

REPORT ON MACHINERY.

Port of *Greenock*

Received at London Office

28 OCT 92

18

No. in Survey held at *Port Glasgow*Date, first Survey *27th April 1892* Last Survey *15th October 1892*

Book.

(Number of Visits *55*.)on the *S.S. "Buccifalvus"*ter *Forrester* Built at *Newcastle* By whom built *Palmers' Coy. (Lim^d)* Tons *Gross 1818*
*Net 1192*When built *1884*ines made at *Newcastle* By whom made *Palmers' Coy. (Lim^d)* when made *1884*ers made at *Port Glasgow* By whom made *Blackwood & Gordon* when made *1892*istered Horse Power *195* Owners *C.A. Currie & Coy.* Port belonging to *McIlhennay*Horse Power as per Section 28 *195*

INES, &c.— Description of Engines *Tandem, Inverted Direct Acting, Triple Expansion* No. of Cylinders *Four*
 Diameter of Cylinders *Two 15" One 32" One 54"* Length of Stroke *42* Revolutions per minute *70* Diameter of Screw shaft *as per rule 10 3/4*
 Diameter of Tunnel shafts *as fitted 10 3/8* Diameter of Crank shaft journals *11 1/2* Diameter of Crank pins *11 1/2* Size of Crank webs *14 3/4 x 8 1/4*
 Diameter of screw *15 3/4* Pitch of screw *16 1/6* No. of blades *Four* State whether moveable *yes* Total surface *55 square feet*
 of Feed pumps *Two* Diameter of ditto *3 1/2* Stroke *18* Can one be overhauled while the other is at work *yes*
 of Bilge pumps *Two* Diameter of ditto *4 3/16* Stroke *18* Can one be overhauled while the other is at work *yes*
 of Donkey Engines *Two* Sizes of Pumps *11" x 12", & Duplex 3 1/2" x 5"* No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room *& Stokehold Five 3"* In Holds, &c. *Two 2 1/2", & Two 3" in Holds, Two 2 1/2"*
& tunnel, one for 2" & one in after well.
 of bilge injections *one size 5"* Connected to condenser, or to circulating pump *Is a separate donkey suction fitted in Engine room & size 4"*
 all the bilge suction pipes fitted with roses *yes* Are the roses in Engine room always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes*
 all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *Both*
 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*
 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*
 at pipes are carried through the bunkers *Bilge* How are they protected *Wood*
 all pipes, cocks, valves, and pumps in connection with the machinery and all boiler mountings accessible at all times *yes*
 the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *yes*
 were stern tube, propeller, screw shaft, and all connections examined in dry dock *24.10.92* Is the screw shaft tunnel watertight *yes*
 fitted with a watertight door *yes* worked from *Engine room top platform.*

ERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *3014 square feet.*
 and Description of Boilers *Two, Round Horizontal Multitubular* Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs*
 of test *23.8.92* Can each boiler be worked separately *yes* Area of fire grate in each boiler *53.6 sq ft* No. and Description of safety valves to
 boiler *Two Direct Spring* Area of each valve *5.94 sq in* Pressure to which they are adjusted *164 lbs* Are they fitted
 easing gear *yes* Smallest distance between boilers or uptakes and bunkers or woodwork *19" from bunkers* Mean diameter of boilers *13" 0"*
 th *10' 1 1/2"* Material of shell plates *Steel* Thickness *1 1/2* Description of riveting: circum. seams *Lap double* long. seams *D.B. straps, triple*
 eter of rivet holes in long. seams *1 1/2* Pitch of rivets *8 5/8 & 4 3/16* Lap of plates or width of butt straps *18"*
 entages of strength of longitudinal joint *rivets 8.3.8 plate 8.5.5* Working pressure of shell by rules *176 lbs* Size of manhole in shell *16" x 12"*
 of compensating ring *30" x 26" x 1 1/2* No. and Description of Furnaces in each boiler *Three ribbed* Material *Steel* Outside diameter *40"*
 th of plain part *top 9" between ribs bottom 11"* Thickness of plates *crown 3/32 full bottom 1/16* Description of longitudinal joint *welded* No. of strengthening rings *one*
 king pressure of furnace by the rules *160 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *9/16* Back *9/16* Top *9/16* Bottom *9/16*
 of stays to ditto: Sides *7 3/4 x 7 3/4* Back *7 3/4 x 7 3/4* Top *7 3/4 x 7 3/4* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *181 lbs*
 erial of stays *Steel* Diameter at smallest part *1 1/4* Area supported by each stay *60" x 80"* Working pressure by rules *160 & 177* End plates in steam space:
 erial *Steel* Thickness *1"* Pitch of stays *15" x 14"* How are stays secured *Double nuts* Working pressure by rules *199 lbs* Material of stays *Steel*
 eter at smallest part *2 1/2* Area supported by each stay *210"* Working pressure by rules *162 lbs* Material of Front plates at bottom *Steel*
 ness *13/16* Material of Lower back plate *Steel* Thickness *1 1/8* Greatest pitch of stays *13"* Working pressure of plate by rules *216 lbs*
 eter of tubes *3 1/2* Pitch of tubes *4 3/4* Material of tube plates *Steel* Thickness: Front *13/16* Back *13/16* Mean pitch of stays *11 7/8*
 across wide water spaces *14"* Working pressures by rules *211 lbs* Girders to Chamber tops: Material *Steel* Depth and
 ness of girder at centre *6 3/4 x 4 double* Length as per rule *26* Distance apart *7 1/2* Number and pitch of Stays in each *Two 7 3/4*
 king pressure by rules *190 lbs* Superheater or Steam chest; how connected to boiler *Can the superheater be shut off and the boiler worked*
 ately *no* Diameter *no* Length *no* Thickness of shell plates *no* Material *no* Description of longitudinal joint *no* Diam. of rivet
 Pitch of rivets *no* Working pressure of shell by rules *no* Diameter of flue *no* Material of flue plates *no* Thickness *no*
 fened with rings *no* Distance between rings *no* Working pressure by rules *no* End plates: Thickness *no* How stayed *no*
 king pressure of end plates *no* Area of safety valves to superheater *no* Are they fitted with easing gear *no*

DONKEY BOILER—

Description *Round Upright*Made at *Port Glasgow* By whom made *Blackwood & Gordon*When made *1892* Where fixed *Stothold*Working pressure *80 lbs* tested by hydraulic pressure to *160 lbs* No. of Certificate *367* Fire grate area *27 sq ft* Description of safety valves *Direct spring*No. of safety valves *Two* Area of each *5.94 sq ft* Pressure to which they are adjusted *80 lbs* If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no*Diameter of donkey boiler *4.0* Length *10.2 1/2* Material of shell plates *Steel* Thickness *3/32*Description of riveting long seams *Lap double* Diameter of rivet holes *27/32* Whether punched or drilled *drilled* Pitch of rivets *2.9*Lap of plating *4 1/4* Per centage of strength of joint *68.5* Thickness of shell crown plates *3/32* Radius of do. *7.0* No. of Stays to do. *Eight*Dia. of stays *1 1/2* Diameter of furnace Top *5.3* Bottom *6.0* Length of furnace *5.0* Thickness of furnace plates *27/32* Description of joint *Lap single* Thickness of furnace crown plates *17/32* Stayed by *as above*Working pressure of shell by rules *84 lbs* Thickness of water tubes *7/16*Working pressure of furnace by rules *80 lbs* Diameter of uptake *8 1/2* Thickness of uptake plates *1/2*

SPARE GEAR. State the articles supplied:— 2 top & 2 bottom end bolts & nuts for connecting rods. 2 main bearing bolts. 6 coupling bolts. 1 set of feed & bilge pump valves, piston springs & rings. 1 half length crank shaft. 1 screw shaft. 4 propeller blades. a guide slipper. 2 eccentric pulleys. 1 eccentric strap. 2 main bearing bushes. 1 do for crank pin. air pump bucket. foot & delivery valves. 1 set valves for oil pump. 2 springs for main boiler safety valves. 1 do for donkey boiler. 1 do for feed pump. 3 do for cylinder escape valves. 2 pump ring pins & bolts for pistons. 2 bushes for valve gear. 4 plain & 2 stay tubes for tubular boiler.

The foregoing is a correct description,

for Donkey boiler.

