

REPORT ON MACHINERY.

No. 75 d 8.
MON. SEP. 3 - 1912

Received at London Office

Date of writing Report 16.8.12 When handed in at Local Office 16.8.12 Port of Middlesbrough
 Date, First Survey 11 May Last Survey 17 Aug. 1912
 No. in Survey held at Stockton-on-Tees
 on the Steel Screw Steamer "NURTURETON" (S.S.N. 471) Tons Gross 6059.00 Net 4506.99
 Master J. G. Dowell Built at Stockton By whom built Messrs Roper & Sons When built 1912
 Engines made at Stockton By whom made Messrs Blair & Co Ltd (No 1739) when made 1912
 Boilers made at Stockton By whom made Messrs Blair & Co Ltd when made 1912
 Registered Horse Power _____ Owners Wharfedale & Son Port belonging to Newcastle
 Nom. Horse Power as per Section 28 448 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted no

ENGINES, &c.—Description of Engines Tri-compound No. of Cylinders 3 No. of Cranks 3
 Dia. of Cylinders 25 1/2 - 43 - 71 Length of Stroke 48 Revs. per minute 60 Dia. of Screw shaft as per rule 14.54 Material of screw shaft iron
 Is 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 in one 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 tight fit
 If two liners are fitted, is the shaft lapped or protected between the liners _____ Length of stern bush 5'-4"
 Dia. of Tunnel shaft as per rule 12.94 Dia. of Crank shaft journals as per rule 13.58 Dia. of Crank pin 14 3/4 Size of Crank webs 28 1/2 x 9 1/2 Dia. of thrust shaft under collars 14 3/4 Dia. of screw 17.9 Pitch of Screw 17'-6" No. of Blades 4 State whether moveable no Total surface 100 sq ft
 No. of Feed pumps 2 Diameter of ditto 3 1/2 Stroke 34 Can one be overhauled while the other is at work yes
 No. of Bilge pumps 2 Diameter of ditto 5 Stroke 34 Can one be overhauled while the other is at work yes
 No. of Donkey Engines 3 Sizes of Pumps 2 Ballast 10" x 10" + 10" x 13" No. and size of Suctions connected to both Bilge and Donkey pumps fed 6" x 18" weirs
 In Engine Room will 3 @ 3 1/2 In Holds, &c. nos 3, 4 + 5 holds 2 each @ 3 1/2
nos 1 + 2 holds one each @ 3 1/2; Tunnel well 1 @ 2 1/2
 No. of Bilge Injections 1 sizes 7" Connected to condenser, or to circulating pump yes Is a separate Donkey Suction fitted in Engine room & size yes - 4"
 Are all the bilge suction pipes fitted with roses yes Are the roses in Engine room always accessible yes Are the sluices on tunnel weirs bulkheads always accessible yes
 Are all connections with the sea direct on the skin of the ship yes 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
 What pipes are carried through the bunkers forward hold suction How are they protected wood ceiling
 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 5.7.12 of Stern Tube 5.7.12 Screw shaft and Propeller 17.7.12
 Is the Screw Shaft Tunnel watertight see hull rep Is it fitted with a watertight door yes worked from Top platform

BOILERS, &c.—(Letter for record (5)) Manufacturers of Steel Messrs John Spencer & Sons
 Total Heating Surface of Boilers 7841 Is Forced Draft fitted no No. and Description of Boilers 3 Single ended (2 main + 1 aux)
 Working Pressure 180 Tested by hydraulic pressure to 360 Date of test 21.6.12 No. of Certificate 4896
 Can each boiler be worked separately yes Area of fire grate in each boiler 68.5 sq ft No. and Description of Safety Valves to each boiler 2 direct spring Area of each valve 8.29 sq ft Pressure to which they are adjusted 185 Are they fitted with easing gear yes
 Smallest distance between boilers or uptakes and bunkers or woodwork 1'-9" Mean dia. of boilers 16'-9" Length 11'-6" Material of shell plates steel
 Thickness 1 1/2 Range of tensile strength 28 - 32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams 2 R. lap
 long. seams 2 B - 3 Riv Diameter of rivet holes in long. seams 1 3/8 Pitch of rivets 9 1/4 Lap of plates on width of butt straps 20 1/8 x 1 1/4
 Per centages of strength of longitudinal joint rivets 89.0 Working pressure of shell by rules 183 Size of manhole in shell 16" x 12"
 Size of compensating ring 7 5/8 x 1 1/2 No. and Description of Furnaces in each boiler 3 Morrison Material steel Outside diameter 49 7/8
 Length of plain part top 12 Thickness of plates bottom 32 Description of longitudinal joint weld No. of strengthening rings _____
 Working pressure of furnace by the rules 190 Combustion chamber plates: Material steel Thickness: Sides 1/2 Back 1/2 Top 1/2 Bottom 3/2
 Pitch of stays to ditto: Sides 8 3/8 x 10 1/2 Back 9 1/2 x 9 3/8 Top 9 3/4 x 9 1/4 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 183
 Material of stays steel Diameter at smallest part 1.59 Area supported by each stay 84.2 Working pressure by rules 213 End plates in steam space: Material steel Thickness 1 1/2 Pitch of stays 22 1/2 x 19 3/8 How are stays secured nuts + 9 x 1 washers Working pressure by rules 182 Material of stays steel
 Diameter at smallest part 3.16 Area supported by each stay 442 Working pressure by rules 184 Material of Front plates at bottom steel
 Thickness 1" Material of Lower back plate steel Thickness 1 1/2 Greatest pitch of stays 15 1/2 x 9 3/8 Working pressure of plate by rules 271
 Diameter of tubes 3 1/2 Pitch of tubes 4 3/8 x 4 3/8 Material of tube plates steel Thickness: Front 1 1/2 Back 1 3/8 Mean pitch of stays 9 5/8
 Pitch across wide water spaces 14 1/2 Working pressures by rules 181 Girders to Chamber tops: Material steel Depth and thickness of girder at centre 8" x 2" Length as per rule 32 Distance apart 9 3/4 Number and pitch of stays in each 2 @ 9 1/4
 Working pressure by rules 192 Superheater or Steam chest; how connected to boiler none 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 holes _____ Pitch of rivets _____ Working pressure of shell by rules _____ Diameter of flue _____ Material of flue plates _____ Thickness _____
 If 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 _____

