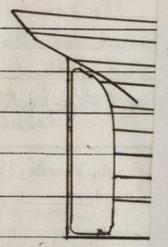


57
 First Part
 (Of Bar Ke
 GARBOAR)
 State actual
 thickness
 way of Don
 Bottom.
 Write "Bar Strake" opposite to corresponding letter.
 Sheer Strake
 DOUBLING
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 BRIDGE SIDE
 FORECASTLE
 LENGTHS
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 9284
 Number of
 Certificate
 3099
 Iron Stream C
 or Steel Wire
 Boats
 Pumps, N
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examined; deck
 and spars exc
 its connection
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 work, or on

Repairs: S
 Stanchions h
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 been fitted
 The appro



"Buffalo (Ans)
 It is submitted that the Surveyor be informed
 that in quarters involving strength & soundness
 in difference can be approved between vessels
 the for of the or for B.M.S.
 ten B.M.S. is used when the arrangements of the cox is not
 me with the Rules & left when strength are deficient. It
 at in view of the clear statement in the letter sent from
 ed, that the Surveyor did not make it clear to the owner
 under as actually fitted the greatest working pressure
 with 70 lbs per sq inch. Making the pressure a
 amount the vessel will not be eligible for classification
 it.
 make the reduction if the vessel is still at Liverpool
 tubes properly re-attached

[Faint, mostly illegible handwritten notes and signatures, including a large signature that appears to be 'J. Collins' and some dates like '24th Sept 1903'. There are also some scribbles and small drawings.]

No. 2730

REPORT ON MACHINERY.

Port of Queenstown Received at London Office MUN. 19 OCT 1903

in Survey held at Passage West Date, first Survey 24th Sept Last Survey 15th Oct 1903
 Book. on the P.S. Buffalo (Number of Vols. 11) Tons Gross 287
 Net 107
 Built at London By whom built Charles Iron Works Co When built 1886
 Made at London By whom made Young & Co when made 1887
 Registered Horse Power 81 Owners Channel Dry Dock & Co Port belonging to London
 Is Refrigerating Machinery fitted No Is Electric Light fitted No

ENGINES, &c.—Description of Engines Compound, Direct Acting No. of Cylinders 2 No. of Cranks 2
 of Cylinders 2 Length of Stroke 27 Revs. per minute 90 Dia. of Screw shaft 4 1/2 Lgh. of stern bush 22
 of Tunnel shaft 6 3/4 Dia. of Crank shaft journals 4 1/4 Dia. of Crank pin 4 1/4 Size of Crank webs 8 1/2 x 4 1/2 Dia. of thrust shaft under
 of Feed pumps 2 Diameter of ditto 3 Stroke 14 1/2 Can one be overhauled while the other is at work Yes
 of Bilge pumps 2 Diameter of ditto 3 Stroke 14 1/2 Can one be overhauled while the other is at work Yes
 of Donkey Engines 1 Sizes of Pumps 9 x 4 x 6 and size of Suctions connected to both Bilge and Donkey pumps
 In Holds, &c. 3 - 2

bilge injections 1 sizes 5 Connected to condenser, or to circulating pump Pumps a separate donkey suction fitted in Engine room & size 4 - 2 1/2
 All the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the valves on Engine room bulkheads always accessible Yes
 All connections with the sea direct on the skin of the ship No Connected to Bulkhead Valve Both 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
 Are pipes carried through the bunkers No How are they protected ✓
 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
 Are the stern tube, propeller, screw shaft, and all connections examined in dry dock Yes Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from Deck & Engine Room

