

REPORT ON MACHINERY.

Port of *Middlesbrough*

Received at London Office 19

No. in Survey held at *Stockton*Date, first Survey *May 7th 1901* Last Survey *6th March 1902*

Reg. Book.

Sup. 30. on the

S. S. Northam.(Number of Visits *58*)Tons { Gross *3842.27*
Net *2474.9*Master *Cantell*Built at *Hornaby*By whom built *Richardson, Durr & Co* When built *1902*Engines made at *Stockton*

By whom made

*Blair & Coy Lim^d*when made *1902*Boilers made at *Stockton*

By whom made

*Blair & Coy Lim^d*when made *1902*Registered Horse Power *349*Owners *H. J. Paton & Co*Port belonging to *Cardiff*Nom. Horse Power as per Section 28 *349*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 *26, 42 1/2, 69 1/2* Length of Stroke *45* Revs. per minute *58* Dia. of Screw shaft *12.8* as per rule *12.8* as fitted *15* Lgth. of stern bush *60*Dia. of Tunnel shaft *13.5* as fitted *13.5* Dia. of Crank shaft journals *13 3/4* as fitted *13 3/4* Dia. of Crank pin *14 1/4* Size of Crank web *22 1/2 x 9 1/2* Dia. of thrust shaft under collars *14 1/2*Dia. of screw *14-0* Pitch of screw *18-0* No. of blades *4* State whether moveable *Sal* Total surface *90 sq. ft*No. of Feed pumps *2* Diameter of ditto *3 1/4* Stroke *33* Can one be overhauled while the other is at work *yes*No. of Bilge pumps *2* Diameter of ditto *4 3/4* Stroke *33* Can one be overhauled while the other is at work *yes*No. of Donkey Engines *3* Sizes of Pumps *2 Ball 9 x 10 F. 4 x 8* No. and size of Suctions connected to both Bilge and Donkey pumpsIn Engine Room *Five 3 1/2 diameter* In Holds, &c. *Fore, main, aft and aftermost**holds two in each, all 3 1/2 dia. Tunnel well 2 1/2 dia.*No. of bilge injections *1* sizes *6 1/4* Connected to *condenser* or to circulating pump *yes* Is a separate donkey suction fitted in Engine room & size *yes 4*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 *none*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 *—* 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*When were stern tube, propeller, screw shaft, and all connections examined in dry dock *on stocks* Is the screw shaft tunnel watertight *see ship rep.*Is it fitted with a watertight door *yes* worked from *upper platform*BOILERS, &c.— (Letter for record (S) Total Heating Surface of Boilers *5620 sq. ft.* Is forced draft fitted *no*No. and Description of Boilers *2 S. & C. Multitubular* Working Pressure *160 lb* Tested by hydraulic pressure to *320 lb*Date of test *30.1.02* Can each boiler be worked separately *yes* Area of fire grate in each boiler *64 sq. ft.* No. and Description of safety valves to each boiler *two dir. act.* Area of each valve *8.29* Pressure to which they are adjusted *165 lb* Are they fitted with easing gear *yes*Smallest distance between boilers or uptakes and bunkers or woodwork *no side outside Mean dia. of boilers 16-6* Length *11-0* Material of shell plates *S.*Thickness *1 1/2* Range of tensile strength *27.32* Are they welded or flanged *no* Descrip. of riveting: cir. seams *d. r. l.* long. seams *d. butt str.*Diameter of rivet holes in long. seams *1 3/8* Pitch of rivets *9 1/4 x 4 7/8* Lap of plates *8* width of butt straps *6 7/8 x 20 1/8*Per centages of strength of longitudinal joint *88.9* Working pressure of shell by rules *177 lb* Size of manhole in shell *17 x 13*Size of compensating ring *31 x 24 x 1 1/2* No. and Description of Furnaces in each boiler *3 Morrison's* Material *S.* Outside diameter *49*Length of plain part *7-0* Thickness of plates *9 1/16* Description of longitudinal joint *welded* No. of strengthening rings *—*Working pressure of furnace by the rules *179 lb* Combustion chamber plates: Material *S.* Thickness: Sides *7/16* Back *7/16* Top *7/16* Bottom *1*Pitch of stays to ditto: Sides *9 1/4 x 7 1/2* Back *9 1/4 x 9 1/4* Top *9 1/2 x 7 1/2* If stays are fitted with nuts or riveted heads *nuts* Working pressure by rules *183 lb*Material of stays *S.* Diameter at smallest part *1 9/16* Area supported by each stay *89* Working pressure by rules *194 lb* and plates in steam space:Material *S.* Thickness *1 1/8* Pitch of stays *20 x 17 1/2* How are stays secured *d. nuts washers* Working pressure by rules *169 lb* Material of stays *S.*Diameter at smallest part *2 3/4* Area supported by each stay *350 lb* Working pressure by rules *169 lb* Material of Front plates at bottom *S.*Thickness *1* Material of Lower back plate *S.* Thickness *1 1/16* Greatest pitch of stays *14* Working pressure of plate by rules *228 lb*Diameter of tubes *3 1/2* Pitch of tubes *4 1/2 x 4 7/8* Material of tube plates *S.* Thickness: Front *1* Back *1 1/16* Mean pitch of stays *9 5/8*Pitch across wide water spaces *14 1/2* Working pressures by rules *182 lb* Girders to Chamber tops: Material *S.* Depth and thickness of girder at centre *7 3/4 x 1 3/4* Length as per rule *30* Distance apart *9 1/2* Number and pitch of Stays in each *3. 7 3/4*Working pressure by rules *164 lb* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler worked separately *—*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 *—*

