

# REPORT ON MACHINERY.

(Received in London Office 18

Survey held at *Whitby & Stockton* Date, first Survey *10<sup>th</sup> August* Last Survey *16 Dec<sup>r</sup>* 1881  
 on the *S. S. "Saxon"* Tons *1674*  
 Steel *M Barrows* Built at *Whitby* When built *1881*  
 made at *Stockton* By whom made *Blair & Co (Lim)* when made *1881*  
 How *do* By whom made *do* when made *1881*  
 Horse Power *140* Owners *Robinson & Howland* Port belonging to *Whitby*  
 Rehearsers Horse Power *140*

Engines *Compound. Inverted. Surface Condensing*  
 Cylinders *32" x 60"* Length of Stroke *39"* No. of Rev. per minute *65* Point of Cut off, High Pressure *1/2 stroke* Low Pressure *1/2 stroke*  
 Screw shaft *1 1/2"* Diameter of Tunnel shaft *10 5/8"* Diameter of Crank shaft journals *1 1/2"* Diameter of Crank pin *1 3/4"* size of Crank webs *15 3/4" x 8"*  
 Screw *14.6"* Pitch of screw *at 16.0"* No. of blades *four* state whether moveable *No* total surface *Not ascertained*  
 Pumps *Two* diameter of ditto *4"* Stroke *28"* Can one be overhauled while the other is at work *Yes*  
 Pumps *Two* diameter of ditto *4"* Stroke *28"* Can one be overhauled while the other is at work *Yes*  
 Engines *Two* Size of Pumps *1 1/2 dia x 9 stroke* Where do they pump from *Large donkey from tanks, forehold*  
 How *How well. Small donkey from sea, hot water tanks*  
 Discharge pipes fitted with roses *Yes* Are the roses always accessible *Yes* Are the sluices on Engine room bulkheads always accessible *Yes*  
 Connections *One* and sizes *6"* Are they connected to condenser, or to circulating pump *Circulating pump*  
 Pumps worked *By levers worked from cross head on low pressure piston rod*  
 with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Stop valves & cocks*  
 Conveniently 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*  
 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*  
 Tried through the bunkers *None* How are they protected *None*  
 Valves, and pumps in connection with the machinery accessible at all times *Yes*  
 and valves arranged so as to prevent an unintentional connection between the sea and the bilges *Yes*  
 Keel, propeller, screw shaft, and all connections examined in dry dock *New*  
 Tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Top platform in engine room*

Boilers *Two* Description *Cylindrical. Multitubular*  
 weight *2250 lbs* Tested by hydraulic pressure to *160 lbs* Date of test *3.12.81. Certificate No 640*  
 Heating apparatus or steam chest *Vertical steam dome. Contracted at back*  
 worked separately *Yes* Can the superheater be shut off and the boiler worked separately *No Superheater*  
 Grate surface in each boiler *35.59 sq ft* Description of safety valves *Spring made by Blair & Co (Lim)*  
 area of each valve *9.62* Are they fitted with easing gear *Yes*  
 Superheater area of each valve *None* are they fitted with easing gear *None*  
 Boilers and bunkers or woodwork *9"*  
 Length of boilers *9.10* description of riveting of shell long. seams *all welded except seams in one place in inner corner of shell which are double riveted with double butt straps* Seams *Double*  
 diameter of rivet holes *1 1/8* whether punched or drilled *Drilled* pitch of rivets *4 5/16*  
 Percentage of strength of longitudinal joint *12.5* working pressure of shell by rules *97 lbs*  
 size of compensating rings *Rectangular plate 28 x 24 x 1 1/8*  
 outside diameter *3.0* length, top *6.1* bottom *8.8*  
 description of joints *Double & single riveted* rings are fitted *No* greatest length between rings *None*  
 thickness, sides *1/2* back *1/2* top *1/2*  
 sides *8 x 8* back *8 x 8* top *Curved top*  
 riveted heads *Part with outside & part pointed* working pressure of plating by rules *100 lbs*  
 working pressure of ditto by rules *126 lbs*  
 pitch of stays to ditto *15 x 14 3/4* how stays are secured *Plats & washers*  
 diameter of stays at smallest part *23/8* working pressure by rules *120 lbs*  
 Back plates, thickness *1 3/16* greatest pitch of stays *11 5/8 x 8* working pressure by rules *84*