BOILERS, &c.— (Letter for record K) Total Heating Surface of Boilers 1458 sq ft Is forced draft fitted No
 and Description of Boilers one - Cylind^r - Single End Working Pressure 90 lbs Tested by hydraulic pressure to 150 lbs
 of test 5.10.03 Can each boiler be worked separately ✓ Area of fire grate in each boiler 52 sq ft No. and Description of safety valves to
 boiler 2 - Rocket Spring Area of each valve 9.0 sq Pressure to which they are adjusted 95 lbs Are they fitted with easing gear Yes
 Least distance between boilers 6 and bunkers 6 Mean dia. of boilers 2 3/4 Length 10 - 7 Material of shell plates Steel
 Thickness 7/8 Range of tensile strength 28 - 30 Are they welded or flanged No Descrip. of riveting: cir. seams Lap, Riv. Riv. Riv. longitudinal seams Butt Riv. Riv.
 Diameter of rivet holes in long. seams 1/8 Pitch of rivets 4 1/2 Length of plates on width of butt straps 1 1/2
 Percentages of strength of longitudinal joint 75.8 Working pressure of shell by rules 124 lbs Size of manhole in shell 16 x 12
 of compensating ring None No. and Description of Furnaces in each boiler 3 - Hammer Riv Material Iron Outside diameter 36
 Thickness of plain part 3/4 Thickness of plates 3/4 Description of longitudinal joint Weld No. of strengthening rings 1
 Working pressure of furnace by the rules 107 lbs Combustion chamber plates Material Iron Thickness: Sides 2 Back 2 Top 2 Bottom 2
 Number of stays to ditto: Sides 8 Back 8 Top 8 Bottom 8 How are stays secured Nuts Riv. Riv. Riv. Working pressure by rules 110 lbs
 Material of stays Steel Diameter at smallest part 1 1/2 Area supported by each stay 68 sq Working pressure by rules 110 lbs Are plates in steam space:
 Material Steel Thickness 3/4 Pitch of stays 14 1/2 x 18 How are stays secured Nuts Riv. Riv. Riv. Working pressure by rules 151 lbs Material of stays Steel
 Diameter at smallest part 1 1/2 Area supported by each stay 188 sq Working pressure by rules 136 lbs Material of Front plates at bottom Steel
 Thickness 3/4 Material of Lower back plate Steel Thickness 3/4 Greatest pitch of stays 13 Working pressure of plate by rules 167 lbs
 Diameter of tubes 3 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 14 1/2 x 18
 Working pressure by rules 118 lbs Girders to Chamber tops: Material Weld Depth and
 thickness of girder at centre ✓ Length as per rule ✓ Distance apart ✓ 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
✓ Pitch of rivets ✓ Working pressure of shell by rules ✓ Diameter of flue ✓ Material of flue plates ✓ Thickness ✓
 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 ✓

REPORT ON MACHINERY.

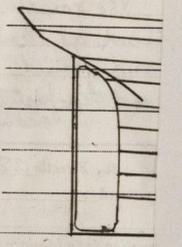
Port of Greenstown Received at London Office MUN. 19 OCT 1903
 in Survey held at Passage West Date, first Survey 24th Aug Last Survey 13th Oct 1903
 Book. P.S. Buffalo (Number of Visits 11)
 on the P.S. Buffalo Tons Gross 287 Net 107
 or J. Collins Built at London By whom built Charles Iron Works Co When built 1886
 was made at London By whom made James Kay when made 1889
 was made at _____ By whom made _____ when made _____
 rated Horse Power _____ Owners Channel Dry Docks & S. Coy Port belonging to London
 Horse Power as per Section 28 81 Is Refrigerating Machinery fitted No Is Electric Light fitted No

INES, &c.—Description of Engines Compound Reciprocating No. of Cylinders 2 No. of Cranks 2
 of Cylinders 23-42 Length of Stroke 27 Reg. per minute 90 Dia. of Screw shaft as per rule 3 1/2 Lgth. of stern bush 32
 of Tunnel shaft as per rule 7 1/2 Dia. of Crank shaft journals as per rule 8 1/4 Dia. of Crank pin 7 1/4 Size of Crank webs 8 1/2 x 4 1/2 Dia. of thrust shaft under
6 1/2 Dia. of screw 9-3 Pitch of screw 13-8 No. of blades 3 State whether moceable Yes Total surface 17 1/2 sq ft
 of Feed pumps 2 Diameter of ditto 3 Stroke 14 1/2 Can one be overhauled while the other is at work Yes
 of Bilge pumps 2 Diameter of ditto 3 Stroke 14 1/2 Can one be overhauled while the other is at work Yes
 of Donkey Engines 1 Sizes of Pumps 9 x 4 x 6 B. M. No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room 2-2 1/2 In Holds, &c. 3-2

