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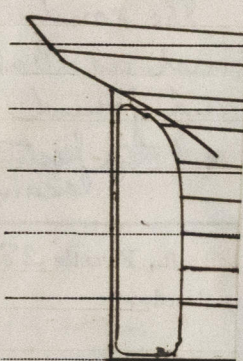
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P. S. Buffalo (Ans)

It is submitted that the Surveyor be informed
that in questions involving strength & soundness
a difference can be approved between vessels
as per 2nd ed of R.M.S. *Prohibited*
The 1st ed. is used when the arrangements & construction is not
in accordance with the Rules & not when the strength is deficient. It
is in view of the clear statement in the letter sent from
me that the Surveyor did not make it clear to the owner
that the vessel was actually fitted the greatest working pressure
of 10 lbs per sq inch. Making the pressure a
matter of the vessel will not be eligible for classification
at all.
make the selection & if the vessel is still at Queenstown
make properly reclassified

REPORT ON MACHINERY.

4.

No. 2730

Port of *Queenstown* Received at London Office *MUN. 19 OCT 1903*
Survey held at *Passage West* Date, first Survey *24 Aug* Last Survey *15 Oct* 1903
Book. *P. S. Buffalo* (Number of Vessels 11)
on the *P. S. Buffalo*
er *J. Collins* Built at *London* By whom built *James Iron Works Co* Tons { Gross *28 1/2*
es made at *London* By whom made *James Iron Works Co* Net *10 1/2*
made at *London* By whom made *James Iron Works Co* when built *1886*
made at *London* By whom made *James Iron Works Co* when made *1889*
tered Horse Power *Channel Dry Dock & Co* 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, Direct Acting* No. of Cylinders *2* No. of Cranks *2*
of Cylinders *23 1/2* Length of Stroke *24* Revs. per minute *90* Dia. of Screw shaft as per rule *1 1/2* Lgh. of stern bush *22*
of Tunnel shaft as per rule *1 1/2* Dia. of Crank shaft journals as per rule *1 1/2* Dia. of Crank pin *1 1/2* Size of Crank webs *2 1/2* Dia. of thrust shaft under
s *1 1/2* Dia. of screw *1 1/2* Pitch of screw *1 1/2* No. of blades *3* State whether moveable *Yes* Total surface *17 1/2*
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 1/2 x 4 1/2* B. & S. 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 valves on Engine room bulkheads always accessible *Yes*
All connections with the sea direct on the skin of the ship *No* Connected to *Rose on Valve* Are they Valves or Cocks *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 *No* How are they protected *Yes*
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 *Back & Engine Room*
ERS, &c.— (Letter for record *K*) Total Heating Surface of Boilers *145 1/2* Is forced draft fitted *No*
and Description of Boilers *one - Cylind - Single End* Working Pressure *90 lbs* Tested by hydraulic pressure to *150 lbs*
of test *5 1/2* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *52 1/2* No. and Description of safety valves to
boiler *2 - Rocket Spring* Area of each valve *9 1/2* 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 1/2* Length *10 1/2* Material of shell plates *Steel*
thickness *7* Range of tensile strength *28 3/4* Are they welded or flanged *No* Descrip. of riveting: cir. seams *Lap, Riv. Ring, seams Butte Riv. Riv.*
diameter of rivet holes in long. seams *1 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 *75 1/2* Working pressure of shell by rules *124 lbs* Size of manhole in shell *16 x 12*
of compensating ring *Yes* No. and Description of Furnaces in each boiler *3 - Hammer Ring* Material *Iron* Outside diameter *26*
th of plain part *3 1/2* Thickness of plates *3 1/2* 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*
th of stays to ditto: Sides *1 1/2 x 8* Back *1 1/2 x 8* Top *1 1/2 x 8* Stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *110 lbs*
erial of stays *Steel* Diameter at smallest part *1 1/2* Area supported by each stay *68 1/2* Working pressure by rules *110 lbs* Can plates in steam space:
erial *Steel* Thickness *3/4* Pitch of stays *14 1/2 x 1 1/2* How are stays secured *Nuts & Riv. Washers* Working pressure by rules *151 lbs* Material of stays *Steel*
meter at smallest part *1 1/2* Area supported by each stay *108 1/2* 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*
meter 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*
th across wide water spaces *13 1/2* Working pressures by rules *118 lbs* Girders to Chamber tops: Material *Iron* Depth and
thickness of girder at centre *Yes* Length as per rule *Yes* Distance apart *Yes* Number and pitch of Stays in each *Yes*
working pressure by rules *Yes* Superheater or Steam chest; how connected to boiler *Can the superheater be shut off and the boiler worked*
rately *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*
tiffened 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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Lloyd's Register
CRK93-0377 (1/2)
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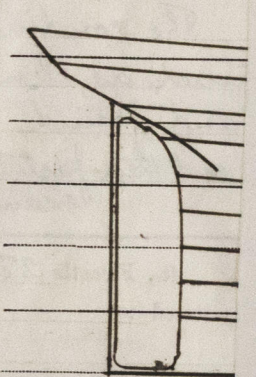
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P. Buffalo (Ans)

It is submitted that the surveyor be informed
that in questions involving strength & soundness
differences can be approved between vessels
as per 2nd ed of R. & M. S. ~~as per 2nd ed of R. & M. S.~~
The 2nd ed is used where the surveyor's own work is not
in with the Rules & not when differences are deficient. It
is in view of the clear statement in the letter sent from
you that the surveyor did not make it clear to the owner
under as actually fitted the greatest working pressure
- with 100 lbs per sq inch. Failing the pressure in
amount the vessel will not be eligible for classification
H.
make the selection & if the vessel is still at auction
values properly readjusted

REPORT ON MACHINERY.