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Diameter of tubes  $3\frac{1}{2}$  pitch of tubes  $4\frac{3}{4} \times 4\frac{3}{4}$  thickness of tube plates, front  $\frac{13}{16}$  back  $\frac{13}{16}$   
 How stayed *Screwed tubes* pitch of stays  $14\frac{1}{2} \times 16\frac{1}{2}$  width of water spaces  $1\frac{1}{4}$  between tubes  
 Diameter of Superheater or Steam chest  $5\text{--}11$  length  $5\text{--}6$   
 Thickness of plates  $\frac{1}{2}$  description of longitudinal joint *Lap, double riveted* diameter of rivet holes  $\frac{13}{16}$  pitch of rivets  $3\frac{1}{8}$   
 Working pressure of shell by rules  $126$  lbs 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  $\frac{1}{2}$  bottom  $\frac{3}{16}$  How stayed *Iron stays  $2\frac{1}{4}$  dia*  
 Superheater or steam chest; how connected to boiler *By malleable iron pipe  $1\frac{1}{2}$  dia. x  $\frac{1}{8}$  thick, double riveted to donkey boiler*

**DONKEY BOILER--** Description *Vertical water tubes in furnace*  
 Made at *Stockton* By whom made *Riley Bros* when made *1881. Tested 6-12-81.*  
 Where fixed *In the hold* working pressure *Certified 40* Tested by hydraulic pressure to *140* No. of Certificate *643*  
 Fire grate area *20 sq feet* Description of safety valves *Direct lever* No. of safety valves *one of each class* Area of each *5-11*  
 If fitted with easing gear *No* If steam from main boilers can enter the donkey boiler *No*  
 Diameter of donkey boiler  $6\text{--}0$  length  $12\text{--}6$  description of riveting *Single seams lap double joint*  
 thickness of shell plates  $\frac{15}{32}$  diameter of rivet holes  $\frac{13}{16}$  whether punched or drilled *Punched*  
 pitch of rivets  $2\frac{3}{4}$  lap of plating  $4\frac{1}{4}$  per centage of strength of joint  $70$   
 thickness of crown plates  $\frac{1}{2}$  stayed by *Iron stays  $1\frac{1}{2}$  dia*  
 Diameter of furnace, top  $5\text{--}0$  bottom  $5\text{--}5$  length of furnace  $4\text{--}5$   
 thickness of plates  $\frac{9}{16}$  description of joint *Lap, single riveted*  
 thickness of furnace crown plates  $\frac{1}{2}$  stayed by *Iron stays  $1\frac{1}{2}$  dia*  
 Working pressure of shell by rules  $40$  lbs working pressure of furnace by rules  $42$  lbs  
 diameter of uptake  $14$  thickness of plates  $\frac{1}{16}$  thickness of water tubes  $\frac{3}{8}$

The foregoing is a correct description,  
*Robert Blair & Co* Manufacturers of Engines, Marine Boilers, &c.

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

*Material & workmanship good.  
 The Machinery & Boilers of this vessel are in  
 good order & safe working condition & in my opinion  
 eligible for the notification of Lloyd's M.C. in the Register  
 Book*

*As per minutes of the  
 meeting of the  
 committee held on  
 27/12/81*

*James  
 Engineer Surveyor to Lloyd's Register*

The amount of Entry Fee . . . £ 2 : : : received by me,  
 Special . . . . . £ 21 : : :  
 Certificate (if required) . . . £ : : : 220 18 9 1/2  
 To be sent as per margin.  
 (Travelling Expenses, if any, £ . . . . .)

Committee's Minute Tuesday, December, 27th, 1881.