Blackwood & Gordon

Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c. *This vessel's old boilers removed*)

New Main & Donkey Boilers now fitted & Engines tripled. The new parts of Machine and Boilers herein mentioned have been specially surveyed during construction workmanship good. new half length crank shaft examined when being turned also spare half crank shaft when being finished in lathe. And found them appear sound. Main Steam pipes tested by hydraulic pressure to 320 lbs per square inch tests satisfactory. The Engines and Boilers are satisfactorily fitted on board and have been tested under *Steam*. They are now in good order and safe working condition. and are in my opinion eligible to be noted in the Register Book: **LMC 10.92**. Tripled 92.

Repairs and alterations now done,

New Main & Donkey Boilers fitted on board, pipes cocks and valves on same new, 2 New H.P. Cylinders. pistons, valves and valve gear fitted, new I.P. & L.P. Cylinder Covers fitted to suit H.P. Cylinders, L.P. Cylinder bored out and a cast iron liner fitted to reduce the size of piston from 6 1/4 to 5 1/4, both piston rods cut and new top ends welded, and rods turned up, a new I.P. piston fitted, new neck I.P. & L.P. bushes, and glands rebushed, valve spindles lengthened & turned up at bottom ends, new neck bushes fitted & glands rebushed, guide brackets for spindles rebushed, I.P. & L.P. Cylinder faces and slide valves machined & faces up, new top end bushes fitted, a new half length crank shaft fitted, and coupled to spare half, both halves turned up together, 3 main bearing bushes refilled with white metal, one out & fitted to crank shaft journals, crank pin bushes fitted on new pins, (old crank shafts found slightly flamed at key hole for crank arms, and metal in bushes badly cut up and wasted).

Certificate (if required) to be sent to *Greenock Office*

The amount of Entry Fee. £ - - - When applied for,

Special *For New Entry* £ 10 - - - 25th Dec. 1892. *Muntz*

Donkey Boiler Fee £ - - - When received,

Travelling Expenses (if any) £ - - - 25th Dec. 1892.

Committee's Minute

FRI 28 OCT 1892

Assigned

+ LMC 10, 92

Tpd. 92 + NB 10, 92

Port of

Greenock

Continuation of Report No. 10678 dated 27 October 1892 on the

S. S. "Bucephalus"

Eccentrics & turning wheel removed from old crank shafts and fitted on new shafts, new turning gear bracket & shaft fitted, new top end bushes fitted in gooshead eccentric rods, and quadrants adjusted, bottom ends of valve spindles rebushed, and quadrant blocks turned up, Condenser tubes drawn & cleaned, tube plates removed, Condenser cleaned, plates rejointed new studs for same fitted, tubes replaced & packed, and Condenser tested, 12 new tubes fitted, new plungers for feed & bilge pumps fitted, new neck bushes & glands rebushed, new valves & seats fitted, Air pump bucket drawn & packed, rod for bucket & circulating pump rod turned up, new neck bushes fitted and glands rebushed, Circulating pump valves examined a new valve seat with dog for same fitted, propeller removed screw shaft drawn in board, found two narrow brass rings slack where lutting in brass sleeve. Cut out rings & served the spaces with cord and brass wire, new lignum vitae fitted in bottom side of stern tube, outer end, screw shaft reshipped in place and propeller securely fastened on tail end, new studs fitted for stern tube packing gland, old blow off cocks removed from vessels plating and new valve for main boiler blow off fitted, Sea Connections and fastenings for same examined, New throttle valve chest with gear for same fitted, drain cocks with working gear for H.P. Cylinders fitted, New steam pipe connections between boilers and Engines also between H.P. Cylinders & I.P. receiver fitted, a new duplex feed Donkey for main boilers & other purposes fitted, Ballast Donkey overhauled a new pump chamber fitted, an evaporator with connections to I.P. receiver and Condenser fitted, suction pipe to hot well repaired, new fresh water Condenser fitted, a new nut fitted on I.P. piston rod, holding down bolts in engine bed plate tested & new bolts fitted, bilge pipes where flattened repaired, 4 new rose boxes fitted in engine room & stokehold, sluice doors on tunnel mouth and on stokehold bulkheads overhauled and repaired, Deck winches overhauled, a new winch fitted on board, steering engine overhauled, new floor for engine room & stokehold fitted, new ventilators for engine room & stokehold fitted.

A. C. Heron

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

Greenock District

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Lloyd's Register
Foundation