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

in Survey held at Parade West Date, first Survey 24 Aug Last Survey 15 Oct 1903

Book. P.S. Buffalo (Number of Visits 11)

on the P.S. Buffalo Tons Gross 284 Net 107

er J. Collins Built at London By whom built James Iron Works Co When built 1886

es made at London By whom made James & Co when made 1889

A made at London By whom made James & Co when made 1889

tered Horse Power 81 Owners Channel Dry Docks & Co 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 21-42 Length of Stroke 27 Reg. per minute 90 Dia. of Screw shaft as per rule 7 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 12 1/2 Dia. of thrust shaft under 8 1/2

Dia. of screw 9-3 Pitch of screw 13-8 No. of blades 3 State whether moveable No 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 3-2

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 Value 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

in 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

TERS, &c.— (Letter for record K) Total Heating Surface of Boilers 1458 sq ft Is forced draft fitted No

and Description of Boilers one - Cylindrical Simple 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 - Vent Spring

Area of each valve 9-6 sq Pressure to which they are adjusted 95 lbs Are they fitted with easing gear Yes

least distance between boilers 6 Mean dia. of boilers 12-3 1/2 Length 10-9 Material of shell plates Steel

thickness 7 Range of tensile strength 28-30 Are they welded or flanged No Descrip. of riveting: cir. seams Lap, Riv. Rivg. seams Butt Rivg.

meter of rivet holes in long. seams 1/8 Pitch of rivets 4 1/2 Top of plates as width of butt straps 1 1/2

centages of strength of longitudinal joint 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 5-9 Thickness of plates 3 1/2 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 Cambr 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 66 sq Working pressure by rules 118 lbs and plates in steam space: Material Steel

Thickness 3/4 Pitch of stays 14 1/2 x 15 How are stays secured Welded Working pressure by rules 151 lbs Material of stays Steel

meter 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

ickness 4 Material of Lower back plate Steel Thickness 4 Greatest pitch of stays 13 Working pressure of plate by rules 167 lbs

imeter of tubes 3 Pitch of tubes 4 1/4 x 4 1/4 Material of tube plates Front Steel Thickness: Front 4 Back 4 Mean pitch of stays 14 1/2 x 15

ch across wide water spaces 13 1/2 Working pressures by rules 118 lbs Girders to Chamber tops: Material None Depth and 1 1/2

ickness of girder at centre ✓ Length as per rule ✓ Distance apart ✓ Number and pitch of Stays in each ✓

orking 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 ✓

orking pressure of end plates ✓ Area of safety valves to superheater ✓ Are they fitted with easing gear ✓

DONKEY BOILER—

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 _____ Descrip. _____
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 of Survey *During progress of work in shops* August 24th to 15th October
During erection on board vessel _____
Total No. of visits *11* Is the approved plan of main boiler forwarded herewith *✓*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The engine and boiler this vessel, which it is stated, were built and fitted on board 1899 for the British War Office, have been opened up over all parts*

Material of screw shaft *Not ascertained* 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 *✓*
non-corrosive *✓* If two liners are fitted, is the shaft lapped or protected between the liners *✓*

and inspection, No found on examination, that the design, material and workmanship have been of the highest class, and the upper has received every attention. With the exception of two well seen 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 the centrifugal circulating pump is of gunmetal throughout: all including the ones on the pumps, are fitted with rock gear: ship valves which are double ported, are each fitted with upper relief frames on the backs: the boiler has double gauge glasses, extra mountings: the stern tube is of gunmetal: the engine sea is of substantial construction, and the brass and copper appear to 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, 22nd Oct. 1903
Travelling Expenses (if any) £ 10 : 1 : 0

Committee's Minute

Assigned

TUES. 10 NOV 1903

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 keel.
- 3 Pair main bearing brasses.
- 3 Brass tumbling blocks with 8 liners for valve motion.
- 2 Thrust collars.
- 1 Grotte 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 gudgeons.
- 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)

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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	

License Town Office
 Certificate (if required) to be sent to
 (The Surveys are requested not to write on or below the space for Certificate)

apt. 9a.

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

S.S. "Buffalo"

Compared with our Rule 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 inadvertence. 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, except towards length of bearing surface - over 12 ~~inches~~ ^{inches} to ~~length~~ ^{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 value 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 test holes, and compared with the enginestock 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 &
Herbert M. Dove

One