

REPORT ON MACHINERY.

No. 13956

Port of Greenock

JUN 7 1904

Received at London Office 10

No. in Survey held at Port Glasgow Date, first Survey 19th Feb Last Survey 28th May 1904

Reg. Book. 812 on the Screw Steamer "Priardene" (Number of Visits 29)

Master Crowe Built at Greenock By whom built Scott & Co When built 1882

Engines made at Greenock By whom made Scott & Co when made 1882

Boilers made at Port Glasgow By whom made Clyde Ship & Engine Co when made 1904

Registered Horse Power 305 Owners A. Dickie Port belonging to Newcastle

Nom. Horse Power as per Section 28 305 Is Refrigerating Machinery fitted No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Compound No. of Cylinders 2 No. of Cranks 2

Dia. of Cylinders 40-78 Length of Stroke 48 Revs. per minute 60 Dia. of Screw shaft as per rule Material of screw shaft as fitted

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Is the after end of the liner made water tight in the propeller boss

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

Dia. of Tunnel shaft as per rule Dia. of Crank shaft journals as per rule Dia. of Crank pin Size of Crank webs Dia. of thrust shaft under collars Dia. of screw Pitch of screw No. of blades State whether moveable Total surface

No. of Feed pumps Diameter of ditto Stroke Can one be overhauled while the other is at work

No. of Bilge pumps Diameter of ditto Stroke Can one be overhauled while the other is at work

No. of Donkey Engines Sizes of Pumps No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room In Holds, &c.

No. of bilge injections sizes Connected to condenser, or to circulating pump Is a separate donkey suction fitted in Engine room & size

Are all the bilge suction pipes fitted with roses Are the roses in Engine room always accessible Are the sluices on Engine room bulkheads always accessible

Are all connections with the sea direct on the skin of the ship Are they Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the discharge pipes above or below the deep water line

Are they each fitted with a discharge valve always accessible on the plating of the vessel Are the blow off-cocks fitted with a spigot and brass covering plate

What pipes are carried through the bunkers How are they protected

Are all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges

When were stern tube, propeller, screw shaft, and all connections examined in dry dock Is the screw shaft tunnel watertight

Is it fitted with a watertight door worked from

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 4572 sq. ft. Is forced draft fitted No.

No. and Description of Boilers Two: Cylindrical: Single ended Working Pressure 160 lbs. Tested by hydraulic pressure to 320 lbs.

Date of test 2/5/04 Can each boiler be worked separately Yes Area of fire grate in each boiler 56.4 sq. ft. No. and Description of safety valves to each boiler 2: Direct Spring Area of each valve 11.04 sq. ft. Pressure to which they are adjusted 165 lbs. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork About 14" Mean dia. of boilers 15.0" Length 10.6" Material of shell plates Steel

Thickness 1/4" Range of tensile strength 28-32 tons Are they welded or flanged No. Descrip. of riveting: cir. seams substituted with long. seams Double Butt Strap

Diameter of rivet holes in long. seams 1/4" Pitch of rivets 8 1/2" Lap of plates on width of butt straps 18 1/2"

Per centages of strength of longitudinal joint 85:2 Working pressure of shell by rules 186 lbs. Size of manhole in shell 16" x 12"

Size of compensating ring 27 x 33 x 1 1/2" No. and Description of Furnaces in each boiler 3: Deighton's Material Steel Outside diameter 45 1/4"

Length of plain part top 7.4" Thickness of plates bottom 3.2" Description of longitudinal joint Weld. No. of strengthening rings None

Working pressure of furnaces by the rules 181 lbs. Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 5/4"

Pitch of stays to ditto: Sides 7/8 x 7/8" Back 7/8 x 7/8" Top 7/8 x 7/8" If stays are fitted with nuts or riveted heads Auto. Working pressure by rules 182 lbs.

Material of stays Steel Diameter at smallest part 1 1/4" Area supported by each stay 60" Working pressure by rules 165 lbs. End plates in steam space: Material Steel Thickness 1 1/8" Pitch of stays 15 x 15" How are stays secured Double nut Working pressure by rules 225 lbs. Material of stays Steel

Diameter at smallest part 2 1/4" Area supported by each stay 225" Working pressure by rules 191 lbs. Material of Front plates at bottom Steel

Thickness 3/4" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 14 1/4" Working pressure of plate by rules 315 lbs.

