

REPORT ON MACHINERY.

Port of Belfast

2 NOV 93

Received at London Office

No. in Survey held at Belfast Date, first Survey April 27th Last Survey November 1st 1893
Reg. Book. (Number of Visits 22)

on the Steel screw steamer "Wayyan" Tons { Gross 1483.8
Net 950.0
Master Thomas May Built at Belfast By whom built MacIlwaine & MacColl, Linn When built 1893

Engines made at Belfast By whom made MacIlwaine & MacColl, Linn when made 1893
Boilers made at Belfast By whom made MacIlwaine & MacColl, Linn when made 1893

Registered Horse Power 200 Owners Mersey Steamship Co, Linn. Port belonging to Liverpool
Nom. Horse Power as per Section 28 178

ENGINES, &c.— Description of Engines Triple Expansion No. of Cylinders Three

Diameter of Cylinders 19 1/2 : 32 1/2 : 54 Length of Stroke 39 Revolutions per minute 80 Diameter of Screw shaft 10.07
Diameter of Tunnel shaft 10 Diameter of Crank shaft journals 10 Diameter of Crank pin 10 Size of Crank webs 15 1/4 x 7 1/2

Diameter of screw 13" 6" Pitch of screw 15" 6" No. of blades 4 State whether moveable no Total surface 60 sq ft
No. of Feed pumps 2 Diameter of ditto 3 1/4" Stroke 19 1/2" Can one be overhauled while the other is at work yes

No. of Bilge pumps 2 Diameter of ditto 4" Stroke 19 1/2" Can one be overhauled while the other is at work yes
No. of Donkey Engines Three Sizes of Pumps Clarke Dodson duplex 7 x 4 x 6 Ballast No. and size of Suctions connected to both Bilge and Donkey pumps
In Engine Room one 2 1/2" & two 2 1/2" In Holds, &c. No 1 hold two 2 1/2" & two 2"

No 2 hold, one 2 1/2" in after well. Tunnel suction 2 1/4"
No. of bilge injections one sizes 5" Connected to condenser, or to circulating pump circ. p. Is a separate donkey suction fitted in Engine room & size yes 2 1/2"

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 yes
Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks Large ones valves, small, cocks

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 below
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 none 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

When were stern tube, propeller, screw shaft, and all connections examined in dry dock 11th Oct 1893 Is the screw shaft tunnel watertight yes
Is it fitted with a watertight door yes worked from upper Eng. Room platform.

BOILERS, &c.— (Letter for record S) Total Heating Surface of Boilers 2615 sq ft

No. and Description of Boilers One single ended Working Pressure 180 Tested by hydraulic pressure to 360
Date of test 15/9/93 Can each boiler be worked separately ✓ Area of fire grate in each boiler 60 sq ft No. and Description of safety valves to
each boiler Two, Cockburn's Area of each valve 8.29 sq in Pressure to which they are adjusted 185 lbs Are they fitted

with easing gear yes Smallest distance between boilers or uptakes and bunkers or woodwork 2' 0" Mean diameter of boilers 15' 9"
Length 11' 3" Material of shell plates Steel Thickness 1 3/8" Description of riveting: circum. seams centre treble long. seams double straps
Diameter of rivet holes in long. seams 1 3/8" Pitch of rivets 9 7/8" Lap of plates or width of butt straps 2 1/2 x 1 1/8"

Percentage of strength of longitudinal joint 86.0 Working pressure of shell by rules 182 Size of manhole in shell 16 x 12"
Size of compensating ring 3' 7" x 2' 6" x 1 3/8" No. and Description of Furnaces in each boiler 3 Morrison Material Steel Outside diameter 51"

Length of plain part top 19 1/2" Thickness of plates bottom 19 1/32" Description of longitudinal joint welded No. of strengthening rings ✓
Working pressure of furnace by the rules 185 Combustion chamber plates: Material Steel Thickness: Sides 9/16" Back 9/16" Top 9/16" Bottom 1/16"

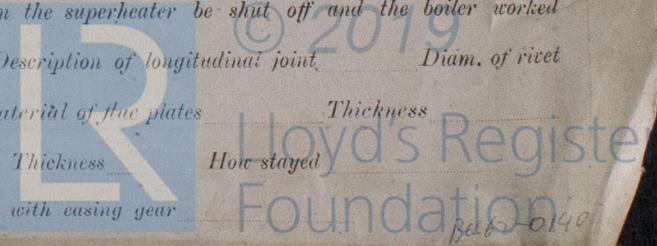
Pitch of stays to ditto: Sides 7 3/4" Back 7 3/4" Top 7 3/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 182
Material of stays Steel Diameter at smallest part 1 3/8" Area supported by each stay 60 sq in Working pressure by rules 193 End plates in steam space:

