Rpt. 4.

REPORT ON MACHINERY.

No. 8777

Received at London Office THU. 10 AUG. 1922

Date of writing Report 8th Aug. 1922 When handed in at Local Office ..... 19.. Port of Belfast.

No. in Reg. Book. Survey held at Belfast. Date, First Survey 18th March 1920 Last Survey 3rd August 1922. (Number of Visits 111.)

on the Twin S/S "PORT AUCKLAND" Tons { Gross ..... Net .....

Master ✓ Built at Belfast By whom built Workman Clark & Co Ld When built 1922.

Engines made at Belfast By whom made Workman Clark & Co. Ltd. when made 1922

Boilers made at Belfast. By whom made Workman Clark & Co. Ltd. when made 1922.

Registered Horse Power ✓ Owners Commonwealth & Dominion Line Port belonging to London.

Nom. Horse Power as per Section 28 859. Is Refrigerating Machinery fitted for cargo purposes Yes. Is Electric Light fitted Yes.

ENGINES, &c.—Description of Engines Twin Triple-expansion recip.; No. of Cylinders 6 No. of Cranks 6

Dia. of Cylinders 22½"-38"-63½" Length of Stroke 48" Revs. per minute ..... Dia. of Screw shaft as per rule 13.73" as fitted 14.75" Material of screw shaft S. 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'-0".

Dia. of Tunnel shaft as per rule 12.37" as fitted 12.875" Dia. of Crank shaft journals as per rule 12.99" as fitted 13.76" Dia. of Crank pin 13¾" Size of Crank webs 9"×26" Dia. of thrust shaft under collars 13¾" Dia. of screw 16'-6" Pitch of Screw 17'-6" No. of Blades 3 State whether moveable Yes. Total surface 80 sq. feet.

No. of Feed pumps 1 each engine Diameter of ditto 6" Stroke 24" Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 1 each engine Diameter of ditto 6" Stroke 24" Can one be overhauled while the other is at work Yes.

No. of Donkey Engines See separate sheet Sizes of Pumps ..... No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room 12-3½" In Holds, &c. 11-3½"

Coffer dams — 4-3½"

No. of Bilge Injections 2 sizes 9" Connected to condenser, or to circulating pump ~~pump~~ Is a separate Donkey Suction fitted in Engine room & size 1-3½".

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 Fore hold suctions. How are they protected Iron 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.

Is the Screw Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes. worked from Upper deck level.

BOILERS, &c.—(Letter for record S) Manufacturers of Steel D. Colville & Co & Steel Co of Scotland

Total Heating Surface of Boilers 12900 ft² Is Forced Draft fitted Yes. No. and Description of Boilers 4 - Single ended Marine

Working Pressure 200. Tested by hydraulic pressure to 350 Date of test 3-5-21 No. of Certificate 789.

Can each boiler be worked separately Yes. Area of fire grate in each boiler 79 sq. feet. No. and Description of Safety Valves to each boiler 2 - Spring loaded Area of each valve 14·1 □" Pressure to which they are adjusted 205 lbs □" Are they fitted with easing gear Yes.

Smallest distance between boilers or uptakes and bunkers or woodwork About 16". ~~Mean~~ Int. dia. of boilers 16'-9" Length 12'-3" Material of shell plates Steel.

Thickness 1½" Range of tensile strength 29-33 Tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Lap D.R.

long. seams D. Butt double Diameter of rivet holes in long. seams 1 17/32" Pitch of rivets 10½" ~~Lap of plates or~~ width of butt straps 22½"

Per centages of strength of longitudinal joint rivets 86.9. plate 85.4 Working pressure of shell by rules 206 Size of manhole in shell 16"×12"

Size of compensating ring McNeil. No. and Description of Furnaces in each boiler 4 - Morison Material Steel Outside diameter 47¼"

Length of plain part top ✓ bottom 8" Thickness of plates crown 41" bottom 64 Description of longitudinal joint Weld. No. of strengthening rings ✓

Working pressure of furnace by the rules 211. Combustion chamber plates: Material Steel. Thickness: Sides 11/16" Back 43/64" Top 11/16" Bottom 27/32"

Pitch of stays to ditto: Sides 9¼"×9 13/16" ×7⅞" Back Various Top 9¼"×6¾" 9¼"×8" If stays are fitted with nuts or riveted heads Nuts inside Working pressure by rules 209.

Material of stays Steel. Area at smallest part 2.39-1.76 □" Area supported by each stay 740 □" Working pressure by rules 214 lbs End plates in steam space:

Material Steel. Thickness 1 3/16" Pitch of stays 21×16¼" 20½"×16½" How are stays secured Nuts & Washers Working pressure by rules 200 lbs Material of stays Steel.

Area at smallest part 5.55-4.66 □" Area supported by each stay 337 □" Working pressure by rules 205 Material of Front plates at bottom Steel.

Thickness 1" Material of Lower back plate Steel Thickness 29/32" Greatest pitch of stays 13½"×8½" Working pressure of plate by rules 220

Diameter of tubes 2½" Pitch of tubes 3¾"×3 5/8" Material of tube plates Steel Thickness: Front ⅞" Back 13/16" Mean pitch of stays 11¼"×7½"

Pitch across wide water spaces 13½" Working pressures by rules 223 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 11"×(¾"×2) Length as per rule 40½" Distance apart 8" and 6¾" Number and pitch of stays in each 3-9¼"

Working pressure by rules 212 Steam dome: description of joint to shell ✓ % of strength of joint .....

