

REPORT ON MACHINERY.

No. *313* (Received in London Office *17/6/80*)
 No. in Survey held at *Stockholm - West Hartlepool* Date, first Survey *11 November 1879* Last Survey *5 June 1880*
 Reg. Book. *✓* on the *S. S. "Gulf of Suva"* Tons *1592*
 Master *Allen* Built at *West Hartlepool* When built *1880. 6 mo*
 Engines made at *Stockholm* By whom made *Blair & Co (Lim)* when made *1880. 6 mo*
 Boilers made at *Do* By whom made *Do* when made *Do*
 Registered Horse Power *140* Owners *Greenock Steam Ship Co. Lim* Port belonging to *Greenock*

ENGINES, &c.—

Description of Engines *Compound. Inverted. Direct Acting. Surface Condensing*
 Diameter of 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*
 Diameter of Screw shaft *11 1/2"* Diameter of Tunnel shaft *10 1/4"* Diameter of Crank shaft journals *11"* Diameter of Crank pin *11 1/2"* size of Crank webs *15 1/2" x 8"*
 Diameter of screw *14.6* Pitch of screw *about 16.0"* No. of blades *Four* state whether moveable *No* total surface *Not ascertained*
 No. of Feed pumps *Two* diameter of ditto *4"* Stroke *28* Can one be overhauled while the other is at work *Yes*
 No. of Bilge pumps *Two* diameter of ditto *4"* Stroke *28* Can one be overhauled while the other is at work *Yes*
 Where do they pump from *From tanks, wings - Centre of engine room for hold - after well - Office pump from engine room*
 No. of Donkey Engines *Two* Size of Pumps *1 1/2 dia x 9" stroke* Where do they pump from *Large donkey draws from tanks, wings - Centre of engine room for hold - after well - Small donkey from sea, bottom - Ballast tanks*
 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 *Two* and sizes *4 1/2 dia* Are they connected to condenser, or to circulating pump *Circulating pump*
 How are the pumps worked *By levers worked from crosshead on low pressure piston rod*
 Are all connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Stop Valves - Cocks*
 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*
 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 *None*
 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 *Never*
 Is the screw shaft tunnel watertight *Yes* and fitted with a sluice door *Yes* worked from *Top platform in engine room*

BOILERS, &c.—

Number of Boilers *One* Description *Cylindrical. Tubular. Vented from both ends*
 Working Pressure *80 lbs* Tested by hydraulic pressure to *160 lbs* Date of test *20.1.80. Certificate No 288*
 Description of ~~superheating apparatus~~ or steam chest *Horizontal. Cylindrical*
 Can each boiler be worked separately *Yes* Can the superheater be shut off and the boiler worked separately *No superheater*
 No. of square feet of fire-grate surface in each boiler *56.27 sq ft* Description of safety valves *Spring Made by Blair & Co (Lim)*
 No. to each boiler *Two* area of each valve *15.9* Are they fitted with easing gear *Yes*
 No. of safety valves to superheater *None* area of each valve *None* are they fitted with easing gear *None*
 Smallest distance between boilers and bunkers or woodwork *16" between boiler and bulkhead*
 Diameter of boilers *12-11"* Length of boilers *15-0"* description of riveting of shell long. seams *All welded except seams of cum. seams*
 Thickness of shell plates *1"* diameter of rivet holes *1 1/8"* whether punched or drilled *Drilled* pitch of rivets *4 1/4"*
 Lap of plating *10" butt straps* per centage of strength of longitudinal joint *13.5* working pressure of shell by rules *94.8*
 Size of manholes in shell *15 1/2" x 11 1/2"* size of compensating rings *Rectangular plate 28" x 24" x 1 1/8"*
 No. of Furnaces in each boiler *Four* outside diameter *3.4 1/8"* length, top *5.6* bottom *14.5"*
 Thickness of plates *Top 3/16 bottom 5/16* description of joint *Butt. Double straps* if rings are fitted *Bottom plate* greatest length between *14.8"*
 Working pressure of furnace by the rules *119.6* *Single riveted* *stiffened with angle iron* *single rows*
 Combustion chamber plating, thickness, sides *1/2"* back *None* top *9/16"*
 Pitch of stays to ditto *8" x 8"* back *None* top *8" x 8"*
 If stays are fitted with nuts or riveted head *Sides riveted. Top with nuts* working pressure of plating by rules *100 lbs*
 Diameter of stays at smallest part *1 5/16"* working pressure of ditto by rules *126.5 lbs*
 End plates in steam space, thickness *1 1/16"* pitch of stays to ditto *16 x 16* how stays are secured *Nuts & washers*
 Working pressure by rules *92.4 lbs* diameter of stays at smallest part *2 3/8"* working pressure by rules *103.8*
 Front plates at bottom, thickness *1 1/16"* Back plates, thickness *None* greatest pitch of stays *None* working pressure by rules *None*