bilge injections 1 sizes 5 Connected to condenser, or to circulating pump Pumps a separate donkey suction fitted in Engine room & size 1 1/2-2 1/2
 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 Yes
 all connections with the sea direct on the skin of the ship No Connected to Keelson Valve Both
 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
 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
 pipes are carried through the bunkers None How are they protected ✓
 all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times Yes
 the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges Yes
 were stern tube, propeller, screw shaft, and all connections examined in dry dock Yes Is the screw shaft tunnel watertight Yes
 fitted with a watertight door Yes worked from Deck & Engine Room

ERS, &c.— (Letter for record K) Total Heating Surface of Boilers 1458 sq ft Is forced draft fitted No
 and Description of Boilers one - Cylind^r Single End Working Pressure 90 lbs Tested by hydraulic pressure to 150 lbs
 of test 5-10-12 Can each boiler be worked separately ✓ Area of fire grate in each boiler 52 sq ft No. and Description of safety valves to
 boiler 2 - Direct Spring Area of each valve 9.6 sq in Pressure to which they are adjusted 95 lbs Are they fitted with easing gear Yes
 least distance between boilers 6 and bunkers 6 Mean dia. of boilers 12-3 1/2 Length 10-0 Material of shell plates Steel
 thickness 7/8 Range of tensile strength 28-30 Are they welded or flanged No Descrip. of riveting: cir. seams Lap, Riv. Rivg. seams Butt, Riv. Rivg.
 diameter of rivet holes in long. seams 1/8 Pitch of rivets 4 1/2 Top of plates on width of butt straps 1 1/2
 percentages of strength of longitudinal joint rivets 73 1/2 Working pressure of shell by rules 124 lbs Size of manhole in shell 16 x 12
 of compensating ring No No. and Description of Furnaces in each boiler 3 - Hammer Ring Material Iron Outside diameter 36
 gth of plain part 3-3 Thickness of plates 3/8 Description of longitudinal joint Weld No. of strengthening rings 1
 working pressure of furnace by the rules 107 lbs Combustion chamber plates: Material Iron Thickness: Sides 2 Back 2 Top 2 Bottom 2
 ch of stays to ditto: Sides 8 1/2 x 8 Back 8 1/2 x 8 Top Chamber stays are fitted with nuts or riveted heads Nuts Working pressure by rules 118 lbs
 material of stays Steel Diameter at smallest part 1 1/2 x 1 1/2 Area supported by each stay 68 sq in Working pressure by rules 113 lbs End plates in steam space:
 material Steel Thickness 3/4 Pitch of stays 14 1/2 x 1 1/2 How are stays secured Nuts & Riv. Rivg. Working pressure by rules 151 lbs Material of stays Steel
 diameter at smallest part 1 1/2 Area supported by each stay 188 sq in Working pressure by rules 136 lbs Material of Front plates at bottom Steel
 thickness 3/4 Material of Lower back plate Steel Thickness 3/4 Greatest pitch of stays 13 Working pressure of plate by rules 167 lbs
 diameter of tubes 3 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates Front Steel Thickness: Front 3/4 Back 3/4 Mean pitch of stays 14 1/2 x 1 1/2
 pitch across wide water spaces 13 1/2 Working pressures by rules 118 lbs Girders to Chamber tops: Material None Depth and
 thickness of girder at centre ✓ Length as per rule ✓ Distance apart ✓ 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
 arately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet
 es Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness
 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

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Repairs: S
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P. Buffalo (Ans)
 It is submitted that the surveyor be informed
 that in questions involving strengths & soundings
 differences can be approved between vessels
 the for 2 Mc or for B. & M.S. Inspected in the
ten B. & M.S. is used when the strength of the coaks is not
we with the Rules & not when strengths are deficient. It
is in view of the clear statement in the letter sent from
not that the surveyor did not make it clear to the owner
under as actually fitted the greatest working pressure
with 70 lbs per sq inch. Failing the pressure in
amount the vessel will not be eligible for classification
at.
make the reduction & if the vessel is still at Greenstown
Tables properly readjusted

[Faint handwritten notes and scribbles, mostly illegible due to fading and bleed-through from the reverse side.]

