

REPORT ON MACHINERY.

No. 14679

WED. 9 MAY 1906

Port of *Greenock*

Received at London Office

19

No. in Survey held at *Greenock*
Reg. Book.Date, first Survey *20th April 1905* Last Survey *27th April 1906*(Number of Visits *64*)on the **SCREW STEAMER "VALDIVIA"**Master *C. F. Reid* Built at *Port Glasgow* By whom built *Russell & Co* Tons } Gross
When built *1906*Engines made at *Greenock* By whom made *Rankin & Blackmore* when made *1906*Boilers made at *Greenock* By whom made *Rankin & Blackmore* when made *1906*Registered Horse Power Owners *The Valdivia Steamship Co. Ltd.* Port belonging to *Glasgow*Nom. Horse Power as per Section 28 *480* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *Three* No. of Cranks *Three*Dia. of Cylinders *27"-44"-73"* Length of Stroke *48* Revs. per minute *69* Dia. of Screw shaft *as per rule 14.9* Material of *Steel*
as fitted 15" screw shaft)Is the screw shaft fitted with a continuous liner the whole length of the stern tube *Yes* Is the after end of the liner made water tightin the propeller boss *Yes* If the liner is in more than one length are the joints burned *Burned* If the liner does not fit tightly at the partbetween the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *✓* If twoliners are fitted, is the shaft lapped or protected between the liners *✓* Length of stern bush *64"*Dia. of Tunnel shaft *as per rule 13.3* Dia. of Crank shaft journals *as per rule 14"* Dia. of Crank pin *14"* Size of Crank webs *8 1/2" x 9"* Dia. of thrust shaft undercollars *14"* Dia. of screw *18 1/2"* Pitch of Screw *1 1/4"* No. of Blades *4* State whether moveable *No* Total surface *110 sq. ft.*No. of Feed pumps *2* Diameter of ditto *4"* Stroke *26"* Can one be overhauled while the other is at work *Yes*No. of Bilge pumps *2* Diameter of ditto *4 1/2"* Stroke *26"* Can one be overhauled while the other is at work *Yes*No. of Donkey Engines *Three* Sizes of Pumps *9 x 12 x 10 1/2" 7 x 4 x 8 1/2" 4 x 2 1/2 x 5"* No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room *Three - 3 1/2" dia.* In Holds, &c. *No 1 Hold: Two - 3 1/2" dia. No 2 Hold: Two - 3 1/2" dia.**No 3 Hold: Deep Tank: Two - 3 1/2" dia. + Two - 6" dia. No 4 Hold: Two - 3 1/2" dia. Tunnel Well: 1 - 2 1/2" dia.*No. of Bilge Injections *1* sizes *5 1/2"* Connected to condenser, or to circulating pump *C.P.* Is a separate Donkey Suction fitted in Engine room & size *Yes: 3 1/2"*Are 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 *✓*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*What pipes are carried through the bunkers *None* How are they protected *✓*Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *Yes*Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges *Yes*Dates of examination of completion of fitting of Sea Connections *15/2/06 10/3/06* Stern Tube *13/3/06* Screw shaft and Propeller *13/3/06*Is the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *Upper platform*BOILERS, &c.—(Letter for record *S.*) Manufacturers of Steel *Clyde Bridge Steel Coy.*Total Heating Surface of Boilers *6800 sq. ft.* Is Forced Draft fitted *Yes* No. and Description of Boilers *2: Cylindrical: Single Ended*Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *26/3/06* No. of Certificate *459*Can each boiler be worked separately *Yes* Area of fire grate in each boiler *76 sq. ft.* No. and Description of Safety Valves toeach boiler *2: Direct Spring* Area of each valve *14.19"* Pressure to which they are adjusted *185 lbs* Are they fitted with easing gear *Yes*Smallest distance between boilers or uptakes and bunkers or woodwork *About 15"* Mean dia. of boilers *14'6"* Length *11'6"* Material of shell plates *Steel*Thickness *1 3/8"* Range of tensile strength *28 1/2 - 32 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *Lap Double*long. seams *8: B. Snaps* Diameter of rivet holes in long. seams *1 1/32"* Pitch of rivets *9 1/4" 4: 8 1/4"* Lap of plates or width of butt straps *20 1/2"*Per centages of strength of longitudinal joint *84* Working pressure of shell by rules *180 lbs* Size of manhole in shell *End 16" x 12"*Size of compensating ring *plate flanged* No. and Description of Furnaces in each boiler *4: Morrison's* Material *Steel* Outside diameter *46 1/4"*Length of plain part *top 3'6"* Thickness of plates *bottom 3'5"* Description of longitudinal joint *Weld* No. of strengthening rings *✓*Working pressure of furnace by the rules *180 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *5"* Back *3 1/2"* Top *1 1/2"* Bottom *4"*Pitch of stays to ditto: Sides *8 x 9"* Back *9 x 8 1/2"* Top *10 1/2 x 8"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *184 lbs*Material of stays *Steel* Diameter at smallest part *1 1/2"* Area supported by each stay *85"* Working pressure by rules *184 lbs* End plates in steam space:Material *Steel* Thickness *1 1/16"* Pitch of stays *14 x 20 3/4"* How are stays secured *Welded* Working pressure by rules *185 lbs* Material of stays *Steel*Diameter at smallest part *2 1/16"* Area supported by each stay *361"* Working pressure by rules *180 lbs* Material of Front plates at bottom *Steel*Thickness *8"* Material of Lower back plate *Steel* Thickness *1 1/16"* Greatest pitch of stays *12 1/2"* Working pressure of plate by rules *180 lbs*Diameter of tubes *2 1/2"* Pitch of tubes *3 1/2 x 3 3/4"* Material of tube plates *Steel* Thickness: Front *3"* Back *4"* Mean pitch of stays *10.4"*Pitch across wide water spaces *13 1/4"* Working pressures by rules *218 lbs 192 lbs* Girders to Chamber tops: Material *Steel* Depth andthickness of girder at centre *10 1/4" x 1 1/2"* Length as per rule *3309"* Distance apart *10 1/2"* Number and pitch of stays in each *3'8"*Working pressure by rules *149 lbs* Superheater or Steam chest; how connected to boiler *None* Can the superheater be shut off and the boiler workedseparately *✓* Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

