

# REPORT ON MACHINERY.

FRI 15 SEP 1893

Port of West Hartlepool

Received at London Office

No. in Survey held at West Hartlepool

Date, first Survey 27<sup>th</sup> March

Last Survey 11<sup>th</sup> September 1893

Reg. Book.

on the S.S. "ARIADNE ALEXANDRA"

(Number of Visits 40)

Tons { Gross 1986.65  
Net 1252.01

Master Hodgson Built at West Hartlepool By whom built W Gray & Co (Lim)

When built 1893

Engines made at West Hartlepool By whom made The Central Marine & Works when made 1893

Boilers made at West Hartlepool By whom made The Central Marine & Works when made 1893

Registered Horse Power 160 Owners Ariadne Steamship Co (Lim) Port belonging to London

Nom. Horse Power as per Section 28 177

**ENGINES, &c.**— Description of Engines Triple, Inverted, Direct, Surface Condensing No. of Cylinders 3 (3 cranks)  
Diameter of Cylinders 20-3 1/2-53 Length of Stroke 36 Revolutions per minute 65 Diameter of Screw shaft as per rule 9.46  
Diameter of Tunnel shaft as fitted 9.25 Diameter of Crank shaft journals 9 3/4 Diameter of Crank pin 9 3/4 Size of Crank webs 13 x 6  
Diameter of screw 14-0 Pitch of screw Differential No. of blades 4 State whether moveable No Total surface 63 1/2  
No. of Feed pumps 2 Diameter of ditto 2 1/2 Stroke 24 Can one be overhauled while the other is at work Yes  
No. of Bilge pumps 2 Diameter of ditto 3 Stroke 24 Can one be overhauled while the other is at work Yes  
No. of Donkey Engines 2 Sizes of Pumps FEED - 3 1/2 DIA 8 STROKE (duplex) No. and size of Suctions connected to both Bilge and Donkey pumps  
In Engine Room Five. (3) 2 3/4", (1) 3", (1) 5" In Holds, &c. Five (2) 2 3/4", 4 ft (2) 2 3/4", 4 ft peak  
(1) 2 1/4", Tunnel (2) 2 1/4"  
No. of bilge injections One sizes 5 dia Connected to condenser, to circulating pump Yes Is a separate donkey suction fitted in Engine room & size Yes 3 dia  
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 except main injection on shaft neck 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 Below  
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  
When were stern tube, propeller, screw shaft, and all connections examined in dry dock 4.9.93 Is the screw shaft tunnel watertight Yes  
Is it fitted with a watertight door Yes worked from Upper platform

**BOILERS, &c.**— (Letter for record (3)) Total Heating Surface of Boilers 2740 sq ft  
No. and Description of Boilers Two, Lye, Mult, single Ended Working Pressure 160 lbs Tested by hydraulic pressure to 320 lbs  
Date of test 16.8.93 Can each boiler be worked separately Yes Area of fire grate in each boiler 28.3 No. and Description of safety valves to  
each boiler Two Spring direct Area of each valve 7.07 Pressure to which they are adjusted blow 165 lbs Are they fitted  
with easing gear Yes Smallest distance between boilers or stanchions and bunkers about 13" Mean diameter of boilers 12-6"  
Length 10-0 Material of shell plates Steel Thickness 1 1/32 Description of riveting: circum. seams centre top to the long. seams DBS to the  
Diameter of rivet holes in long. seams 1 1/16 Pitch of rivets 7 3/8 Lap of plates 4 width of butt straps 16 1/4 and 9"  
Per centages of strength of longitudinal joint 86.76 Working pressure of shell by rules 165.4 Size of manhole in shell 16 x 12  
Size of compensating ring 28 x 26 x 3/8 No. and Description of Furnaces in each boiler 2 Ribbed Material Steel Outside diameter 43 1/2"  
Length of plain part top 4" Thickness of plates bottom 1 1/2 Description of longitudinal joint welded No. of strengthening 8  
Working pressure of furnace by the rules 160 Combustion chamber plates: Material Steel Thickness: Sides 1 1/32 Back 1 1/32 Top 1 1/32 Bottom 7/8"  
Pitch of stays to ditto: Sides 8 3/8 x 8 1/2 Back 8 3/8 x 8 1/2 Top 8 3/8 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 163.7  
Material of stays Steel Diameter at smallest part 1-3 3/8 Area supported by each stay 73.31 Working pressure by rules 163.6 End plates in steam space:  
Material Steel Thickness 1 1/8 Pitch of stays 18 1/2 x 16 3/4 How are stays secured double nuts Working pressure by rules 165.6 Material of stays Steel  
Diameter at smallest part 2-6 1/4 Area supported by each stay 309.87 Working pressure by rules 161.6 Material of Front plates at bottom Steel  
Thickness 3/4 Material of Lower back plate Steel Thickness 1 Greatest pitch of stays 13 7/8 Working pressure of plate by rules 156.1  
Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 1/2 Material of tube plates Steel Thickness: Front 1 1/8 Back 7/8 Mean pitch of stays 9 x 9  
Pitch across wide water spaces 14 1/4 Working pressures by rules 239.3-72.8 Girders to Chamber tops: Material Steel Depth and  
thickness of girder at centre 8 x plate 7/8 Length as per rule 24 Distance apart 8 3/8 Number and pitch of Stays in each One 8 3/8  
Working pressure by rules 165.9 Superheater or Steam chest; how connected to boiler ✓ 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 ✓