State acts thickness way of Do Bottom
 Write "Starboard" opposite an corresponding letter.
 Sheer St
 DOUBLING
 Length and thickness
 POOP SIDE
 RAISED QUARTERS
 BRIDGE S
 FORECAST
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 9284
 Number of Certificate
 3099
 Iron Steam C
 or Steel Wire
 Boats
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 What arr
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 Cargo H
 State size
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 and 1
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 The above
 Builder's
 For

87

Write "Sheer Strake" opposite its corresponding letter.

Sheer St

DOUBLING

Length and thickness

POOP SIDE

RAISED QUARTERS

BRIDGE SIDE

FORECASTLE

LENGTHS

Manufactory

Plates, out

Has the

FRAMES

REVERS

LOWER M

Bowsprit

Topmasts

Rigging

Sails

Equipm

Number of Certificate

3961

3962

9284

Number of Certificate

3099

Iron Steam or Steel Wire

Boats

Pumps

Windlass

Engine

What arrangements

Coal Bunker

Number of

Ceiling

Cargo Hatch

State size

Number of

and

Bulwark

The above

Builder's

For

DONKEY BOILER— *Donkey* 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 boiler _____

enter the donkey boiler _____ Dia. of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____ Range of 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 _____ 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 _____ Descr. _____

joint _____ Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rules _____

Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied:— *See separate list attached*

The foregoing is a correct description, _____

Manufacturer. _____

Dates *August 24th to 15th October*

During progress of work in shops _____

During erection on board vessel _____

Total No. of visits *11*

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

General Remarks (State quality of workmanship, opinions as to class, &c.) *The engines and boiler of this vessel, which it was stated, were built and fitted on board in 1899 for the British War office, have been pushed up over all parts of the world, and have been found to be in perfect order.*

Material of screw shaft *Not ascertained* 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 sea water *Yes*

non-corrosive *Yes* If two liners are fitted, is the shaft lapped or protected between the liners *Yes*

an inspection, we found on examination, that the design, material and workmanship have been of the highest class, and the upper works received every attention. With the exception of two well secured patches in the centre furnace of the boiler there is little apparent deterioration, nor are there any minor defects. No expense appears to have been spared in its construction, and generally, the whole installation is much superior to the usual mercantile marine practice.

An unusually large amount of spare gear is also on board. Among other items, the cylinders are each lined and steam jacketed, the centrifugal circulating pump is of gunmetal throughout; all the valves on the pumps are fitted with rock gear; the slide valves which are double ported, are each fitted with upper and lower relief frames on the back; the boiler has double gauge glasses, extra mountings; the stern tube is of gunmetal; the engine sea chest is of substantial construction, and the brass and copper appendages have been freshly used, where usually iron is considered to be sufficient.

The amount of Entry Fee... £ 1 : 0 : 0 When applied for, 17th Oct. 1903

Special... £ 12 : 0 : 0

Donkey Boiler Fee... £ : : : When received, 22.10.03

Travelling Expenses (if any) £ 10 : 1 : 0

Committee's Minute TUES. 10 NOV 1903

Assigned *Lmb 1003*

R. J. Pennington & Herbert M. D.
Engineer Surveyors to Lloyd's Register of British & Foreign Shipping

Lloyd's Register of British & Foreign Shipping,
53, Waring Street,
Belfast 14th October 1903
Queenstown Report No. 2739.

