

REPORT ON MACHINERY.

3876
 Date of writing Report July 10th 1911 When handed in at Local Office July 20th 1911 Port of Antwerp
 No. in Survey held at Antwerp Date, First Survey June 21st Last Survey July 1st 1911
 Reg. Book. on the Twin screw steel steamer "Leopoldville" (Number of Visits six)
 Master J. Bernaerts Built at Belfast By whom built Harland & Wolff Ltd Tons {Gross / Net} When built 1908
 Engines made at Belfast By whom made Harland & Wolff when made 1908
 Boilers made at Belfast By whom made Harland & Wolff when made 1908
 Registered Horse Power Owners Cie Belge Maritime du Congo Port belonging to Antwerp
 Nom. Horse Power as per Section 28 816 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &C.—Description of Engines Quadruple twin screw No. of Cylinders 4 each set No. of Cranks 4 each set
 Dia. of Cylinders 21"-30"-43"-61 1/2" Length of Stroke 48" Revs. per minute 80 Dia. of Screw shaft as per rule 13.19" Material of screw shaft Steel
 as fitted 13.5" Is the screw shafts 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 (rubber) 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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 14'-6"
 Dia. of Tunnel shaft as per rule 11.9" Dia. of Crank shaft journals as per rule 12.45" Dia. of Crank pin 13" Size of Crank webs 9 1/4" Dia. of thrust shaft under collars 13" Dia. of screws 15'-10" Pitch of Screw 19'-6" No. of Blades 3 State whether moceable Yes Total surface 61 1/2 # each propeller
 No. of Feed pumps Two Diameter of ditto 4" Stroke 28" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps Two Diameter of ditto 4 1/2" Stroke 28" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines Four Sizes of Pumps 7 1/2" x 9" x 10", 7 1/2" x 5" x 12", 6" x 6" x 6" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 2-4" bilge main on donkeys, 2-4" bilge main on engine In Holds, &c. Holds 10 off 3 1/2" dia Eng room 2 off 3 1/2" dia
Tunnel 1 in each 3" dia, for peak 1 off 3" N° 1 tank 1 off 6" N° 5, 2 off 3 1/2" dia, N° 2, 3, 4 tanks 2 off 6" dia, N° 7 tank 1 off 6" dia
 No. of Bilge Injections 2 sizes 8" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 2-4"
 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 None
 Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Valves & 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 Not seen but stated to be.
 What pipes are carried through the bunkers None How are they protected Yes
 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 Yes of Stern Tube Yes Screw shaft and Propeller Yes
 Are the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight doors Yes worked from platform above main deck.

BOILERS, &C.—(Letter for record Yes) Manufacturers of Steel David Colville & Sons Ltd.
 Total Heating Surface of Boilers 11948 # Is Forced Draft fitted Yes No. and Description of Boilers Four cylindrical multitubular
 Working Pressure 215 lbs Tested by hydraulic pressure to Yes Date of test Yes No. of Certificate Yes
 Can each boiler be worked separately Yes Area of fire grate in each boiler 67 # No. and Description of Safety Valves to each boiler 2 Spring loaded Area of each valve 11045 # Pressure to which they are adjusted 215 lbs Are they fitted with easing gear Yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 6 feet Mean dia. of boilers 15'-3" Length 12'-0" Material of shell plates Steel
 Thickness 1 5/8" Range of tensile strength 29-32 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams T.R. lap
 long. seams T.R. Double Diameter of rivet holes in long. seams 1 5/8" Pitch of rivets 10" butt straps 1-11"
 Per centages of strength of longitudinal joint rivets 88.6% Working pressure of shell by rules 250 lbs Size of manhole in shell 16" x 12"
 plate 83.75% Size of compensating ring 28" x 32" x 1 5/8" No. and Description of Furnaces in each boiler 3 Morrison's type Material Steel Outside diameter 4'-1 3/4"
 Length of furnace top 8'-6" Thickness of plates crown 2.3" Description of longitudinal joint Yes No. of strengthening rings Yes
 bottom 3.2" Working pressure of furnace by the rules 240 lbs Combustion chamber plates: Material Steel Thickness: Sides 3/32" Back 3/32" Top 3/32" Bottom 1/16"
 Pitch of stays to ditto: Sides 7 3/4" x 7 3/4" Back 7 3/4" x 7 3/4" Top 7 3/4" x 7 3/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 248 lbs
 Material of stays Steel Area at smallest part 7.76 # Area supported by each stay 60.6" Working pressure by rules 264 lbs End plates in steam space: Material Steel Thickness 1 1/4" Pitch of stays 17 5/8" x 15 3/4" How are stays secured Drill nuts Working pressure by rules 264 lbs Material of stays Steel
 Diameter at smallest part 7.06 # Area supported by each stay 278.37 # Working pressure by rules 263 Material of Front plates at bottom Steel
 Thickness 1 1/4" Material of Lower back plate Steel Thickness 5/16" Greatest pitch of stays 16" Working pressure of plate by rules 224 lbs
 Diameter of tubes 2 1/2" Pitch of tubes 3 3/4" x 3 3/4" Material of tube plates Steel Thickness: Front 1/8" Back 1/16" Mean pitch of stays 7 1/2"
 Pitch across wide water spaces 13 3/4" Working pressures by rules 295 lbs Girders to Chamber tops: Material Mild steel Depth and thickness of girder at centre 9 1/2" x 7/8" x 7" Length as per rule 2-7" Distance apart 7 3/4" Number and pitch of stays in each Three 7 3/4"
 Working pressure by rules 240 lbs Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked separately Yes
 Diameter Yes Length Yes Thickness of shell plates Yes Material Yes Description of longitudinal joint Yes Diam. of rivet holes Yes Pitch of rivets Yes Working pressure of shell by rules Yes Diameter of flue Yes Material of flue plates Yes Thickness Yes
 If stiffened with rings Yes Distance between rings Yes Working pressure by rules Yes End plates: Thickness Yes How stayed Yes
 Working pressure of end plates Yes Area of safety valves to superheater Yes Are they fitted with easing gear Yes