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W 1568-0186

DONKEY BOILER— No. *One* Description *Cyl. Mult or 2 plain furnaces*
 Made at *Stockton* By whom made *Riley Brothers* When made *17.1.02* Where fixed *deck house*
 Working pressure *90 lbs* Tested by hydraulic pressure to *180 lbs* No. of Certificate *2664* Fire grate area *29* Description of safety valves *d. act. spring*
 No. of safety valves *2* Area of each *7.6* 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 *10'-0"* Length *10'-0"* Material of shell plates *S.* Thickness *9/16"* Range of tensile strength *24-32* Descrip. of riveting long seams *d. butt str.* Dia. of rivet holes *1 3/16"* Whether punched or drilled *dr.* Pitch of rivets *3 1/2"*
 Top of plating *8 1/2* Per centage of strength of joint Rivets *78.5* Thickness of shell plates *25* Radius of do. *18* Pitch of Stays to do. *18"*
 Dia. of stays *2 1/2* Diameter of furnace Top *36"* Bottom *12"* Length of furnace *6'-7"* Thickness of furnace plates *1/2"* Description of joint *welded* Thickness of furnace plates *1/2* Stayed by *1 3/8* off *8 1/2* to *9 1/2* p. into Working pressure of shell by rules *94 lbs*
 Working pressure of furnace by rules *94.5 lbs* Diameter of uptake *3 1/2"* Thickness of uptake plates *F. 32* Thickness of water tubes *7/16* (34.010)

SPARE GEAR. State the articles supplied:— *Propeller and Shaft Complete. —*
Top and bottom end bolts & nuts, Main bearing & coupling bolts and nuts. Feed, and donkey pump valves. Bolts nuts etc.

The foregoing is a correct description,
 FOR BLAIR & CO., LIMITED.

Manufacturers of Engines and Main Boilers. —

P. W. Blair
 Dates During progress of work in shops — *1901 May 7.13.20.30 June 4.12.21.25 July 4.10.17.20.29 Aug 6.12.16 Sept 5.10.17.24.26*
 of Survey During erection on board vessel — *Oct 7.18.21.29 Nov 6.13.15.18.21.26 Dec 3.5.13.17.24.30 1902 Jan 7.8.14.15.17.22.24.27.30 Feb 1.4.5.6*
 building while building *10.13.18.24.26.27.28 Mar 6*
 Total No. of visits *38*

Is the approved plan of main boiler forwarded herewith *Blair's*
 " " " donkey " " *no plans retained for dup.*

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 —
 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 — If two liners are fitted, is the shaft lapped or protected between the liners *yes*

These engines and boilers have been built and tested as required by the Societies Rules for Special Survey and are of good workmanship and materials, they have been properly fitted and secured on board and on completion tried under steam with good results at moorings. —

The vessel's machinery is now in my opinion in a good and efficient working order and eligible to the notation of: L.M.C. 3.02.

It is submitted that
 this vessel is eligible for
 THE RECORD L.M.C. 3.02.

The amount of Entry Fee... £ 3 : : : When applied for,
 Special £ 24 9 : : : 12.3.1902
 Donkey Boiler Fee £ : : : When received,
 Travelling Expenses (if any) £ : : : 12.3.1902

Committee's Minute

FRI. MAR 14 1902

Assigned

+ L.M.C. 3.02

REENTRY CERTIFICATE
 WRITTEN.



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