

# REPORT ON MACHINERY.

Port of *Newcastle*

No. in Survey held at *Newcastle* Date, first Survey *March 21 '00* Last Survey *March 15 1901*  
 Reg. Book. *44* on the *1/5 PINNA* (Number of Visits *52*)  
 Master *J. A. Moses* Built at *Newcastle* By whom built *Armstrong Whitworth & Co* When built *3-1901*  
 Engines made at *Newcastle* By whom made *North Eastern Marine Eng' Co* when made *3-1901*  
 Boilers made at *Newcastle* By whom made *North Eastern Marine Eng' Co* when made *3-1901*  
 Registered Horse Power *488* Owners *Shell Transport & Trading Co* Port belonging to *London*  
 Nom. Horse Power as per Section 28 *488* Is Refrigerating Machinery fitted *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Triple* No. of Cylinders *3* No. of Cranks *3*  
 Dia. of Cylinders *28.46.77* Length of Stroke *48* Revs. per minute *65* Dia. of Screw shaft *14.3* Lqth. of stern bush *6.7*  
 Dia. of Tunnel shaft *14* Dia. of Crank shaft journals *14.4* Dia. of Crank pin *14.4* Size of Crank webs *26.9* Dia. of thrust shaft under  
 Dia. of screw *18.6* Pitch of screw *18.6* No. of blades *4* State whether moveable *Yes* Total surface *108 sq*  
 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 *4.4* Stroke *26* Can one be overhauled while the other is at work *Yes*  
 No. of Donkey Engines *3 Duplex* Sizes of Pumps *1.4, 1.0, 1.8, 1.0, 5.4, 3.5* No. and size of Suctions connected to both Bilge and Donkey pumps  
 Engine Room *Low 3.2* In Holds, &c. *Five peak one 5, fore hold one 5, two*  
*Oil suction in each tank, also two bilge suction in each pump room.*  
 No. of bilge injections *1* sizes *4* Connected to condenser, or to circulating pump *Is a separate donkey suction fitted in Engine room & size*  
 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*  
 Are pipes 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*  
 When were stern tube, propeller, screw shaft, and all connections examined *in dry dock before launch* Is the screw shaft tunnel watertight *no tunnel*  
 Is it fitted with a watertight door *Yes* worked from *Yes*

BOILERS, &c.— (Letter for record *S*) Total Heating Surface of Boilers *8070* Is forced draft fitted *Yes*  
 No. and Description of Boilers *3 Single Ended, Mult-* Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs*  
 Date of test *12-10-00* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *75 sq* No. and Description of safety valves to  
 Each boiler *2 direct spring* Area of each valve *8.29* 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 *30* Mean dia. of boilers *16.4* Length *11.5* Material of shell plates *Steel*  
 Thickness *1/2* Range of tensile strength *29.32* Are they welded or flanged *No* Descrip. of riveting: cir. seams *lap, d, r* long. seams *DBS, TR*  
 Diameter of rivet holes in long. seams *1/8* Pitch of rivets *8* Lap of plates or width of butt straps *16.5*  
 Percentages of strength of longitudinal joint *80.5* Working pressure of shell by rules *181 lbs* Size of manhole in shell *end 16x12*  
 No. of compensating rings *flanged in* No. and Description of Furnaces in each boiler *4 Baries, arches* Material *Steel* Outside diameter *44.2*  
 Length of plain part *top 3.5, bottom 6.4* Thickness of plates *3.5* Description of longitudinal joint *welded* No. of strengthening rings *none*  
 Working pressure of furnace by the rules *183 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *1/6* Back *1/6* Top *1/6* Bottom *3/8*  
 Pitch of stays to ditto: Sides *9.3, 9.2* Back *10.8* Top *9.2, 9.2* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *183 lbs*  
 Material of stays *Steel* Diameter at smallest part *1.2* Area supported by each stay *87.5* Working pressure by rules *181 lbs* End plates in steam space:  
 Material *Steel* Thickness *1/2* Pitch of stays *21.22* How are stays secured *DN & W* Working pressure by rules *181 lbs* Material of stays *Steel*  
 Diameter at smallest part *3.5* Area supported by each stay *470* Working pressure by rules *180 lbs* Material of Front plates at bottom *Steel*  
 Thickness *3/8* Material of Lower back plate *Steel* Thickness *3/4* Greatest pitch of stays *14.2 doubled* Working pressure of plate by rules *185 lbs*  
 Diameter of tubes *3.2* Pitch of tubes *4.2, 4.2* Material of tube plates *Steel* Thickness: Front *3/4* Back *3/4* Mean pitch of stays *11.4*  
 Pitch across wide water spaces *14.2* Working pressures by rules *216 lbs* Girders to Chamber tops: Material *Steel* Depth and  
 Thickness of girder at centre *10.1/2* Length as per rule *34.4* Distance apart *9.2* Number and pitch of Stays in each *3-9.3*  
 Working pressure by rules *183 lbs* 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  
*—* Pitch of rivets *—* Working pressure of shell by rules *—* Diameter of flue *—* Material of flue plates *—* Thickness *—*  
 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 *—*



SPARE GEAR. State the articles supplied:— Two top & two bottom end, two main bearing & set coupling bolts, one set feed & one set bilge pump valves, one set piston springs,  $\frac{1}{2}$  crank shaft, one propeller shaft, one air & circulating pump rod & bucket, four loose propeller blades & a quantity of bolts & wire.

THE NORTH EASTERN MARINE ENGINEERING CO. LD.

*Manufacturer.*

Is the approved plan of main boiler forwarded herewith *yes*  
 " " " *donkey* " " " *yes*

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

This vessel has been fitted with Ordes patent burners to burn oil fuel in the main & donkey boilers. Relief valves are fitted on the oil fuel & steam coils, as shewn on plan forwarded with this report.

The boilers have been covered all over with non-conducting material. Two evaporators of 24 tons capacity each, have been fitted to make the loss of water in spraying the oil.

The oil fuel pumping arrangement is distinctly separate from the ordinary bilge or feed pumping arrangement.

The oil fuel is Borneo oil of a flash point not less than 200°F.

The boilers were tried under steam burning oil fuel of good satisfactory, the burners were afterwards removed & the boiler adapted to burn coal. The vessel left this port burning coal.

This is an exact duplicate of the % "Bulysse's" Newcastle report - N 40

The machinery of this vessel has been constructed & fitted  
board under special survey the workmanship is good.

The machinery has been tried under steam found to work well & in my opinion the vessel is eligible for the record of **L.M.C. 3.01** in the Register.

Robert Haig.  
Engineer Surveyor to Lloyd's Register of British & Foreign Ships

### Committee's Minute

FRI. MAR 29 1901

*Assigned*

+ Lmb 3.01

MACHINERY CERTIFICATE  
WRITTEN

Electric light  
Sifted for burning liquid fuel

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Lloyd's Register  
Foundation