

# 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 *Steel screw steamer*

*"Sobraon"*

Gross *3185*  
Tons Net *2055*

Master *N. Barnatyn*

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. I. 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 Sup. 6" x 4" x 10" 2 1/2" x 4" x 10" 1 Bal. 10" x 4" x 10"* 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 *lin. 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 *double ended, multi Cor.* Material *Steel* Letter (for record) *20th/1-89*

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 *18-6"*

Length of boilers *17-0* description of riveting of shell long. seams *double 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" 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. No. 1111* No. of Furnaces in each boiler *4* Description of Furnaces *Purves' Pat.*

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 1/4"* back *✓* top *8 1/2 x 7 1/4"* 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 3/8"* 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 *double 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 1/2"*

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 *✓*

*Same as 45. "Plassey"*  
DONKEY BOILER— Description *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 *23.75 sq. ft.* description of  
valves *D. Lockburn* No. of safety valves *2* area of each *5.94 sq. ft.* if 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 1/4"* lap of plating *4 1/2"*  
per centage of strength of joint *71* thickness of ~~plates~~ *plates* <sup>end top of</sup> *5/16"* stayed by *2 1/2" iron stays stay tubes & screw stays*  
Diameter of furnace, top *2'-7"* bottom *1'-10"* length of furnace *5'-10"* thickness of plates *3/16"* description of joint *butt & single riveted*  
Thickness of ~~furnace~~ *CC crown* plates *2"* stayed by *W.T. screw stays 1 1/4" dia. top with girders* 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 coupling bolts and nuts; 1 set of feed and bilge pump valves; a piston ring for each piston; 1 HP & 1 LP valve spindle; 1 set of air & circulation pump valves, etc. etc.*

The foregoing is a correct description,

*Harland and Wolff Ltd.* Manufacturer.  
*for J.P.F.*

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.*

Machinery Certificate  
Written.

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

*W.A.*

*10-11-90*

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, £ )

Committee's Minute

**FRI 14 NOV 1890**

*+ L.M.C. 11/90*

*Jamesella Storey*  
Engineer Surveyor to Lloyd's Register of British & Foreign Ship



Lloyd's Register  
Foundation