Material Steel Thickness 2 1/4" Pitch of stays 18 x 16 1/2" How are stays secured dout nuts Working pressure by rules 221 Material of stays Steel
Diameter at smallest part 2 1/8" Area supported by each stay 297 sq in Working pressure by rules 200 Material of Front plates at bottom Steel

Thickness 3/4" Material of Lower back plate Steel Thickness 5/8" Greatest pitch of stays as appx Working pressure of plate by rules 180
Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" Material of tube plates Steel Thickness: Front 11/16" Back 11/16" Mean pitch of stays 9 3/8"

Pitch across wide water spaces 14" Working pressures by rules 180 Girders to Chamber tops: Material Steel Depth and
Thickness of girder at centre two 8 3/8" x 3/4" Length as per rule 2' 6 3/4" Distance apart 7 3/4" Number and pitch of Stays in each three at 7 3/4"

Working pressure by rules 201 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 -



DONKEY BOILER— Description *Horizontal Two-flue*
 Made at *Belfast* By whom made *Mac Swaine & Mac Coll Ltd* When made *1893* Where fixed *On bridge deck*
 Working pressure *80* tested by hydraulic pressure to *160* No. of Certificate *170* Fire grate area *21 sq ft* Description of safety valves *Cockburns*
 No. of safety valves *2* Area of each *4.9 sq ft* Pressure to which they are adjusted *85 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Diameter of donkey boiler *7.9"* Length *7.9 1/4"* Material of shell plates *Steel* Thickness *7/16"*
 Description of riveting long seams *treble lap* Diameter of rivet holes *11/16"* Whether punched or drilled *drilled* Pitch of rivets *3 1/2"*
 Lap of plating *5 3/8"* Per centage of strength of joint Rivets *82.0* Thickness of shell *end* plates *5/8"* Radius of do. No. of Stays to do. *four 2 1/2"*
 Dia. of stays *2 1/4"* Diameter of furnace *Flue Top 2' 3 3/8" Bottom 2' 3 1/8"* Length of furnace *5' 7"* Thickness of furnace plates *7/16"* Description of joint *welded* Thickness of furnace crown plates *comb. cham. top 1 1/2" back 1 1/2" for 7/16"* Stayed by *1 1/4" steps 8 1/2" 4 9 3/4" pitch* Working pressure of shell by rules *80 lbs*
 Working pressure of furnace by rules *110 lbs* Diameter of uptake Thickness of uptake plates *5/8"* Thickness of water tubes *3"*

SPARE GEAR. State the articles supplied:— *Cast Iron solid propeller. Pair crank pin braces. Air pump bucket rod, head valve, seat & guard. Cir. pump spindle. 12 coup. bolts & nuts. 2 Cou. & 2 piston rod bolts & nuts. 6 holed down do. Bolts & nuts for pump ring, cyl cover & valve cover, 6 of each. Piston ring for each cyl. 2 Fed & 2 bridge pin valves & seats. Fed p. escape valve & spr. 3 cyl ditto. 12 boiler tubes. 12 condenser tubes. Set safety valve & spr.*
 The foregoing is a correct description, Assorted iron, bolts & nuts etc.
Mac Swaine & Mac Coll Ltd Manufacturer.
W. Mac Coll & Co. Directors

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery has been built & fitted under special survey & the work is good throughout. The boilers are made in accordance with the approved plans & were tested to double the working pressure. The steam pipe has also been tested to twice the working pressure. The engines have been tried under full steam & work satisfactorily. Howden's system of forced draught is fitted. The engines have a valve fitted at the back of the ordinary slide valves by which the steam from the higher receiver is excluded from the lower end of each cylinder, by which the engines become single acting, for working at reduced power. The electric light installation is fitted by Messrs Holmes of Newcastle, a report of the particulars will be forwarded. The machinery in my opinion renders the vessel eligible for the record of + LMC 11.93 in the Register Book.*

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It is submitted that this vessel is eligible for THE RECORD + LMC 11.93 -
[Signature]
 2/11/93 -

MACHINERY CERTIFICATE
 Certificate (if required) to be written.
 The amount of Entry Fee.. £ 2 : : : When applied for,
 Special £ 26 : 14 0 1 Nov 18 93
 Donkey Boiler Fee £ : : : When received, 4/9
 Travelling Expenses (if any) £ : : : 20.2.18.93
 Committee's Minute
 Assigned + LMC 11.93

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

FRI 5 NOV 1893

