre 8 x 1 1/2" Length as per rule 29" Distance apart 8" Number and pitch of stays in each (3) 8"

Working pressure by rules 190 lbs Superheater or Steam chest; how connected to boiler no Can the superheater be shut off and the boiler worked

separately no Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

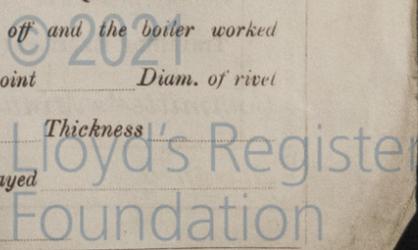
holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

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

007257-007265-0065

If not, state whether, and when, one will be sent? In a Report also sent on the Hull of the Ship?



MACHINERY DONKEY BOILER— Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fitted \_\_\_\_\_

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

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

SPARE GEAR. State the articles supplied:— 2 Top end bolts & nuts, 2 bottom end bolts & nuts, 1 set of coupling bolts & nuts, 2 main bearing bolts & nuts, fuel & bilge pump valves, 1 propeller shaft & 2 blades, piston springs & rings for each engine, iron, bolts & nuts assorted.

The foregoing is a correct description,  
*W. J. G. G.* Manufacturer.

Dates of Survey while building: During progress of work in shops— 1906 July 26, Sep. 18, 20, 25, Oct. 11, 16, Nov. 5, 21, Dec. 10, 14, 19, 1907, Jan. 9, 18, 21, 25, 30  
 During erection on board vessel— Feb. 7, 8  
 Total No. of visits 18

Is the approved plan of main boiler forwarded herewith *Yes*  
 " " " donkey " " "

Dates of Examination of principal parts—Cylinders 19/12/06 Slides 19/12/06 Covers 19/12/06 Pistons 19/12/06 Rods 19/12/06  
 Connecting rods 19/12/06 Crank shaft 19/12/06 Thrust shaft 19/12/06 Tunnel shafts 19/12/06 Screw shaft 19/12/06 Propeller 19/12/06  
 Stern tube 19/12/06 Steam pipes tested 21/1/07 Engine and boiler seatings 19/12/06 Engines holding down bolts 18/1/07  
 Completion of pumping arrangements 7/2/07 Boilers fixed 9/1/07, 18/1/07 Engines tried under steam 5/2/07  
 Main boiler safety valves adjusted 7/2/07 Thickness of adjusting washers P.S. 1/2, C.S. 3/16, S.S. 1/2, F.S.A. 9/32

Material of Crank shaft *steel* Identification Mark on Do. \_\_\_\_\_ Material of Thrust shaft *steel* Identification Mark on Do. \_\_\_\_\_  
 Material of Tunnel shafts *steel* Identification Marks on Do. \_\_\_\_\_ Material of Screw shafts *steel* Identification Marks on Do. \_\_\_\_\_  
 Material of Steam Pipes \_\_\_\_\_ Test pressure *400 lbs. per sq. inch*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
 These Engines & Boilers have been built under Survey the materials & workmanship are of good description and in the opinion of the undersigned eligible to be noted in the Register Book **L.M.C. 2.07.**

It is submitted that this vessel is eligible for THE RECORD **L.M.C. 2.07. ED. ELEC. LIGHT.**

*W. J. G. G.*  
 19.2.07

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

The amount of Entry Fee.. £ 3 : : When applied for, \_\_\_\_\_  
 Special .. .. £ 58 . . : : \_\_\_\_\_  
 Donkey Boiler Fee .. .. £ : : : : \_\_\_\_\_  
 Travelling Expenses (if any) £ : : : : \_\_\_\_\_

*A. McKeon & James Morrison*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute \_\_\_\_\_  
 Assigned **L.M.C. 2.07.**  
 Glasgow 18 FEB 1907