W685 - 0006

VERTICAL DONKEY BOILER—

Manufacturers of Steel *Home*

No. _____ Description _____
 Made at _____ By whom made _____
 Working pressure tested by hydraulic pressure to _____ Date of test _____ When made _____ Where fixed _____
 Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ Fire grate area _____ Description of Safety _____
 If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Dia. of donkey boiler _____ Date of adjustment _____
 Material of shell plates _____ Thickness _____ Range of tensile strength _____ Descrip. of riveting long seams _____ Length _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____
 Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____ Plates _____
 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:— *Two each of con. rod top end, bottom end, and main bearing bolts and nuts: one set of coupling bolts and nuts, one set feed and bilge pump valves; assorted bolts & nuts: iron of various sizes: 1/3" crank shaft; one tail end shaft and one propeller.*

The foregoing is a correct description,

FOR BEAR & CO., LIMITED.
Bro Kettle ship Manufacturer.

Dates of Survey while building
 During progress of work in shops -- *SECRETARY, 19th May 1912*
 During erection on board vessel -- *July 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, June 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31*
 Total No. of visits *37*

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

Dates of Examination of principal parts—Cylinders *31.5.12* Slides *29.5.12* Covers *24.5.12* Pistons *6.6.12* Rods *6.6.12*
 Connecting rods *29.5.12* Crank shaft *11.6.12* Thrust shaft *30.5.12* Tunnel shafts *29.5.12* Screw shaft *3.7.12* Propeller *1.7.12*
 Stern tube *26.6.12* Steam pipes tested *23.7.12* Engine and boiler seatings *5.7.12* Engines holding down bolts *22.7.12*
 Completion of pumping arrangements *7.8.12* Boilers fixed *7.8.12* Engines tried under steam *7.8.12*
 Main boiler safety valves adjusted *7.8.12* Thickness of adjusting washers *PBl P-1/32 S-3/8; SBl S-1/2; Aux FV 1/2, AV 3/8*
 Material of Crank shaft *Ing steel* Identification Mark on Do. *6745* Material of Thrust shaft *Ing steel* Identification Mark on Do. *8693-N*
 Material of Tunnel shafts *Ing steel* Identification Marks on Do. *8693-N* Material of Screw shafts *iron* Identification Marks on Do. *6745*
 Material of Steam Pipes *Solid drawn copper (7 1/4 x 5/8; 5 1/4 x 1/4)* Test pressure *400 lbs.*

General Remarks (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been built under special survey. The materials and workmanship are sound and good. The boilers and main steam pipes were tested by hydraulic pressure and the engines and boilers examined under steam and all found satisfactory. The machinery of this vessel is now in a good and safe working condition and eligible in my opinion to have the notation of LMC-8.12 in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD, + LMC 8.12.

J.W.M.
J.W.M.
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

The amount of Entry Fee .. £ *3-0-0* When applied for, *19.8*
 Special .. £ *42-8-0*
 Donkey Boiler Fee .. £ *-*
 Travelling Expenses (if any) £ *-* When received, *21.8.12*

Committee's Minute
 Assigned *TUE SEP 3-1912*
+ LMC 8.12

MACHINERY CERTIFICATE WRITTEN.