W767-0038

VERTICAL DONKEY BOILER—

Manufacturers of Steel

No. *None* Description
 Made at _____ By whom made _____
 Working pressure _____ tested by hydraulic pressure to _____ Date of test _____ When made _____ Where fixed _____
 Valves _____ No. of Safety Valves _____ Area of each _____ Pressure to which they are adjusted _____ No. of Certificate _____ Fire grate area _____ Description of Safety _____
 If fitted with easing gear _____ If steam from main boilers can enter the donkey boiler _____ Date of adjustment _____
 Material of shell plates _____ Thickness _____ Range of tensile strength _____ Dia. of donkey boiler _____ Length _____
 Dia. of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____ Lap of plating _____ Per centage of strength of joint _____ Rivets _____
 Working pressure of shell by rules _____ Thickness of shell crown plates _____ Radius of do. _____ No. of stays to do. _____ Dia. of stays _____
 Diameter of furnace Top _____ Bottom _____ Length of furnace _____ Thickness of furnace plates _____ Description of joint _____
 Working pressure of furnace by rules _____ Thickness of furnace crown plates _____ Stayed by _____
 Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____ Dates of survey _____

SPARE GEAR. State the articles supplied:— *Propeller, 3 Cylinder Escape valves & Springs, 12 Shaft Coupling Bolts, 2 Connecting Rod Bolts, 2 Crosshead (Piston Rod) Bolts, 2 Main Bearing Bolts, 6 Holding down Bolts, 6 Jam Ring Bolts, 6 Cylinder Cover Studs, 2 Feed pump valves & 2 Bilge pump valves, 1 Feed Escape valve & Spring, 12 Tubes, 12 Condenser tubes, 1 Set Safety valve & Spring, 1 Set Air pump valves, Spare White metal, 2 HP & 2 m.p. piston & crank pin Bushes, 1 propeller shaft, Bolt & nut & Iron assortment*
 The foregoing is a correct description, *1 Set Crank pin Bushes, 1 propeller shaft, Bolt & nut & Iron assortment*
Random Macmillan Manufacturer.

Dates of Survey
 During progress of work in shops— *1905 April 20, 28, May 11, 18, 23, Sep 3, 8, 14, 20, Oct 3, 6, 12, 16, 23, 26, 30, Nov 7, 10, 13, 16, 21, 27, 30*
 During erection on board vessel— *Dec 1, 6, 10, 12, 13, 20, 22, 28, 1906, Jan 10, 12, 13, 18, 19, 23, 26, 29, Feb 2, 6, 12, 15, 21, 23, 27, Mar 7, 8, 12, 13*
 Total No. of visits *17, 20, 26, 27, 29, April 2, 6, 7, 12, 17, 18, 21, 23, 27, 64*—Is the approved plan of main boiler forwarded herewith *Yes.*

Dates of Examination of principal parts—Cylinders *24/4/06* Slides *✓* Covers *✓* Pistons *✓* Rods *✓*
 Connecting rods *✓* Crank shaft *✓* Thrust shaft *✓* Tunnel shafts *✓* Screw shaft *✓* Propeller *✓*
 Stern tube *✓* Steam pipes tested *14/18/4/06* Engine and boiler seatings *15/2/06* Engines holding down bolts *14/4/06*
 Completion of pumping arrangements *23/4/06* Boilers fixed *✓* Engines tried under steam *24/4/06*
 Main boiler safety valves adjusted *21/4/06* Thickness of adjusting washers *Starboard & Port Bolts, 1 1/2" AV 2, 1 1/2" AV 2, 1 1/2" AV 2, 1 1/2" AV 2*
 Material of Crank shaft *Steel* Identification Mark on Do. *666 AF* Material of Thrust shaft *Steel* Identification Mark on Do. *204*
 Material of Tunnel shafts *Steel* Identification Marks on Do. *205-9-10-11, 213-14-15* Material of Screw shafts *Steel* Identification Marks on Do. *212*
 Material of Steam Pipes *Copper S.D. 4 1/2"* Test pressure *360 lbs*

General Remarks (State quality of workmanship, opinions as to class, &c.)
The Engines and Boilers of this vessel have been built under special survey and the materials and workmanship are good. When completed they were examined while running full power trials in the Fifth and found to work satisfactorily. The machinery throughout is now in good and efficient condition and eligible in my opinion to have the record of LMC 4, 06. marked in the Society's Register Book.

It is submitted that this vessel is eligible for THE RECORD LMC 4.06. F.D. Elec. Light.

10.5.06
10.5.06

The amount of Entry Fee. £ *3* : : :
 Special £ *44* : : :
 Donkey Boiler Fee £ : : :
 Travelling Expenses (if any) £ : : :
 When applied for, *3/5/1906*
 When received, *5/5/1906*

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

Committee's Minute *Glasgow - 8 MAY 1906*

Assigned *+ LMC 4, 06*

MACHINERY CERTIFICATE
 WRITTEN 9-5-06

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 Foundation

Greenock
 Certificate (if required) to be sent to
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)