

REPORT ON MACHINERY.

9540

No. in Survey held at *Glasgow & Greenock* Date, first Survey *8th Dec^r 1887* Last Survey *7th July 1888*
 on the *Screw Steamer Aldborough.*
 Surveyed by *E. H. O'Neal* Built at *Port Glasgow.* By whom built *Russell & Coy.* When built *1888.*
 Engines made at *Glasgow.* By whom made *Jas. Howden & Coy.* when made *1888.*
 Boilers made at *Glasgow.* By whom made *Jas. Howden & Coy.* when made *1888.*
 Registered Horse Power *220.* Owners *Aldborough Coy. Ltd.* Port belonging to *London*
(F. Woods, Manager)

GINES, &c.—
 Description of Engines *Triple Expansion Three Cranks.*
 Diameter of Cylinders *22½" 35½" 58½"* Length of Stroke *39"* No. of Rev. per minute *75* Point of Cut off, High Pressure *var.* Low Pressure *var.*
 Diameter of Screw shaft *11½"* Diam. of Tunnel shaft *11"* Diam. of Crank shaft journals *11½"* Diam. of Crank pin *11½"* size of Crank webs *built*
 Diameter of screw *14' 6"* Pitch of screw *16 to 17 feet* No. of blades *4* state whether moveable *yes* total surface *66 ft²*
 Diameter of Feed pumps *2.* diameter of ditto *3"* Stroke *19"* Can one be overhauled while the other is at work *yes*
 Diameter of Bilge pumps *2.* diameter of ditto *4½"* Stroke *19"* Can one be overhauled while the other is at work *yes.*
 Where do they pump from *All compartments*
 Number of Donkey Engines *2* Ballast Size of Pumps *10" 12" 9"* Where do they pump from *Hotwell, Sea.*
Boilers & Bilges. Feed *8" x 6" x 5"*
 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*
 Are bilge injections *one* and sizes *5½"* Are they connected to condenser, or to circulating pump *yes*
 Are the pumps worked *by levers from the L.P. Engine Cross head*
 Are all 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 all pipes 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*
 Have the stern tube, propeller, screw shaft, and all connections examined in dry dock *see Greenock Report No. 9521 attached*
 Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *upper platform*

BOILERS, &c.—
 Number of Boilers *Two* Description *Multitubular* Whether Steel or Iron *Steel*
 Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs* Date of test *2nd April 1888.*
 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 *—*
 Area of square feet of fire grate surface in each boiler *37.* Description of safety valves *direct spring* No. to each boiler *two*
 Diameter of each valve *8.3"* 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* *19"* Diameter of boilers *13'-0"*
 Length of boilers *11'-0"* description of riveting of shell long. seams *double butt str. tub. arcum.* seams *d. riv. lap* Thickness of shell plates *1½"*
 Diameter of rivet holes *1 11/16"* whether punched or drilled *drilled* pitch of rivets *7 1/2" & 8 1/2"* Lap of plating *17 3/4" butt str.*
 Percentage of strength of longitudinal joint *84%* working pressure of shell by rules *160 lbs* size of manholes in shell *12" x 16"*
 Number of compensating rings *doubling plate riv. to boiler* No. of Furnaces in each boiler *three*
 Inside diameter *39"* length, top *8'-0"* bottom *10'-6"* thickness of plates *9 1/16"* description of joint *welded* if rings are fitted *yes*
 Shortest length between rings *1'-11"* working pressure of furnace by the rules *160 lbs* combustion chamber plating, thickness, sides *10 1/16"* back *9 1/16"* top *10 1/16"*
 Number of stays to ditto, sides *8 5/8"* back *7 3/4"* top *8 5/8"* If stays are fitted with nuts or riveted heads *Nuts* working pressure of plating by
 Rules *160 lbs* Diameter of stays at smallest part *1 3/8"* working pressure of ditto by rules *160 lbs* end plates in steam space, thickness *1 1/16" & double plate*
 Number of stays to ditto *14" x 15"* how stays are secured *d. Nuts* working pressure by rules *160 lbs* diameter of stays at
 Smallest part *2 3/8"* working pressure by rules *160 lbs* Front plates at bottom, thickness *3/4"* Back plates, thickness *3/4"*
 Shortest pitch of stays *13 1/16"* working pressure by rules *—* Diameter of tubes *2 1/2"* pitch of tubes *3 3/8"* thickness of tube
 Plates, front *13 1/16"* back *11 1/16"* how stayed *d. tubes* pitch of stays *6 3/4"* width of water spaces *6"*
 Diameter of Superheater or Steam chest *—* length *—* thickness of plates *—* description of longitudinal joint *—* diam. of rivet holes *—*
 Number of rivets *—* working pressure of shell by rules *—* diameter of flue *—* thickness of plates *—* If stiffened with rings *—*
 Space 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 *Bestus Patent Steel*
 Made at *Gateshead* by whom made *Clark Chapman & Co.* when made *1888* where fixed *Stokehold*
 Working pressure *80 lbs.* tested by hydraulic pressure to *160 lbs.* No. of Certificate *2483.* fire grate area *17 sq ft* description of
 valves *direct spring* No. of safety valves *one* area of each *8.5* if fitted with easing gear *yes* if steam from main boiler
 enter the donkey boiler *no* diameter of donkey boiler *6'-0"* length *13'-0"* description of riveting *double riv. lap*
 Thickness of shell plates *7/16"* diameter of rivet holes *7/8"* whether punched or drilled *drilled* pitch of rivets *3 3/16"* lap of plating *4 1/2"*
 per centage of strength of joint *72%* thickness of crown plates *9/16"* stayed by *2 uptakes & six stays*—
 Diameter of furnace, top *2'-8"* bottom *5'-2"* length of furnace *—* thickness of plates *7/16 8 1/2"* description of joint *single riv. lap*
 Thickness of furnace crown plates *9/16"* stayed by *as above* working pressure of shell by rules *80 lbs.*
 Working pressure of furnace by rules *80 lbs.* diameter of uptakes *10"* thickness of plates *7/16"* thickness of water tubes *7/16"*

SPARE GEAR. State the articles supplied:— *Propeller, Top and bottom end bolts. Main bearing and coupling bolts. Feed and bilge pump valves. Piston springs. Bolts & nuts assorted.*

The foregoing is a correct description,
 Manufacturer.

James Howard & Co.

General Remarks (State quality of workmanship, opinions as to class, &c. *The above mentioned*
Cupines and Boilers are now completed outboard in a
satisfactory manner and this vessel's machinery
which is of good workmanship and material is
now in my opinion eligible to be noted in the
Society's Register Book: + L.M.C. 7.88.
The Boilers have been fitted with Howard's Patent Force
draught arrangements.

It is submitted that this vessel
is eligible to have the notification
+ L.M.C. 7.88 recorded
D.P.
12/7/88

The amount of Entry Fee .. £ *2* : - : - received by me, *[Signature]*
 Special £ *31* : - : -
 Donkey Boiler Fee £ - : - : -
 Certificate (if required) .. £ - : - : - *9/4/1888*
 To be sent as per margin. *Counterfoil 10379*
 (Travelling Expenses, if any, £ - *2/6*)
 Committee's Minute *FRIDAY 13 JULY 1888*
+ done 7/88

[Signature]
John Anderson
 Engineer Surveyor to Lloyd's Register of British & Foreign Ships
Glasgow.
 Lloyd's Register
 Foundation