

REPORT ON MACHINERY.

Port of Sunderland

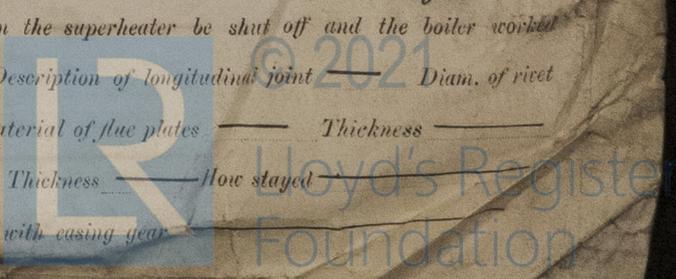
14 JUN. 92

No. in Survey held at S. Land Date, first Survey January 2/92 Last Survey May 31 1892
 Reg. Book. on the S/S "Grangewood" (Number of Visits 29)
 Master A. N. Saltou Built at S. Land By whom built R. Thompson & Sons When built 1892
 Engines made at S. Land By whom made G. Clark & Co. when made 1892
 Boilers made at " By whom made " when made 1892
 Registered Horse Power 220 210 Owners G. W. Morgan & Co. Port belonging to London
 Nom. Horse Power as per Section 28 234

Tons { Gross 2539.4
 Net 1630.88

ENGINES, &c. — Description of Engines 3rd compound No. of Cylinders 3
 Diameter of Cylinders 23" 3 1/2" 6 1/2" Length of Stroke 39 Revolutions per minute 65 Diameter of Screw shaft as per rule 10 7/8"
 Diameter of Tunnel shaft as per rule 10 7/8" Diameter of Crank shaft journals 11 1/4" Diameter of Crank pin 11 1/4" Size of Crank webs 8 3/8" x 19"
 Diameter of screw 15 ft - 6" Pitch of screw 16 ft - 9" No. of blades 4 State whether moveable Yes Total surface 75 ft²
 No. of Feed pumps 2 Diameter of ditto 3" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Bilge pumps 2 Diameter of ditto 4 1/4" Stroke 24" Can one be overhauled while the other is at work Yes
 No. of Donkey Engines 2 Sizes of Pumps 8" x 10" & 3 1/2" x 5 1/2" x 5" No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room 3 Suctions of 3" diam each In Holds, &c. 2 Suctions of 2 1/2" diam. to
No. 1, 2, 3 & 4 heads. 1 of 2 1/2" to after well
 No. of bilge injections 1 sizes 4" 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 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 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 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 new vessel Is the screw shaft tunnel watertight Yes
 Is it fitted with a watertight door Yes worked from top platform

