

## REPORT ON MACHINERY.

No. 26060

TUE. APR. 15. 1913

Date of writing Report

19

When handed in at Local Office

14/4 10/13 Port of Hull.

No. in Survey held at Reg. Book.

Hull.

Date, First Survey

Jan 8

Last Survey

Apr 7

1913

Name of the Ship S.S. "PEARL"

(Number of Visits 26)

Gross 289

Net 115

Master

Built at

Sully

By whom built

Cochrane &amp; Sons Ltd.

When built

1913.

Engines made at

By whom made

when made

1913.

Boilers made at

Hull

By whom made

Messrs Charles D. Hodges &amp; Co. Ltd.

when made

1913.

Registered Horse Power

Owners

Thompson Steam Traction Co. Ltd.

Port belonging to

Hull.

Nom. Horse Power as per Section 28

83.

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

No

## ENGINES, &amp;c.—Description of Engines

Triple Expansion

No. of Cylinders

3

No. of Cranks

3

Dia. of Cylinders

13"-22½"-34"

Length of Stroke

24"

Revs. per minute

Dia. of Screw shaft

as per rule 4.41

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 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

liners are fitted, is the shaft lapped or protected between the liners

Length of stern bush

38"

Dia. of Tunnel shaft

as per rule 6.22

Dia. of Crank shaft journals

as per rule 4.16

Dia. of Crank pin

4½"

Size of Crank webs

4½" x 4½"

Dia. of thrust shaft under

collars

4½"

Dia. of screw

9'-6"

Pitch of Screw

10'-10½"

No. of Blades

4

State whether moveable

No

Total surface

32 sq

No. of Feed pumps

1

Diameter of ditto

2½"

Stroke

14½"

Can one be overhauled while the other is at work

No. of Bilge pumps

1

Diameter of ditto

2½"

Stroke

14½"

Can one be overhauled while the other is at work

No. of Donkey Engines

1

Sizes of Pumps

6" x 4½" x 6" duplex

No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room

Two 2½" - one forward &amp; one aft.

In Holds, &amp;c. One 2½" to fore hold, one 2½" to main hold,

on 2½" fore hold, with, on 2½" aft. hold, with Ejector suction from all bilges with discharge on deck

No. of Bilge Injections

1 size 3½"

Connected to condenser, or to circulating pump

pump

Is a separate Donkey Suction fitted in Engine room &amp; size 3" ejector.

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

0

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

Hold suction

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

25.1.13

of Stern Tube

25.1.13

Screw shaft and Propeller

25.1.13

Is the Screw Shaft Tunnel watertight

Is it fitted with a watertight door

worked from

## BOILERS, &amp;c.—(Letter for record S.)

Manufacturers of Steel The Steel Company of Scotland Ltd.

Total Heating Surface of Boilers

1350 sq

Is Forced Draft fitted

Yes

No. and Description of Boilers One cyl. mult. simple m.d.d.

Working Pressure

200 lbs.

Tested by hydraulic pressure to

400 lbs.

Date of test

7.3.13

No. of Certificate

1968.

Can each boiler be worked separately

Yes

Area of fire grate in each boiler

44.3 sq

No. and Description of Safety Valves to

each boiler

Two Spring

Area of each valve

4.90"

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

6"

Mean dia. of boilers

13'-0"

Length

10'-6"

Material of shell plates

S.

Thickness

1½"

Range of tensile strength

28 tons

Are the shell plates welded or flanged

No

Descrip. of riveting: cir. seams

20. P. &amp; L.

long. seams

P. &amp; L.

Diameter of rivet holes in long. seams

1½"

Pitch of rivets

8½"

Lap of plates or width of butt straps

18"

Per centages of strength of longitudinal joint

rivets 89

plate 85.5

Working pressure of shell by rules

205 lbs.

Size of manhole in shell

16" x 12"

Size of compensating ring

7" x 1½"

No. and Description of Furnaces in each boiler

3 plain

Material

S.

Outside diameter

34.625"

Length of plain part

top 6'-3"

Thickness of plates

crown 13"

Description of longitudinal joint

Weld

No. of strengthening rings

0

Working pressure of furnace by the rules

221 lbs.

Combustion chamber plates: Material

S.

