

REPORT ON MACHINERY.

Port of Belfast MON. 23 NOV 1906
 Received at London Office _____ 18__
 Survey held at Belfast Date, first Survey 2nd Sept 1902 Last Survey 19th Nov 1903
 (Number of Visits 92)
 Name of the vessel S.S. Armora Tons { Gross 10522
 Net 5258
 Built at Belfast By whom built Harland & Wolff When built 1903
 Made at Belfast By whom made Harland & Wolff when made 1903
 Horse Power 1800 Owners Peninsular & Oriental S. N. Coyt belonging to Belfast
 Power as per Section 28 1799 Is Electric Light fitted Yes

S, &c.—Description of Engine Twin Screw Quadruple Expansion No. of Cylinders 8 No. of Cranks 8
 Diameter of Cylinders 29"-42"-60"-85" Length of Stroke 54 Revolutions per minute 85 Diameter of Screw shaft 16 1/2"
 Diameter of Tunnel shaft 15 3/5" as per rule 16 1/2" as fitted 17 1/2"
 Diameter of Crank shaft journals 16 1/2" Diameter of Crank pin 14 5/8" Size of Crank webs 32" x 12 1/2"
 Diameter of screw 18'-0" Pitch of screw 23'-0" No. of blades 8 State whether moveable Yes Total surface 4800 sq ft each
 Diameter of ditto 5 1/2" Stroke 27" Can one be overhauled while the other is at work Yes
 Diameter of ditto 5" Stroke 27" Can one be overhauled while the other is at work Yes
 No. and size of Suctions connected to both Bilge and Donkey pumps
 Room Six-4" Stroke holds Two 3' x 2 1/2' Holds, &c. Sixteen-32" Two-8"
 Connected to condenser, Yes Is a separate donkey suction fitted in Engine room & size Yes 2 at 4"
 Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes
 Are they Valves or Cocks Both
 Are the discharge pipes above or below the deep water line Above
 Are the blow off cocks fitted with a spigot and brass covering plate Yes
 How are they protected Wood Casings
 Are they accessible at all times Yes
 Are they arranged so as to prevent any communication between the sea and the bilges Yes
 Is the stern tube, propeller, screw shaft, and all connections examined in dry dock Before launching screw shaft tunnel watertight Stated to be
 worked from Upper Deck

S, &c.— (Letter for record) Total Heating Surface of Boilers 27493 sq ft Is forced draft fitted Yes
 Description of Boilers Two-Drum Double Ended Cylindrical Working Pressure 215 lbs Tested by hydraulic pressure to 430 lbs
 Can each boiler be worked separately Yes Area of fire grate in each boiler 116 sq ft Description of safety valves to 16 in S. End
 Area of each valve 15.9 sq ft Pressure to which they are adjusted 215 lbs Are they fitted Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork About 24" Mean diameter of boilers 14'-8"
 Material of shell plates Steel Thickness 1 1/8" Description of riveting: circum. seam Lap Rivet Long. seams Butt Rivet
 Pitch of rivets 10" Lap of plates 22 3/8" width of butt straps 22 3/8"
 Working pressure of shell by rules 248 lbs Size of manhole in shell 16" x 12"
 Description of longitudinal joint Weld No. of strengthening rings 4 3/4
 Thickness of plates 2 1/2" Description of longitudinal joint Weld No. of strengthening rings 4 3/4
 Working pressure by the rules 234 lbs Combustion chamber plates: Material Steel Thickness: Sides 5/8" Back 5/8" Top 3/4" Bottom 3/4"
 Working pressure by rules 218 lbs
 Material of stays Steel Diameter at smallest part 1 1/2" Area supported by 66 sq ft Working pressure by rules As above
 Working pressure by rules 228 lbs Material of stays Steel
 Material of Front plates at bottom Steel
 Material of Lower back plate Steel Thickness 1 1/8" Greatest pitch of stays 13 1/2" Working pressure of plate by rules 267 lbs
 Pitch of tubes 3 3/4" x 3 3/4" Material of tube plates Steel Thickness: Front 3/8" Back 3/4" Mean pitch of stays 8 1/2" x 7 1/2"
 Working pressures by rules 362 lbs with 7 Bunkers Girders to Chamber tops: Material Iron Depth and
 Distance apart 8 1/2" Number and pitch of Stays in each 3-8"
 Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked
 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
 Distance between rings Working pressure by rules End plates: Thickness How stayed
 Area of safety valves to superheater Are they fitted with easing gear

164 FITTED WITH CONTINUOUS LINER 5th Layer 25-11-03 And

DONKEY BOILER— Description *None*

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 boilers, enter the donkey boiler _____ Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____

Description of riveting long. seams _____ Diameter 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 _____ Descriptio _____

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 sheets*

The foregoing is a correct description for *Korlandt Wolff* Manufacturer.

During progress work in shops— *Sept 22, 26, 18, 19, 25, 30 Oct 2, 6, 9, 14, 20, 23, 29, 31 Nov 5, 11, 18, 21, 26 Dec 2, 4, 8, 10, 15, 18, 21, 23, 27, 31*

During erection on board vessel— *14, 18, 21, 26 Dec 2, 4, 8, 10, 15, 18, 21, 23, 27, 31*

Total No. of visits *72* and up to *19 Nov 1903*

General Remarks (State quality of workmanship, opinions as to class, &c.)

