

REPORT ON MACHINERY.

Port of *Sunderland*

Received at London Office

No. in Survey held at *Sunderland*
eg. Book.Date, first Survey *3rd May*Last Survey *30th Oct 1901*(Number of Visits *16*)on the *Screw Steamer "Coramian"*Tons ^{Gross} *1223*
_{Net} *770*Built at *Middlesbrough* By whom built *Hartnolls & Son* (156) When built *1901*Engines made at *Sunderland* By whom made *Mac Coll & Pollock* (167) when made *1901*Boilers made at *Sunderland* By whom made *Mac Coll & Pollock* when made *1901*Registered Horse Power Owners *Steamship Co. Ltd. Coramian* Port belonging to *Cardiff*Horse Power as per Section 28 *131* Is Refrigerating Machinery fitted *no* Is Electric Light fitted *no*ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*Dia. of Cylinders *17"-28½"-46"* Length of Stroke *33"* Revs. per minute *70* Dia. of Screw shaft *9.74"* Lgth. of stern bush *37¾"*Dia. of Tunnel shaft *8.8"* Dia. of Crank shaft journals *8.6"* Dia. of Crank pin *9"* Size of Crank webs *6½" x 12¾"* Dia. of thrust shaft underWheels *9"* Dia. of screw *12'-1½"* Pitch of screw *14'-1½"* No. of blades *4* State whether moveable *no* Total surface *57.6 sq ft*No. of Feed pumps *2* Diameter of ditto *2½"* Stroke *17½"* Can one be overhauled while the other is at work *yes*No. of Bilge pumps *2* Diameter of ditto *2½"* Stroke *17½"* Can one be overhauled while the other is at work *yes*No. of Donkey Engines *2* Sizes of Pumps *6 x 8½ x 8 Ballast* No. and size of Suctions connected to both Bilge and Donkey pumpsEngine Room *2 of 2½" Cylinders* In Holds, &c. *2 of 2½" each hold*No. of bilge injections *1* sizes *33"* Connected to *condensers* or to circulating pump *CP* Is a separate donkey suction fitted in Engine room & size *yes 3"*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 *yes*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*How are they protected *none*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*When were stern tube, propeller, screw shaft, and all connections examined in dry dock *how vessel* Is the screw shaft tunnel watertight *yes*Is it fitted with a watertight door *yes* worked from *top platform*BOILERS, &c.—(Letter for record *S*) Total Heating Surface of Boilers *2025 sq ft* Is forced draft fitted *no*No. and Description of Boilers *one S.E. Cy. Multitubular* Working Pressure *180 lb* Tested by hydraulic pressure to *360 lb*Date of test *25.10.01* Can each boiler be worked separately *yes* Area of fire grate in each boiler *59 sq ft* No. and Description of safety valves toeach boiler *two direct spring* Area of each valve *5.93* Pressure to which they are adjusted *185 lb* Are they fitted with easing gear *yes*Smallest distance between boilers or uptakes and bunkers or woodwork *15"* Mean dia. of boilers *15'-0"* Length *10'-6"* Material of shell plates *Steel*Thickness *13/16"* Range of tensile strength *29/33* Are they welded or flanged *no* Descrip. of riveting: cir. seams *DR Lap* long. seams *in R. & B. S.*Diameter of rivet holes in long. seams *13/16"* Pitch of rivets *8 3/4"* Lap of plates or width of butt straps *12 1/2"*Percentages of strength of longitudinal joint rivets *86.4%* Working pressure of shell by rules *184 lb* Size of manhole in shell *16" x 12" in R. & B. S.*Size of compensating ring *flanged* No. and Description of Furnaces in each boiler *3 Deighton* Material *Steel* Outside diameter *48"*Length of plain part *top* Thickness of plates *bottom* *9/16"* Description of longitudinal joint *Welded* No. of strengthening rings *none*Working pressure of furnace by the rules *183 lb* Combustion chamber plates: Material *Steel* Thickness: Sides *19/32"* Back *19/32"* Top *19/32"* Bottom *7/8"*Pitch of stays to ditto: Sides *9 x 7 1/2"* Back *8 3/4 x 7 1/2"* Top *6 x 7 1/2"* If stays are fitted with nuts or riveted heads *hubs outside row Back Cudhills* Hubs *C.C.* Working pressure by rules *180 lb*Material of stays *Steel* Diameter at smallest part *1.5"* Area supported by each stay *66.76* Working pressure by rules *180 lb* End plates in steam space:Material *Steel* Thickness *6/16"* Pitch of stays *15 x 15"* How are stays secured *DR x 26* Working pressure by rules *181 lb* Material of stays *Steel*Area at smallest part *4.1* Area supported by each stay *225* Working pressure by rules *182* Material of Front plates at bottom *Steel*Thickness *3/4"* Material of Lower back plate *Steel* Thickness *57/64"* Greatest pitch of stays *14"* Working pressure of plate by rules *180 lb*Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2"* Material of tube plates *Steel* Thickness: Front *13/16"* Back *13/16"* Mean pitch of stays *9 x 13 1/2"*Pitch across wide water spaces *14"* Working pressures by rules *187 lb* Girders to Chamber tops: Material *Steel* Depth andThickness of girder at centre *6 1/4 x 21 1/16"* Length as per rule *24 3/4"* Distance apart *7 1/2"* Number and pitch of Stays in each *two 6 1/4" pitch*Working pressure by rules *181 lb* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler workedseparately *yes* Diameter *yes* Length *yes* Thickness of shell plates *yes* Material *yes* Description of longitudinal joint *yes* Diam. of rivetholes *yes* Pitch of rivets *yes* Working pressure of shell by rules *yes* Diameter of flue *yes* Material of flue plates *yes* Thickness *yes*Stiffened with rings *yes* Distance between rings *yes* Working pressure by rules *yes* End plates: Thickness *yes* How stayed *yes*Working pressure of end plates *yes* Area of safety valves to superheater *yes* Are they fitted with easing gear *yes*