Thickness: Sides

11"

Back

11"

Pitch of stays to ditto: Sides

8½" x 8"

Back

8½" x 8"

Top

8½" x 8"

If stays are fitted with nuts or riveted heads

True

Working pressure by rules

232 lbs.

Material of stays

S.

Diameter at smallest part

2.40"

Area supported by each stay

890"

Working pressure by rules

242 lbs.

End plates in steam space:

Material

S.

Thickness

13"

Pitch of stays

19" x 18"

How are stays secured

20. 24.

Working pressure by rules

228 lbs.

Material of Front plates at bottom

S.

Diameter at smallest part

7.40"

Area supported by each stay

3420"

Working pressure by rules

228 lbs.

Material of

S.

Thickness

1"

Material of Lower back plate

S.

Thickness

15"

Greatest pitch of stays

13" x 8½"

Working pressure of plate by rules

254 lbs.

Diameter of tubes

3½"

Pitch of tubes

4½" x 4½"

Material of tube plates

S.

Thickness: Front

1"

Back

8"

Pitch across wide water spaces

13½"

Working pressures by rules

213 lbs.

Girders to Chamber tops: Material

S.

Depth and

thick-

ness of girder at centre

10"

Working pressure by rules

205 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

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

W290-0149



# VERTICAL DONKEY BOILER— Manufacturers of Steel

No.	Description	Made at	By whom made	When made	Where fired
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	Radius of do.	Stayed by		
Diameter of uptake	Thickness of uptake plates	Thickness of water tubes	Dates of survey		

**SPARE GEAR.** State the articles supplied:— Two each 1/2" & 3/4" bolts and connecting rod bolts & nuts, two main bearing bolts & nuts, one set of coupling bolts & nuts, one set each feed & bilge pump valves, iron of various sizes, a quantity of assorted, bolts, nuts &c.

The foregoing is a correct description,  
p. pro **CHARLES D. HOLMES & CO. LTD.** Manufacturer.

*Arthur Holmes* DIRECTOR. 1913:— Jan 8. 14. 17. 23. 25. 29. 30. Feb 4. 5. 6. 12. 17. 19. 26. 28 Mar 5. 7  
 Dates of Survey: During progress of work in shops — Mar 10. 12. 19. 20. 26. 29 Apr 2. 3. 7  
 while building — Total No. of visits 26.

Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Cylinders 17.2.13 Slides 12.3.13 Covers 12.3.13 Pistons 4.3.13 Rods 6.2.13  
 Connecting rods 29.2.13 Crank shaft 29.1.13 Thrust shaft 10.3.13 Tunnel shafts — Screw shaft 14.1.13 Propeller 14.1.13  
 Stern tube 14.1.13 Steam pipes tested 26.3.13 Engine and boiler seatings 25.1.13 Engines holding down bolts 19.3.13  
 Completion of pumping arrangements 7.4.13 Boilers fixed 29.3.13 Engines tried under steam 29.3.13  
 Main boiler safety valves adjusted 29.3.13 Thickness of adjusting washers *Forward 5/16" off 1/16"*  
 Material of Crank shaft *Steel* Identification Mark on Do. *Nº 99/T.G.D.* Material of Thrust shaft *Steel* Identification Mark on Do. *Nº 99/T.G.D.*  
 Material of Tunnel shafts — Identification Marks on Do. — Material of Screw shafts *Iron* Identification Marks on Do. *Nº 99/T.G.D.*  
 Material of Steam Pipes *Solid drawn copper* Test pressure *Hot 150 lbs per sq. inch hydraulic*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The engines & boilers of this vessel have been constructed under special survey in accordance with the Rules. The materials & workmanship are sound & good. The boiler tested by hydraulic pressure & with the engines covered by board & tested under steam they are now in good order & safe working condition & respectfully submitted as being eligible in my opinion to be classed with the notation of 'I.L.M.C. 4.13' in the Register Books.*

It is submitted that  
this vessel is eligible for  
**THE RECORD.**

*I.L.M.C. 4.13.*

*Am.S.*

*15.4.13.*

The amount of Entry Fee ... £ 1 : 0 :  
 Special ... £ 12 : 9 :  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ 82 :  
 Committee's Minute  
 Assigned

When applied for, 14.4.13.

When received, 30/4/13.

FRI. APR. 13. 1913

*Am.S. 4.13*

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