Diameter ..... Thickness of shell plates ..... Material ..... Description of longitudinal joint ..... Diam. of rivet holes .....

Pitch of rivets ..... Working pressure of shell by rules ..... Crown plates ..... Thickness ..... How stayed .....

SUPERHEATER. Type ✓ Date of Approval of Plan ..... Tested by Hydraulic Pressure to .....

Date of Test ..... Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler .....

ameter of Safety Valve ..... Pressure to which each is adjusted ..... Is Easing Gear fitted .....

If not, state whether, and when, one will be sent?

To a Report also sent on the hull of the Ship?

20,4,16. T.

W210-0156 1/2

IS A DONKEY BOILER FITTED? No. *If so, is a report now forwarded?*

SPARE GEAR. *State the articles supplied:—*

See Separate Sheet

The foregoing is a correct description,
FOR WORKMAN, CLARK & CO., LIMITED.
F. Cunningham
Manufacturer.

Dates of Survey while building { *During progress of work in shops* - - ; *During erection on board vessel* - - - ; *Total No. of visits* ____ *Is the approved plan of main boiler forwarded herewith* Yes
" " " *donkey* " " "

Dates of Examination of principal parts—*Cylinders* 25/5/20 *Slides* ____ *Covers* ____ *Pistons* ____ *Rods* ____

Connecting rods 11/5/22 *Crank shaft* 16/2/22 *Thrust shaft* 4/4/22. *Tunnel shafts* 14/2/22 *Screw shafts* 4/2/22 4/4/22 *Propeller* 4/4/22.

Stern tube 4/4/22. *Steam pipes tested* 9/6/22. ~~*Engine and*~~ *boiler seatings* 5/6/22. *Engines holding down bolts* 7/6/22.

Completion of pumping arrangements 1/8/22. *Boilers fixed* 5/6/22. *Engines tried under steam* 25/7/22.

Completion of fitting sea connections 5/5/22. *Stern tube* 5/5/22 *Screw shaft and propeller* 5/5/22.

Main boiler safety valves adjusted 25/7/22. *Thickness of adjusting washers* 10-13"/32

Material of Crank shaft J. Steel *Identification Mark on Do.* L.M.C. 16-2-22. H.P.S. *Material of Thrust shaft* J. Steel. *Identification Mark on Do.* 4-4-22 R.J.B.

Material of Tunnel shafts " *Identification Marks on Do.* 20/6/21. R.J.B. *Material of Screw shafts* J. Steel. *Identification Marks on Do.* 4/4/22. R.J.B.

Material of Steam Pipes Lap welded Steel. *Test pressure* 600 lbs □"

Is an installation fitted for burning oil fuel No *Is the flash point of the oil to be used over* 150°F. ✓

Have the requirements of Section 49 *of the Rules been complied with* ✓

Is this machinery duplicate of a previous case Yes. *If so, state name of vessel* "Port Campbell"

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

The machinery of this vessel, has been constructed under special Survey, and in accordance with the Rules. The workmanship and the materials are of good description, & on trial in Belfast Lough, the machinery worked satisfactorily.
In my opinion it is eligible for record + LMC-8,22 with notations "Forced draft", "Electric Light" and "Refrigerating Machinery"

It is submitted that this report is suitable for THE RECORD.

+ L.M.C. 8.22. F.D. C.L.
A.W.D. 14/8/22

The amount of Entry Fee ...	£ 6 : 0 : 0	When applied for,
Special	£ 117 : 19 : 0	4/8/ 1922
Donkey Boiler Fee ...	£ : :	When received,
Travelling Expenses (if any)	£ : :	2/8/22

A. P. Southwell.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute THE 15 AUG 1922

Assigned + L.M.C. 8.22.
F.D. C.L.

MACHINERY CERTIFICATE WRITTEN

Certificate (if required) to be sent to Head Office

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

Rpt. 9a.

Port of Belfast. *Continuation of Report No.* 8777 *dated* 8th August, 1922 *on the*

Twin S/S "PORT AUCKLAND"

List of Pumps.

2 Weirs Feed pumps. — 15½" x 10" x 26".
2 Main Circulating pumps - 45" Impeller x 14" pump.
1 Aux. " " 27" " x 8" ".
General Service pump. 9" x 6" x 10"
Ballast 8" x 10" x 10"
Sanitary 6" x 7" x 8"
Fresh water. 5" x 5" x 8"
Refrigg.ng Circulating 8½" x 10" x 10"

Principal items of Spare Gear.

1 Propeller shaft complete.
2. C.P. propeller blades.
30 Condenser tubes.
100 Ferrules.
2 pairs of Crank pin bushes.
2 " Crosshead "
2 H.P. Valve spindles & bushes.
2 M.P. " " "
2 L.P. " " "
2 Sets rings + springs for H.P. piston valves.
4 " " " " H.P. & M.P. pistons
2 " " " " L.P. pistons.
2 Air pump rods with nuts; 2 guards with studs.
1 Piston rod gland in halves.
30 Boiler tubes.
1- Forced draft fan shaft.
1- Main Circulating pump impeller.
2- " " " spindles.
1- Thomson breakdown ~~shaft coupling~~
Large supply of spare gear for pumps and auxiliaries, as well as all Gear required by Rules.

A. P. Southwell

5m,2,20.

W210-015'6 2/2