DONKEY BOILER— No. *one* Description *Patent Vertical*
 Made at *Annau* By whom made *Cochran & Co* When made *6-8-01* Where fixed *Stokehold*
 Working pressure *90* tested by hydraulic pressure to *180* lbs. No. of Certificate *5776* Fire grate area *20 1/4* Description of safety valves *direct Spring*
 No. of safety valves *one* Area of each *7-0* Pressure to which they are adjusted *90* lbs. If fitted with easing gear *yes* If steam from main boilers can enter the donkey boiler *no* Dia. of donkey boiler *6'-6"* Length *14'-0"* Material of shell plates *Steel* Thickness *1/2"* Range of tensile strength *27 3/4* Descrip. of riveting long. seams *double* Dia. of rivet holes *29/32* Whether punched or drilled *drilled* Pitch of rivets *2 3/4*
 Lap of plating *4 1/8"* Per centage of strength of joint Rivets *69-1%* Thickness of shell crown plates *7/16* Radius of do. *3'-3"* No. of Stays to do. *Radius*
 Dia. of stays. *1 1/2"* Diameter of furnace Top *2-7 1/2"* Bottom *19"* Length of furnace *19'* Thickness of furnace plates *19/32* Description of joint *Riveted* Thickness of furnace crown plates *19/32* Stayed by *None* Working pressure of shell by rules *103* lbs.
 Working pressure of furnace by rules *113* lbs. Diameter of *tubes* *2 1/2"* Thickness of *tubes* *11/16* & *13/16* Thickness of *stay* tubes *1/4"*

SPARE GEAR. State the articles supplied:— *Two top end bolts & nuts, two bottom end bolts and nuts, two main bearing bolts & nuts, set of coupling bolts & nuts, spare feed and bilge pump valves, Assorted iron bolts & nuts (spare propeller)*

The foregoing is a correct description,

Macdonald & Bellamy Manufacturer.

Dates of Survey { During progress of work in shops - 1901. - May 3. June 19. 28. Aug. 10. 20. 29. Sept. 5. 12. 18. Oct. 2. 16. 18. 24. 25. 26. 30.
 while building { During erection on board vessel - - - - -
 Total No. of visits *16* *18*

Is the approved plan of main boiler forwarded herewith *yes*
 retained for duplicate *no*
 " " " donkey " " " *no*

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

Material of screw shaft *wrought iron* Is the screw shaft fitted with a continuous liner the whole length of the stern tube *no*
 Is the after end of the liner made water tight in the propeller boss *yes* If the liner is in more than one length are the joints burned *yes*
 If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive *yes* If two liners are fitted, is the shaft lapped or protected between the liners *painted*

Stern tube fitted with solidified oil lubricator.

*The machinery built under Special Survey. The material and workmanship found good and efficient.
 The main boilers and steam pipes tested under hydraulic pressure to 360 lbs per square inch and found sound and efficient in every respect at that pressure.*

The Engines tried under steam at their working pressures and found satisfactory.

*In my opinion this vessel is worthy of the notification
 + L, m C. 10. 01. to be made in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD. + LMC 10-01.

The amount of Entry Fee. £ 2 : : When applied for.
 Special £ 19 : 13 : : 12-11-01
 Donkey Boiler Fee £ : : :
 Travelling Expenses (if any) £ : : : When received.

Committee's Minute FRI. NOV 15 1901

Assigned

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



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