S. S. "Buffalo"
List of Spare Gear. Engines.

- 2 Valve spindles.
 - 1 Eccentric rod.
 - 1 Eccentric strap.
 - 1 Piston rod.
 - 1 L. P. packing ring and tongue piece.
 - 1 H. P. Do.
 - 1 H. P. valve.
 - 1 C. crosshead for pumps.
 - 1 Air pump rod.
 - 2 Bottom end brasses.
 - 1 Pair top end brasses.
 - 1 Top end keep.
 - 3 Pair main bearing brasses.
 - 3 Brass tumbling blocks with 8 links for valve motion.
 - 2 Thrust collars
 - 1 Griddle valve.
- CRK93-0378 (1/3)
- 1 Pair bottom end bolts.
 - 2 Pair top end Do.
 - 6 Coupling bolts.
 - 2 main bearing holding down bolts.
 - 6 Bolts for top ends, eccentric rod.
 - 2 Bottom end ditto.
 - 2 Bolts for connecting tumbling block to spindle valve.
 - 2 Eccentric strap bolts.
 - 4 Bolts for guide valve spindle.
 - 4 Guard bolts with collars to guide.
 - 2 Holding down bolts with collars for bearings, pump guides.
 - 2 Piston gland studs.
 - 6 Condenser tube plate bolts with collars.
 - 6 Sets of bolts for H. P. valve.
 - 6 Piston bolts and 8 brass nuts.
 - 9 Relief valve springs.
 - 2 Safety valve ditto.
 - 8 Propeller stud brass, and brass nuts.

CRK93-0378(2/3)

G. R. 130
Lloyds.

OS.

Use of Lloyds

Registry.

Address of Builders.

Iron Co.

London.

Feet.	Tenths.
159	3
21	4
11	6
-	-
-	-
33	45
	5

tons.

Speed of Ship.
12 knots

No. of Tons.

power

1444 27

2799

557

49

80

786

180.12.

No. No.

Part of (If Bar & GARBOU) State act thickness way of D. Boston

Write "Over Board" opposite to corresponding letter.

DOUBLING Length and thickness POOP SID RAISED Q BRIDGE S FORECAST LENGTHS

Manuf plates, ou

Has the S

FRAMES REVERS

Lower M

Bowsprit Topmasts Rigging Sails

Equipme

Number of Certificate 3961 3962 9284

Number of Certificate 3099

Iron Steam Ch or Steel Wire

Boats Pumps, N Windlass Engine R What arrar Coal Bunl Number of Ceiling in Cargo Ha State size N Number of and 1# Bulwarks The above Builder's S

Form

The boiler is made in London and is supplied in accordance with the specifications of the Lloyd's Register of Shipping.

Certificate to be sent to Liverpool Office

apt. 9a.

Port of Dublin Town Continuation of Report No. 2739 dated 17th October 1903 on the

S.P. Buffalo

Compared with our Rules requirements, the only deficiencies were found in the pumping arrangements, and in the diameter of the shafting.

By the former pumping arrangements the holds or machinery spaces could have been flooded by an inadvertent. This has been rectified, and in addition, a suction has been fitted from the main and donkey lifts pumps to the fore hold, also a donkey suction to the Condenser has been fitted.

The shafting has not been dealt with, but as the engines are fitted aft, the intermediate shafting is short, and is well supported. The propeller shaft has an efficient anti bearing on the rudder post, which will considerably reduce the bending stress on the shaft, and the vessel is of the old fine lined type, with deep immersion at all drafts. The crank shafting has ~~long~~ ^{long} length of bearing surface - over 12 ~~times~~ ^{times} the length, and the slide valves being outside the cylinders, there is practically no overhang of the shaft between the bearings, thereby reducing the bending stresses on the shaft.

On trial under steam, the engines worked most satisfactorily, the valve of the relief frames to the slide valves being noticeable in the easy "reversing" and handling of the engines. The lifts and other pumps were also tested, and found to work satisfactorily.

The boiler has been tested by hydraulics to a little over 1 1/2 times the working pressure, and the main steam pipes to twice the working pressure, with satisfactory results. The scantlings of the boiler were ascertained by cut holes, and compared with the enclosed drawing.

We are respectfully of opinion, that the machinery of this vessel, though in one respect not strictly in accordance with the Rules, is yet in good and efficient condition, and is eligible to be classed B & M.S. 10-03.

H. J. Russell & Co.
Herbert M. Douc

DMS

