

REPORT ON MACHINERY.

Port of Belfast.

Received at London Office **MON 10 NOV 1890**

No. 3806

No. in Survey held at Belfast
Reg. Book. Supt.

Date, first Survey 12th Feby. Last Survey 6th Nov 1890.

(Number of Visits 25)

22 on the stul screw steamer "Sobraon"

Tons } Gross 3185
Net 2055

Master N. Bannatyne Built at Belfast By whom built Harland & Wolff When built 1890

Engines made at Belfast By whom made Harland & Wolff when made 1890

Boilers made at - do. - By whom made - do. - when made 1890

Registered Horse Power 300 Owners The African Steam S. Co. Port belonging to Liverpool
Req. Speed 10 1/2 knots.

ENGINES, &c.—

Description of Engines Tri-compound D. A. J. S. C. No. of Cylinders 3

Diam. of Cylinders 22-36-60 Length of Stroke 48 Rev. per minute 72 Point of Cut off, High Pressure .66 Low Pressure .55

Diameter of Screw shaft 12 1/2 Diam. of Tunnel shaft 12 Diam. of Crank shaft journals 12 1/2 Diam. of Crank pin 12 1/2 size of Crank webs 16 x 9

Diameter of screw 16-0 Pitch of screw 17-3 No. of blades 4 state whether moveable no total surface 79

No. of Feed pumps 2 diameter of ditto 3 1/2 Stroke 24 Can one be overhauled while the other is at work Yes.

No. of Bilge pumps 2 diameter of ditto 4 Stroke 24 Can one be overhauled while the other is at work Yes.

Where do they pump from Feed from hotwell, Bilge from all holds. & 1/3 space fore peak & tunnel.

No. of Donkey Engines 3 Size of Pumps 1 Dup. 6" x 4" 16" x 2 1/2" suction Where do they pump from Sea, hotwell, fresh water
and ballast tanks, boilers all bilges in holds & 1/3 spaces and tunnel.

Are all the bilge suction pipes fitted with roses Yes Are the roses always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes

No. of bilge injections One and sizes 5 1/2 Are they connected to condenser, or to circulating pump circ. suction.

How are the pumps worked? By levers and levers from two after engines.

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Cocks and Valves

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
except air pump which is 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 accessible at all times Yes.

Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges Yes.

When were stern tube, propeller, screw shaft, and all connections examined in dry dock 8th Sept-90 before launching.

Is the screw shaft tunnel watertight Yes and fitted with a sluice door Yes worked from upper deck.

BOILERS, &c.—

No. of Boilers Two Description obla lined. Imult. Cvi. Material Steel Letter (for record) 20th 11-89

Working Pressure 180 lbs. Tested by hydraulic pressure to 360 Date of test 20th Sept. 1890. No 91. Cert.

Description of superheating apparatus or steam chest None.

Can each boiler be worked separately Yes Can the superheater be shut off and the boiler worked separately ✓

No. of square feet of fire grate surface in each boiler 61 Description of safety valves 2 Cockburns No. to each boiler Two

Area of each valve 8.3 sq in Are they fitted with easing gear Yes No. of safety valves to superheater ✓ area of each valve ✓

Are they fitted with easing gear ✓ Smallest distance between boilers and bunkers or woodwork 24" Diameter of boilers 11-6"

Length of boilers 17-0 description of riveting of shell long. seams obla B straps circum. seams Triple double Thickness of shell plates 1 1/2"

Diameter of rivet holes 1 1/4" whether punched or drilled drilled pitch of rivets 8 1/2" Lap of plating 18 1/2 3/4 B.S.

Per centage of strength of longitudinal joint 85. working pressure of shell by rules 180 lbs. size of manholes in shell 12 x 16"

Size of compensating rings 23 x 27 x 1 1/4 in. diam. No. of Furnaces in each boiler 4 Description of Furnaces Purves pt.

