

# REPORT ON MACHINERY.

Port of Sunderland

Received at London Office

WED. 30 NOV 1904

No. in Survey held at Sunderland  
Reg. Book.

Date, first Survey 22nd January Last Survey 21st Nov, 1904  
(Number of Voids 48)

on the Steel Twin Screw Steamer "Bermudez"

Tons { Gross 5530  
Net 2889

Master P. J. Fraser Built at Sunderland By whom built Sir James Laing & Co (Ld) When built 1904

Engines made at Sunderland By whom made George Clark (Ld) when made 1904

Boilers made at Sunderland By whom made George Clark (Ld) when made 1904

Registered Horse Power \_\_\_\_\_ Owners Quebec Steamship Co. Ld. Port belonging to London

Nom. Horse Power as per Section 28 1004 Is Refrigerating Machinery fitted no

Is Electric Light fitted yes

## ENGINES, &c.—Description of Engines Triple Expansion No. of Cylinders three Each Engine three Dia. of Cranks three

Dia. of Cylinders 26-43-41 Length of Stroke 48 Revs. per minute 90 Dia. of Screw shaft 14 as per rule 14 as fitted 15 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 — 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 for protected between the liners — Length of stern bush 5-8

Dia. of Tunnel shaft 13-5 as per rule 13-5 as fitted 14-0 Dia. of Crank shaft journals 14-19 as per rule 14-19 as fitted 14-45 Dia. of Crank pin 15 Size of Crank webs 23x10-3/8 Dia. of thrust shaft under collars 14-3/4 Dia. of screw 16-0 Pitch of screw 20-0 No. of blades three State whether moveable yes Total surface 65 sq ft

No. of Feed pumps two Diameter of ditto 3-3/4 Stroke 27 Can one be overhauled while the other is at work yes

No. of Bilge pumps two Diameter of ditto 4-1/4 Stroke 27 Can one be overhauled while the other is at work yes

No. of Donkey Engines two Sizes of Pumps 10x10x10 10x7-1/2x5 feed No. and size of Suctions connected to both Bilge and Donkey pumps double War feed pumps 10-1/2x14x26

In Engine Room four 3-1/2 In Holds, &c. two in each 3-1/2 dia one in after mill 3-1/2

No. of bilge injections 2 sizes 8 Connected to condenser, or to circulating pump no Is a separate donkey suction fitted in Engine room of size yes 5

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 —

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 through and space How are they protected carried through tunnel

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 16/11/04 Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door yes worked from upper platform

## BOILERS, &c.— (Letter for record (5) Total Heating Surface of Boilers 18115 Is forced draft fitted no

No. and Description of Boilers three single + three double ended Working Pressure 200 lb Tested by hydraulic pressure to 400 lb

Date of test 15/6/04 20/7/04 Can each boiler be worked separately yes Area of fire grate in each boiler 64-85 129-75 No. and Description of safety valves to each boiler three + two direct spray Area of each valve two 12-56 three 15-90 Pressure to which they are adjusted 200 lb Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 12 Mean dia. of boilers 14-9 Length 11+18 Material of shell plates steel

Thickness 1/2 Range of tensile strength 28-32 7000 Are they welded or flanged no Descrip. of riveting: cir. seams lap BR + TR long. seams 598 - TR

Diameter of rivet holes in long. seams 1/2 Pitch of rivets 9-3/2 Lap of plates or width of butt straps 22-1/4

Per centages of strength of longitudinal joint rivets 87-7 Working pressure of shell by rules 230 lb Size of manhole in shell 12x18

Size of compensating ring 9-3/8 x 1-1/2 No. and Description of Furnaces in each boiler three + one pump Material steel Outside diameter 47-1/2 dia

Length of plain part top bottom Thickness of plates top bottom Description of longitudinal joint Weld No. of strengthening rings —

Working pressure of furnace by the rules 218 lb Combustion chamber plates: Material steel Thickness: Sides 3/4 3/4 Back 4/8 Top 3/4 Bottom 1-1/8

Pitch of stays to ditto: Sides 9-3/4 x 8-1/2 Back 9 x 8-3/8 Top flanged If stays are fitted with nuts or riveted heads nuts Working pressure by rules 210 + 202

