

REPORT ON MACHINERY.

No. 363
 Port of *Middlesbro' on Tees*
 No. in Survey held at *Stockton-on-Tees* Date, first Survey *24th Oct. 1890* Last Survey *27th Feb. 1891*
 Book. " " (Number of Visits *36*)
 on the *Screw Steamer "Alton Tower"*
 Built at *Stockton* By whom built *Ropner & Son*
 Lines made at *Stockton-on-Tees* By whom made *Blair & Co. Limited* when made *1891*
 Makers made at *Stockton-on-Tees* By whom made *Blair & Co. Limited* when made *1891*
 Registered Horse Power *235 (OR)* Owners *J. Stumore & Co.* Port belonging to *London*
 Gross Tons *2285*
 Net Tons *1921*
 When built *1891*
 Description of Engines *Inverted, Direct Acting, Triple Expansion* No. of Cylinders *Three*
 of Cylinders *23" - 37 1/2" - 61 1/2"* Length of Stroke *39"* Rev. per minute *60* Point of Cut off, High Pressure *5"* Low Pressure *5"*
 Diameter of Screw shaft *12"* Diam. of Tunnel shaft *11 1/2"* Diam. of Crank shaft journals *11 1/2"* Diam. of Crank pin *12 1/2"* size of Crank webs *19 1/4" x 8 3/8"*
 Diameter of screw *16" 0"* Pitch of screw *15" 6"* No. of blades *4* state whether moveable *No* total surface *71 Sq. feet*
 of Feed pumps *2* diameter of ditto *3 1/4"* Stroke *28"* Can one be overhauled while the other is at work *Yes*
 of Bilge pumps *2* diameter of ditto *4 1/2"* Stroke *28"* Can one be overhauled while the other is at work *Yes*
 do they pump from *Fore Main & After Hold, Engine room, Tunnel Well, Sea & Ballast Tanks*
 of Donkey Engines *Two* Size of Pumps *2 1/2" x 3 1/2" x 6" & 2 1/2" x 3 1/2" x 6"* Where do they pump from *Feed - Sea, Hold, Tanks and Ballast*
 Are the bilge suction pipes fitted with roses *Yes* Are the roses always accessible *Yes* Are the sluices on Engine room bulkheads always accessible *Yes*
 Are bilge injections *1* and sizes *6"* Are they connected to condenser, or to circulating pump *Circulating pump*
 Are the pumps worked *By levers from the cross head of the After Engine*
 Are 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*
 Are pipes carried through the bunkers *None* How are they protected *—*
 Are pipes, cocks, valves, and pumps in connection with the machinery accessible at all times *Yes*
 Are pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges *Yes*
 Were stern tube, propeller, screw shaft, and all connections examined in dry dock *New vessel, before commencing*
 Is screw shaft tunnel watertight *✓* and fitted with a sluice door *Yes* worked from *Top platform in Engine room*
 Boilers *Two* Description *Cylindrical, built: Single ended* Material *Steel* Letter (for record) *S*
 Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs* Date of test *26th December 1890 (1891)*
 Is there any superheating apparatus or steam chest *None* Heating Surface *3520 Sq. feet*
 Can boiler be worked separately *Yes* Can the superheater be shut off and the boiler worked separately *✓*
 Square feet of fire grate surface in each boiler *49 1/2* Description of safety valves *Direct Spring* No. to each boiler *Two*
 Weight of each valve *4.06 lbs* 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 *on woodwork 24"* Diameter of boilers *14" 0 1/2"*
 of boilers *10" 0"* description of riveting of shell long. seams *RTS Sharp Triple* circum. seams *Lap Double* Thickness of shell plates *1 1/4"*
 of rivet holes *1 1/4"* whether punched or drilled *Drilled* pitch of rivets *8"* *4 1/2"* Lap of plating *18" wide* *6 1/4"*
 Age of strength of longitudinal joint *84.3* working pressure of shell by rules *162.5 lbs* size of manholes in shell *16" x 12"*
 Compensating rings *28" x 2 1/4" x 1 1/4"* No. of Furnaces in each boiler *Three* Description of Furnaces *Corrugated*
 Diameter *3' 6"* length *—* thickness of plates *9/16"* description of joint *Welded* if rings are fitted *✓*
 length between rings *✓* working pressure of furnace by the rules *166 lbs* combustion chamber plating, thickness, sides *9/16"* back *9/16"* top *9/16"*
 stays to ditto, sides *1/2" x 1/2"* back *1/2" x 1/2"* top *1/2" x 1/2"* If stays are fitted with nuts or riveted heads *None* working pressure of plating by *172 lbs*
 Diameter of stays at smallest part *1 1/8"* working pressure of ditto by rules *149 lbs* end plates in steam space, thickness *1 1/8"*
 stays to ditto *16 1/2" x 15"* how stays are secured *Double Nut* working pressure by rules *171 lbs* diameter of stays at *—*
 top part *2 1/2"* working pressure by rules *181 lbs* Front plates at bottom, thickness *1"* Back plates, thickness *1"*
 pitch of stays *12 5/8"* working pressure by rules *160.6 lbs* Diameter of tubes *3 1/4"* pitch of tubes *4 5/8" x 4 1/2"* thickness of tube *—*
 front *1"* back *7/8"* how stayed *Stay tubes* pitch of stays *14 1/4" x 9"* width of water spaces *1 1/4" & 5"*
 of Superheater or Steam chest *✓* length *—* thickness of plates *—* description of longitudinal joint *—* diam. of rivet holes *—*
 rivets *—* working pressure of shell by rules *—* diameter of flue *—* thickness of plates *—* If stiffened with rings *—*
 between rings *—* working pressure by rules *—* end plates of superheater, or steam chest; thickness *—* how stayed *—*
 Superheater or steam chest; how connected to boiler *—*