Outside diameter 38" length 6-9" thickness of plates 9/16" description of joint welded if rings are fitted -

Greatest length between rings ✓ working pressure of furnace by the rules 184 lbs. combustion chamber plating, thickness, sides 19/32" back ✓ top 5/8"

Pitch of stays to ditto, sides 7 3/4" back ✓ top 8 1/2 x 7 3/4" If stays are fitted with nuts or riveted heads Nuts on the working pressure of plating by rules 180 lbs. Diameter of stays at smallest part 1 3/4" working pressure of ditto by rules 197 lbs. end plates in steam space, thickness 1"

Pitch of stays to ditto 18 x 16 1/4" how stays are secured obla nuts and large washers 14 x 1" riveted to plate working pressure by rules 233 lbs with C-240. diameter of stays at smallest part 2 3/4" steel working pressure by rules 190 lbs. Front plates at bottom, thickness 13/16" Back plates, thickness ✓

Greatest pitch of stays 14 1/4" working pressure by rules 180 lbs. Diameter of tubes 3 1/4" pitch of tubes 4 1/2 x 4 1/2" thickness of tube plates, front 7/8" back ✓ how stayed Stay tubes pitch of stays 9 x 9 width of water spaces Side C.C. 7/8"

Diameter of Superheater or Steam chest ✓ length ✓ thickness of plates ✓ description of longitudinal joint ✓ diam. of rivet holes ✓

Pitch of rivets ✓ working pressure of shell by rules ✓ diameter of flue ✓ thickness of plates ✓ If stiffened with rings ✓

Distance between rings ✓ working pressure by rules ✓ end plates of superheater, or steam chest; thickness ✓ how stayed ✓

Superheater or steam chest; how connected to boiler ✓



DONKEY BOILER— Description *Same as 4s. "Plassey"* *Hor. Lin. Single ended Mult. with 2 furnaces*
 Made at *Belfast* by whom made *Harland and Wolff* when made *1890* where fixed *upper deck*
 Working pressure *70 lbs.* tested by hydraulic pressure to *140* No. of Certificate *92* fire grate area *33.75 sq. ft.* description of
 valves *D. Lockburn* No. of safety valves *2* area of each *5.947 sq. ft.* fitted with easing gear *yes* if steam from main boiler
 enter the donkey boiler *no* diameter of donkey boiler *9'-0"* length *9'-0"* description of riveting *Lap & double*
 Thickness of shell plates *17/32"* diameter of rivet holes *15/16"* whether punched or drilled *drilled* pitch of rivets *3 1/2"* lap of plating *4 1/2"*
 per centage of strength of joint *71* thickness of ~~plates~~ ^{end} plates *5/16"* stayed by *2 1/2" iron stays stay tubes & screw stays*
 Diameter of furnace, top *2'-7"* bottom *2'-7"* length of furnace *5'-10"* thickness of plates *3/16"* description of joint *6ble buttbraps and*
 Thickness of ^{cc} ~~furnace~~ crown plates *2* stayed by *W.T. screw stays 1 1/2" dia. top with girders* ^{single riveted} working pressure of shell by rules *77 lbs.*
 Working pressure of furnace by rules *74 lbs.* diameter of uptake *4"* thickness of plates *3/16"* thickness of water tubes *3/16"*

SPARE GEAR. State the articles supplied:— *2 connecting rod top and 2 bottom end bolts and nuts; 2 main bearing bolts and nuts; 1 set of couple bolts and nuts; 1 set of feed and bilge pump valves; a piston ring for each piston; 1 F.P. & L.P. valve spindle; 1 set of air & circulation pump valves, etc. etc.*
 The foregoing is a correct description,
Harland & Wolff Ltd. Manufacturer.

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

The Machinery of this steamer has been constructed in accordance with the approved plan of main boiler enclosed, the Secretary's letter dated 20-11-89, the Rules of the Society for New Machinery, or equal thereto and to the satisfaction of the undersigned.

The main and auxiliary boilers and main steam pipes were tested by water to twice the working pressure and the safety valves of boilers adjusted to proper working pressures viz. 180 lbs. on main & 70 lbs. on auxiliary.

The machinery was tried under steam and gave satisfaction. All shafting when finished was found free from visible defect. The electric light is fitted throughout vessel on the single wire system and the important recommendations contained in notice no. 783 carried out.

The material used in the construction of the machinery and the workmanship throughout are good & satisfactory and I would respectfully recommend that the notification **+L.M.C. 11-90** be granted and recorded in the Reg. Book.

It is submitted that this vessel is eligible to have +L.M.C. 11-90 recorded.
 W.A.
 10-11-90

Machinery Certificate
 Written.
 The amount of Entry Fee .. £ 3 : 0 : 0 received by me;
 Special £ 35 : 0 : 0
 Donkey Boiler Fee £ - : :
 Certificate (if required) .. £ gratis. 12/11/1890
 To be sent as per margin.
 (Travelling Expenses, if any, £)

James Claxton
 Engineer Surveyor to Lloyd's Register of British & Foreign Ship

Committee's Minute
 FRI 14 NOV 1890
 + L.M.C. 11/90