Diameter of tubes 3 1/2" Pitch of tubes 4 1/2 x 4 1/2" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 10 1/8"

Pitch across wide water spaces 14" Working pressures by rules 232 lbs. 196 lbs. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 8 1/2" x 1 1/2" Length as per rule 31" Distance apart 7 1/4" Number and pitch of Stays in each 3: 7/8"

Working pressure by rules 193 lbs. 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

DONKEY BOILER— No. *One* Description *Cylinder Mull. Single Ended.*
 Made at *Port Glasgow* By whom made *Glyde Shipbuilding Coy Ltd* When made *1904* Where fixed on *main Deck*
 Working pressure *120 lbs* tested by hydraulic pressure to *200 lbs* No. of Certificate *635* Fire grate area *20 sq ft* Description of safety valves *Direct Spring*
 No. of safety valves *2* Area of each *3 1/4 sq ft* Pressure to which they are adjusted *120 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Dia. of donkey boiler *8' 6"* Length *8' 6"* Material of shell plates *Steel* Thickness *3/8"* Range of tensile strength *29-32 tons* Descrip. of riveting long seams *S. B. Seams* Dia. of rivet holes *7/8"* Whether punched or drilled *Drilled* Pitch of rivets *4 1/2"*
 Lap of plating *1 1/2"* Per centage of strength of joint Rivets *52.5* Thickness of shell plates *3/8"* Radius of do. *pitch* No. of Stays to do. *13 x 13 1/2"*
 Dia. of stays *1 3/8"* Diameter of furnace Top *31"* Bottom *32"* Length of furnace *5' 2"* Thickness of furnace plates *1/2"* Description of joints *S. B. Seams* Thickness of furnace crown plates *5/8"* Stayed by *1 1/2" x 1 1/2" x 12' 6"* Working pressure of shell by rules *120 lbs*
 Working pressure of furnace by rules *140 lbs* Diameter of uptake *3"* Thickness of uptake plates *1/4"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *12 plain Tubes for main Boilers 6 plain Tubes for Donkey Boiler.*

The foregoing is a correct description, **THE GLYDE SHIPBUILDING & ENGINEERING CO. LIMITED,**
 Manufacturer. *John Innes* Director.

Dates of Survey while building
 During progress of work in shops - *1904 Feb. 19. 22. 23. 26. 29. March 2. 7. 15. 17. 21. 23. 30 April 5. 7. 13. 14.*
 During erection on board vessel - *21. 25. 26. 27. 28. 29. 30 May 2. 3. 11. 19. 20. 28*
 Total No. of visits *29.* Is the approved plan of main boiler forwarded herewith *Yes*
 " " " donkey " " " *Yes*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The main and Donkey Boilers of this vessel have been built under special survey and the materials and workmanship are good. When completed they were reexamined under hydraulic pressure and subsequently under steam pressure when their safety valves were adjusted to the working pressures above mentioned. The safety valves on the main steam between the Reducing valve and the High pressure Cylinder casing have been adjusted to carry 80 lbs per sq. in. The arrangement of steam pipes, and the Reducing and safety valves are fitted as nearly as possible in accordance with the approved plans. No alteration has been made in the engines which remain as originally fitted. As will be observed the main Boilers are intended to work at 160 lbs, while a Leslie reducing valve (9" dia) gives an initial steam pressure of 80 lbs at the engines. The Reducing valve worked on the whole satisfactorily, and there was always maintained at the engines a pressure of 80 lbs, no matter how the pressure in the Boiler fluctuated above that point. It was however found on the trial when running with 160 lbs of steam in the main Boilers and the stop valve at the engines full open, that the Reducing valve rattled heavily, and this noise did not cease while the engine stop valve remained full open until the Boiler pressure had been reduced to 125 lbs. With a Boiler pressure of 125 lbs the engines worked well and between 10 and 11 o'clock light the vessel attained a speed of 4 1/2 knots per hour.

for reexam. station. see front sheet.

The amount of Entry Fee. . . £ : : When applied for, *3/6*
 Special £ *13 : 13* : : *1904*
 Donkey Boiler Fee £ *2 : 2* : : *1904*
 Travelling Expenses (if any) £ : : When received, *1904*

Committee's Minute *Glasgow - 6 JUN 1904*
 Assigned *See accompanying report.* *Wm. Austin*
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Certificate (if registered) to be sent to the Surveyors not to write above or below the space for Committee's Minute.