BOILERS, &c. — (Letter for record R.) Total Heating Surface of Boilers 3590 ft²
 No. and Description of Boilers 2 Cyl. multi. Single ended Working Pressure 160 Tested by hydraulic pressure to 320 lbs.
 Date of test 13/4/92 Can each boiler be worked separately Yes Area of fire grate in each boiler 54 ft² No. and Description of safety valves to
 each boiler 2 Spring Area of each valve 5.99 Pressure to which they are adjusted 165 lbs. Are they fitted
 with casing gear Yes Smallest distance between boilers or uptakes and bunkers or woodwork 15" Mean diameter of boilers 13 ft 9"
 Length 10 feet Material of shell plates Steel Thickness 1 3/16" Description of riveting: circum. seams d. r. lap long. seams t. r. butt
 Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 5/16" Lap of plates or width of butt straps 19" Straps
 Per centages of strength of longitudinal joint 90 Working pressure of shell by rules 160 lbs. Size of manhole in shell 16" x 13"
 Size of compensating ring 8 3/4" x 1 1/4" No. and Description of Furnaces in each boiler 3 plain Material Steel Outside diameter 39"
 Length of plain part top 6" 1" Thickness of plates crown 2 3/32" Description of longitudinal joint welded No. of strengthening rings ✓
bottom 6" 5" bottom 32"
 Working pressure of furnace by the rules 162 lbs. Combustion chamber plates: Material Steel Thickness: Sides 1 1/2" Back 7/16" Top 1 1/2" Bottom 1 1/2"
 Pitch of stays to ditto: Sides 8 3/8" x 4 1/2" Back 8" x 8 1/4" Top 8 3/8" x 8 1/4" stays are fitted with nuts or riveted heads nuts Working pressure by rules 160 lbs.
 Material of stays Iron Diameter at smallest part 1 1/2" Area supported by each stay 66 in² Working pressure by rules 16 lbs. End plates in steam space:
 Material Steel Thickness 1 3/32" Pitch of stays 20 7/8" x 18 3/8" How are stays secured d. nuts Working pressure by rules 16 lbs. Material of stays Steel
 Diameter at smallest part 3 5/32" Area supported by each stay 383 in² Working pressure by rules 183 Material of Front plates at bottom Steel
 Thickness 1 1/8" Material of Lower back plate Steel Thickness 5/8" Greatest pitch of stays 13" Working pressure of plate by rules 186 lbs.
 Diameter of tubes 3 1/4" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 9"
 Pitch across wide water spaces 14 1/4" Working pressures by rules 25 1/2 lbs. Girders to Chamber tops: Material Steel Depth and
 thickness of girder at centre 8 3/4" x 1 1/2" Length as per rule 30 3/4" Distance apart 8 1/16" Number and pitch of Stays in each 2 of 8 5/8"
 Working pressure by rules 172 lbs. 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 casing gear —



2 DONKEY BOILERS Description *Vertical. 3 cross tubes*
 Made at *Stockton* By whom made *Riley Bros.* When made *4-92* Where fixed *Stokehole*
 Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *446* Fire grate area *18 sq ft* Description of safety valves *Spring*
 No. of safety valves *1* Area of each *9.6 sq ft* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
 Diameter of donkey boiler *5'-6"* Length *13'-0"* Material of shell plates *Steel* Thickness *3/8"*
 Description of riveting long seams *Cap double* Diameter of rivet holes *1 3/16"* Whether punched or drilled *P* Pitch of rivets *2 1/16"*
 Lap of plating *4 1/2"* Per centage of strength of joint Rivets *83.8* Plates *41.1* Thickness of shell crown plates *1/2"* Radius of do. No. of Stays to do. *6*
 Dia. of stays *1 1/2"* Diameter of furnace Top *4'-5"* Bottom *4'-11 1/4"* Length of furnace *4'-4 1/4"* Thickness of furnace plates *7/16"* Description of joint *Lap Single* Thickness of furnace crown plates *3/8"* Stayed by *6 stays of 1 1/2" dia* Working pressure of shell by rules *80 lbs*
 Working pressure of furnace by rules *87.3 lbs* Diameter of uptake *13"* Thickness of uptake plates *7/16"* Thickness of water tubes *3/8"*

SPARE GEAR. State the articles supplied:— *1 set of connecting rod bolts and nuts. 2 main bearing bolts and nuts. 1 set of coupling bolts and nuts. 1 set of feed and bilge pump valves. nuts bolts and assorted iron.*

The foregoing is a correct description,

George Blankin Manufacturer. *marine engines boilers*

General Remarks (State quality of workmanship, opinions as to class, &c. *Machinery and boilers constructed under special survey, materials and workmanship good and efficient. In my opinion this vessel is eligible for the notation of H.M.C. 5-92 in the Register Book.*

It is submitted that this vessel is eligible for the notation of H.M.C. 5-92.

The amount of entry fee... not to write on or below the space for Committee's Minute.

Certificate (if required) to be sent to
 The amount of Entry Fee.. £ *2 : 0 : 0* When applied for, *31 May 1892*
 Special £ *31 : 14*
 Donkey Boiler Fee £ When received, *1 June 1892*
 Travelling Expenses (if any) £

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

Committee's Minute

FRI 17 JUN 1892

+ LMC 5,92



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