ENGINES—Length of stern bush *72"* Diameter of crank shaft journals *16.12* Diameter of thrust shaft under collars *17"*

BOILERS—Range of tensile strength *29-32* Are they welded or flanged *No* DONKEY BOILERS—No. *1* Range of tensile strength *✓*

Is the approved plan of main boiler forwarded herewith *✓* Is the approved plan of donkey boiler forwarded herewith *✓*

The machinery of this vessel has been constructed under special survey, and in accordance with the Rules. The workmanship throughout, and the materials used in its construction, are of the best description, and the spare gear is ample. On trial under steam in Belfast Lough the machinery worked satisfactorily.

In my opinion, it is eligible to have record **+ L.M.C.**

11-03. Forced draft, Electric Light.

The Electric Light installation is by Siemens, London. Report will be forwarded later. A list of the steel tests on the boilers is appended.— See Letters to the Secretary dated 25th Sept^r & 13th Oct^r 1902.

It is submitted that this vessel is eligible for THE RECORD **+ L.M.C. 11.03. FD. ELEC. LIGHT**

Rmd
24.11.03

The amount of Entry Fee £ *3* : - : When applied for, *21-11-1903*

Special £ *109* : *19* : When received, *27-11-03*

Donkey Boiler Fee £ : : *27-11-03*

Travelling Expenses (if any) £ : : *27-11-03*

Committee's Minute **TUES. 24 NOV 1903**

Assigned **+ L.M.C. 11.03 7D**

MACHINERY CERTIFICATE WRITTEN.

J.S. Marmora

List of Spare Gear.

Boilers:— 2 Complete sets manhole doors for 1 S. End boiler complete, and 1 set for S. E. boiler.

Set fire bars & heaters for 2 S. End & 1 S. End boilers & patterns for fire bars

4 Safety Valve Springs, 50 Ferrules for boiler tubes for fanges and considerable quantity of spare gear for forced draft arrangement.

Centrifugal Pumps:— Fan, slide valve, slide valve spindle, piston, piston rod, connecting-rod top & bottom end, brasses & bolts

Condenser:— 75 Condenser tubes, 225 Screwed flange & packing.

Cylinders, Main Cyl:— H. P. cylr cover: set of H. P. cover bolts set: 12 studs for cylr covers 6 studs cylr cover stuffing boxes; 4 studs for slide valve spindle stuffing boxes; 1 gland for each cylr stuffing box (cover end) made in valves; 4 cylr escape valve springs

Electric Light Machinery:— Eccentrics rod & strap, valve spindle and slide valve: set crank pin brasses: 2 H. P. pistons & rings: 2 L. P. do: 2 top end & 2 bottom end bolts; piston rod & brasses complete.

Pumps Main Cyl:— For pump bucket, rod of pump complete: for pump foot & head valve complete sets funnel & pack pump valves & seats: set lift pump do: set bath & sputum pumps do: 2 Feed pump escape valve springs: angle supply studs for all flange & valve pump valves

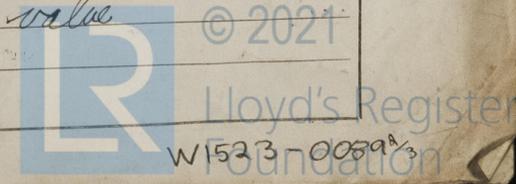
Pistons:— H. P. piston & packing rings complete: I. P. piston do: I. P. piston do: L. P. piston do: also complete sets packing rings all pistons additional.

Piston Rods:— H. P. & L. P. piston rods complete 1 set H. P. crosshead brasses: 2 set L. P. do: 1 set crank pin brasses with bolts complete

Propeller:— 2 Main: Prop, blades & set studs & nuts.

Shafting:— 1 Propeller shaft & set feathers for same 1/2 Crank shaft: 16 Propeller coupling bolts: 9 Crank coupling bolts

Slide Valves:— 2 H. P. piston valves complete: 2, circular grid face for do: 2 I. P. piston valves complete & 2 grid faces: 1 L. P. slide valve



Belfast

U.S.S. "Marmora"

List of Spare Parts, continued.

Slide Valve Spindles: - 1, H-P, 1, I.P.² and 1, I.P. Slide valve spindle complete: Pack for slide valve links: 4 sets brass liners for links: 1 H.P. & 1 I.P. eccentric sheave with bolts complete

Keels Fresh Water Pump: - Set valves & seats complete: 1 bucket ring: 1 piston ring.

Keels Bilge & Ballast Pump: - Suction & delivery valves and seats: 2 bucket rings: 1 piston ring

Keels General Pump: - Suction & delivery valves & seats 2 bucket rings: 1 piston ring

Keels Aux. Feed Pumps: - 2 set valves: 1 set of springs
Main - - - - - set suction & delivery valves & seats & guards complete: 1 bucket ring 1 packing ring: 1 piston ring: 60 valves: 48 springs

Sanitary Pump: - Suction & delivery valve seat, with valves: 4 bucket rings: 2 piston rings

Donkey Pumps

- 2 Keels Double Feed 17 1/2" x 13" x 26"
- 2 - " Harbour & Auxiliary Feed 8" x 6" x 15"
- 2 - " Ballast 8" x 9 1/2" x 15"
- 1 - " Sanitary Fire set 8" x 10" x 21"
- 1 - " Fresh Water 5" x 5" x 12"
- 2 - " Ash Ejector Duplex 12" x 7 1/2" x 10"
- 2 Main Engine Centrifugal Circulating Pumps, with two engines to each Pump

R. J. Reynolds