Screw shafts reamed at Belfast 9.10

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. _____ Description _____

Made at _____ By whom made _____ When made _____ Where fixed _____

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:— 1 set of connecting rod brasses, 1 air pump bucket + rod, 1 spindle + impeller for circulating pump, 1 air pp lead valve seat + guard, 1 set of air pump valves, 2 main beam bolts + nuts, 2 connecting rod bolts + nuts top + bottom ends, 8 screw shaft coupling bolts + nuts, 1 set of piston rings for HP, IP¹, IP², + LP cylinders, 2 main engine feed pump valves + seats, 2 main engine bilge pump valves + seats, 12 boiler tubes

The foregoing is a correct description,
 For Harland & Wolff Ltd Belfast Manufacturer.
 J. Cunningham Director

During progress of work in shops ---
 Dates of Survey while building
 Total No. of visits _____

Is the approved plan of main boiler forwarded herewith Yes

----- " donkey " -----

Dates of Examination of principal parts—Cylinders 23-6-11 Slides 23-6-11 Covers 23-6-11 Pistons 23-6-11 Rods 23-6-11

Connecting rods 23-6-11 Crank shaft 23-6-11 Thrust shaft 23-6-11 Tunnel shafts 23-6-11 Screw shaft 22-4-11 Propeller Ditto

Stern tube Ditto Steam pipes tested Engine and boiler seatings 23-6-11 Engines holding down bolts 23-6-11

Completion of pumping arrangements Boilers fixed Engines tried under steam 1-7-11

Main boiler safety valves adjusted 30-6-11 Thickness of adjusting washers Conte " 0 13/32 " 0 13/32 " 0 13/32 " 0 13/32 " 0 13/32 " 0 13/32 " 0 13/32 "

Material of Crank shaft Steel Identification Mark on Do. Material of Thrust shaft Steel Identification Mark on Do.

Material of Tunnel shafts Steel Identification Marks on Do. Material of Screw shafts Steel Identification Marks on Do.

Material of Steam Pipes Copper Test pressure

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

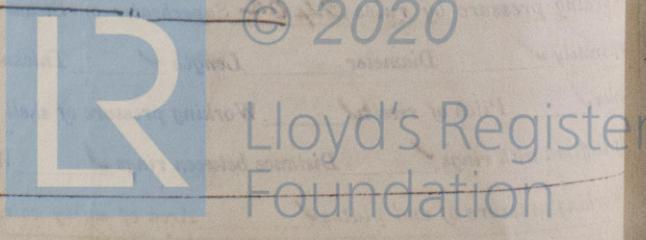
With the exception of the screw shafts, stern bush & sea-cocks, & the propeller, the whole of the main & auxiliary opened out examined & found in good condition, the four main boiler & mountings opened out examined & found in good condition, steam pipes, etc. the general arrangement of pipes, cocks & valves are in accordance with the rules. The workmanship was found to be of the highest quality & the machinery in my opinion merits the favourable consideration of the Committee for the highest class.

Spare gear continued:— 50 condenser tubes, 100 ferrules, 1 set of springs for cylinder escape valves, 2 safety valves pump, 2 propeller blades, 1 propeller shaft, 1 HP valve spindle, with deck bush, 6 piston junk ring bolts, studs for piston + valve rod glands, 2 main + 2 auxiliary feed valves, 12 studs for cylinder + 12 studs for casing covers, 1 set of valves for bilge feed pump, General Service pump + Auxiliary feed pump, + a quantity of nuts bolts, gaskets + bars of various sizes.

The amount of Entry Fee .. £	:	:	When applied for,
Special	£	618-	5/7 1911
Donkey Boiler Fee	£	:	When received,
Travelling Expenses (if any) £	:	:	19/7 1911

It is submitted that this vessel is eligible for THE RECORD LMC 7-11. FD. A.E. Ferminier Engineer Surveyor to Lloyd's Register of British & Foreign Shipping. 27/7/11

Committee's Minute
 Assigned
 TUE JUL 25 1911
 L.M.C. 7-11



Certificate (if required) to be sent to the Registrar of Shipping.