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Diameter of tubes $3\frac{1}{4}$ pitch of tubes $4\frac{1}{2} \times 4\frac{1}{8}$ thickness of tube plates, front $\frac{13}{16}$ back $\frac{13}{16}$
How stayed *Lay tubes* pitch of stays $13\frac{1}{2} \times 9\frac{1}{4}$ width of water space *Smallest space $4\frac{1}{2}$ between furnaces*
Diameter of ~~Superheater~~ Steam chest 3.4 length $5' 0"$
Thickness of plates $\frac{1}{2}$ description of longitudinal joint *Lap. Double riveted* Diameter of rivet holes $\frac{13}{16}$ pitch of rivets $3\frac{3}{8}$
Working pressure of shell by rules 126 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 $\frac{7}{8}$ How stayed *Four stays $2\frac{1}{8}$ dia.*
Superheater or steam chest; how connected to boiler *By flanged pipe 16 dia. $\frac{1}{8}$ thick. Double riveted to shell*

DONKEY BOILER— Description *Vertical Cylindrical Water tubes in furnace*
Made at *West. Hawthorn & Co* By whom made *Wm Gray & Co* when made *1880* Date of test *7.5.80*
Where fixed *in Stockholm* working pressure *65 lbs* Tested by hydraulic pressure to *130 lbs* No. of Certificate *331*
Fire grate area *21.6 sq ft* Description of safety valve *Leak. direct lift* No. of safety valves *one of each* area of each *5.94*
If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No*
Diameter of donkey boiler $6' 0"$ length *13 - overall* description of riveting *Lap. Double riveted. Long Sea*
thickness of shell plates $\frac{7}{16}$ diameter of rivet holes $\frac{3}{4}$ *full* whether punched or drilled *Punched*
pitch of rivets $2\frac{1}{2}$ lap of plating $4\frac{1}{8}$ per centage of strength of joint 70
thickness of crown plates $\frac{9}{16}$ stayed by *Six stays $2"$ dia*
Diameter of furnace, top $4-10$ bottom $5-3\frac{3}{4}$ length of furnace $4-9$
thickness of plates $\frac{1}{2}$ description of joint *Lap. Single riveted*
thickness of furnace crown plates $\frac{1}{2}$ stayed by *Six stays $2"$ dia*
Working pressure of shell by rules 65.5 working pressure of furnace by rules $73-6$
Diameter of uptake $1-3$ thickness of plates $\frac{3}{8}$ thickness of water tubes $\frac{3}{16}$ *Purcell & Motus*

The foregoing is a correct description,
Geo Blair & Co Ltd Manufacturer *of Engines. Main Boiler only*
Geo Blair

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 Certificate  *Lloyd M.C. in the Register Book*

This vessel appears to be
eligible to be classed as
recommended  *Lloyd's M.C. 680*
M 18.6.80

The amount of Entry Fee £ 2 : : : received by me,
Special £ 21 : : :
Certificate (if required) £ 2 : 2 : 6 *14.6.1880*
Donkey, Boiler & Machinery £ 2 : 4 : 6
(Travelling Expenses, if any, £)

Committee's Minute

James Bell
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