Material of stays steel Diameter at smallest part 1-1/2 1-61 Area supported by each stay 83 + 108 Working pressure by rules 220 lb End plates in steam space: Material steel Thickness 1-23/64 Pitch of stays 18-1/2 x 16 How are stays secured by N. Working pressure by rules 277 lb Material of stays steel

Diameter at smallest part 2-9/2 Area supported by each stay 295 Working pressure by rules 225 lb Material of Front plates at bottom steel

Thickness 7/8 Material of Lower back plate steel Thickness 1-1/4 Greatest pitch of stays 1-1/4 Working pressure of plate by rules 202 lb

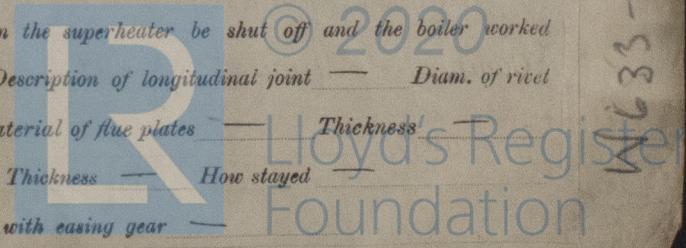
Diameter of tubes 3-1/4 Pitch of tubes 4-1/2 x 4-9/16 Material of tube plates steel Thickness: Front 1-1/2 Back 7/8 Mean pitch of stays 11-5/16

Pitch across wide water spaces 14-1/4 Working pressures by rules 200 lb Girders to Chamber tops: Material steel Depth and thickness of girder at centre 16-3/4 x 15-3/4 x 1-1/2 Length as per rule — Distance apart 13-1/2 Number and pitch of Stays in each —

Working pressure by rules — 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 —



each engine

580

7510-587  
1633-0157

**DONKEY BOILER**— No. Description

Made at By whom made When made Where fixed

Working pressure tested by hydraulic pressure to No. of Certificate Fire grate area Description of safety valves

No. of safety valves Area of each Pressure to which they are adjusted If fitted with easing gear If steam from main boilers can enter the donkey boiler

strength Descrip. of riveting long seams Dia. of donkey boiler Length Material of shell plates Thickness Range of tensile

Lap of plating Per centage of strength of joint Rivets 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 Working pressure of shell by rules

Thickness of uptake plates Thickness of uptake plates Thickness of water tubes

**SPARE GEAR.** State the articles supplied:— one set of pumping bolts & nuts, two each top head, bottom head & main bearing bolts & nuts. one set each feed & helge pump valves, one set propeller blades one propeller shaft, 1/3 crank shaft, one eccentric stud complete, one pair crosshead pins 50 end cover + 50 boiler tubes, circulating pump base, 11 brass spindles etc.—

The foregoing is a correct description,  
 G. J. Clark Manufacturer.

Dates of Survey while building

During progress of work in shops - 1904:— Jan 22, Mar 2, 8, 14, 23, 29, Apr 7, 15, 19, 25, 28, May 4, 16, 31, June 2, 7, 9, 15, 27, July 5, 8, 14, 20, 22, 26, Aug 5, 12, 18, 19, Sep: 6, 7, 16, 22, 27, 30, Oct 3, 4, 11, 15, 18, 20, 26, Nov 1, 3, 10, 12, 16, 21. 48

During erection on board vessel -

Total No. of visits

Is the approved plan of main boiler forwarded herewith  yes

“ “ “ donkey “ “ “

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

The Machinery of this Vessel has been built under special survey, the material & workmanship sound & good, the Boilers and steam pipes have been tested by hydraulic pressure in accordance with the Rules, the whole of the machinery worked well & the safety valves have been fitted with easing gear & adjusted to the working pressure under steam.

This Vessel is eligible in my opinion to have the Notation of \*LMC 11.04 twin screw with Electric Light, in the Register Book

It is submitted that this vessel is eligible for THE RECORD L.M.C. 11.04. ELEC. LIGHT

End  
 30.11.04

The amount of Entry Fee... £ 3 : :  
 Special ... £ 70 : 4 :  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ : :

When applied for, 29.11.1904  
 When received, 1.12.1904

W. J. Clark  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute FRI. 2 DEC 1904  
 Assigned + L.M.C. 11.04  
 Elec. light.

MACHINERY CERTIFICATE WRITTEN.



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Certificate (if registered) to be sent to Committee's Minute.