In a Report also sent on the Hull of the Ship?

[112. L.R.P.M. 5,000. Form No. 8. 4-2-92. Copyright Ink.]



**DONKEY BOILER**— Description *Vertical with 4 water tubes (steel)*  
 Made at *W. Hartlepool* By whom made *W. Gray & Co. (Lm)* When made *4.7.93* Where fixed *Stokehole*  
 Working pressure *80 lb* Tested by hydraulic pressure to *160 lb* No. of Certificate *2372* Fire grate area *26* Description of safety valves *Spring direct*  
 No. of safety valves *one* Area of each *4.79* Pressure to which they are adjusted *100 lb* If fitted with easing gear *Yes* If steam from main boilers can enter the donkey boiler *No* Diameter of donkey *15* Length of donkey *6* Material of shell plates *Steel* Thickness *1/2*  
 Description of riveting long. seams *double riv lap* Diameter of rivet holes *7/8* Whether punched or drilled *drilled* Pitch of rivets *2 3/4*  
 Lap of plating *4 1/2* Per centage of strength of joint *74.0* Rivets *18.2* Thickness of shell crown plates *7/8* Radius of do. *8-6* No. of stays to do. *7*  
 Dia. of stays *2 3/8* Diameter of furnace Top *5-2 1/2* Bottom *6-2 1/2* Length of furnace *5-9* Thickness of furnace plates *7/8* Description of joint *pin riv lap* Thickness of furnace crown plates *7/8* Stayed by *same as shell* Working pressure of shell by rules *90 lb*  
 Working pressure of furnace by rules *80 lb* Diameter of uptake *15* Thickness of uptake plates *3/8* Thickness of water tubes *3/8*

**SPARE GEAR.** State the articles supplied:— *The propeller, The set Main Bearing Bolts & nuts, The set Connecting Rod Bolts & nuts (top & bot), The set Coupling Bolts & nuts, One set Feed & Bilge pump valves, 2 sets piston springs, Bolts & nuts assorted, Iron assorted.*

The foregoing is a correct description,

FOR THE CENTRAL MARINE ENGINE WORKS,  
 (W. Gray & Co. Ld.)

Manufacturers of Main Engines & Boilers

*Thomas Maudslayi*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The Main Steam pipes have been tested by hydraulic pressure to 320 lbs per sq inch and found satisfactory. The Engines and Boilers of this vessel, have been constructed under special survey, of a good quality of workmanship, they have been tried under steam, safety valves adjusted, and found to work well, and are now, in my opinion, in a safe working condition & eligible to have L.M.C. 9.93. Recorded in the Register of this Society.*

*It is submitted that this vessel is eligible for THE RECORD L.M.C. 9.93—*

*15/9/93—*

**MACHINERY CERTIFICATE**  
 WRITTEN.

Certificate (if required) to be sent to  
 The amount of Entry Fee.. £ *2* : *0* :  
 Special .. .. £ *26* : *11* :  
 Donkey Boiler Fee .. .. £ *2* : *2* :  
 Travelling Expenses (if any) £ : :  
 When applied for, *14.9.93*  
 When received, *14.9.93*

*W. C. Thomas & Blackie*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute

TUES. 19 SEP 1893

Assigned

*+ L.M.C. 9.93.*



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 Foundation