Steel
DONKEY BOILER— Description *Vertical, Meredith patent.*
Made at *Stockton* by whom made *Riley Bros.* when made *31.1.91* where fixed *In Household.*
Working pressure *90 lbs* tested by hydraulic pressure to *180 lbs* No. of Certificate *190* fire grate area *72 sq. ft.* description of safety
valves *Direct Spring.* No. of safety valves *one* area of each *12.56* if fitted with easing gear *Yes* if steam from main boilers can
enter the donkey boiler *No* diameter of donkey boiler *6' 6"* length *14' 0"* description of riveting *Long Lap Double.*
Thickness of shell plates *1/2"* diameter of rivet holes *1/8"* whether punched or drilled *Punched* pitch of rivets *2 1/8"* lap of plating *4 1/4"*
per centage of strength of joint *69.6* thickness of crown plates *1/2"* stayed by *Hemispherical.*
Diameter of furnace, top *4' 5"* bottom *5' 7"* length of furnace *2' 9"* thickness of plates *5/8"* description of joint *Lap Single.*
Thickness of furnace crown plates *1/2"* stayed by *Hemispherical* working pressure of shell by rules *90 lbs*
Working pressure of furnace by rules *91.6 lbs* diameter of uptake *2"* thickness of plates *9/16"* thickness of water tubes *2" Strap 8 1/2" pitch.*

SPARE GEAR. State the articles supplied:— *1 Propeller, 2 main Bearing Bolts & nuts, 2 Crank
pin Bolts & nuts, 2 Cross head Bolts & nuts, 1 Set Coupling Bolts & nuts,
1 Set Piston Springs, 1 Set Feed & Budge pump valves, Bolt Nuts and
Iron ass't. &c.*

The foregoing is a correct description,

Robt Blair & Co. Ltd Manufacturers of Marine Engines & Boilers.
R. Blair

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

*The main steam pipes have been tested by Hydraulic
pressure as required by the Rules. The engines and Boilers have
been constructed under Special Survey, and the materials
and workmanship employed are of the best description.
When fitted in the vessel they were examined under steam
and worked satisfactorily. The Machinery throughout
is now in good and efficient condition and eligible
in my opinion to have the notation *L.M.C. 2, 91* marked
in the Society's Register Book.*

*Machine & Certificate
Within
Witness*

*It is submitted that this Vessel
is eligible to have +LMC 291
recorded.*

*W.A.
11.3.91*

The amount of Entry Fee .. £ 2 : - : - received by me,

Special .. £ 31 : 15 : -

Donkey Boiler Fee .. £ : :

Certificate (if required) .. £ : : 10.3.1891

To be sent as per margin.

(Travelling Expenses, if any, £)

Committee's Minute

*13 MARCH
+ L.M.C. 2/91*

Wm. R. Austin
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.