

# REPORT ON MACHINERY.

No. 4351

File No. 12793

Port of MIDDLEBROUGH ON TEES.

Received at London Office

19

No. in Survey held at Stockton

Date, first Survey 14<sup>th</sup> Sept 05 Last Survey 14<sup>th</sup> Dec. 1905

(Number of Visits 27)

Reg. Book.

Supplement on the Steel S.S. "Venus."

Gross 3152.22

Net 2017.18

When built 1905

Master J. V. Edmunds Built at W. Hartlepool By whom built W. Gray & Co. Ltd.

Engines made at Stockton By whom made W. Blair & Co. Ltd. when made 1905

Boilers made at Stockton By whom made W. Blair & Co. Ltd. when made 1905

Registered Horse Power 288 Owners Norris & Dixon Ltd. Port belonging to London

Nom. Horse Power as per Section 28 288 Is Refrigerating Machinery fitted No Is Electric Light fitted No

## ENGINES, &c.—Description of Engines

Direct acting trip up

No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 24 - 39 - 64 Length of Stroke 42 Revs. per minute 57 Dia. of Screw shaft as per rule 13.5 Material of W. Iron

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 tight

in the propeller boss Yes If the liner is in more than one length are the joints burned No 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 Yes Length of stern bush 4 - 10

Dia. of Tunnel shaft as per rule 11.76 Dia. of Crank shaft journals as per rule 12.35 Dia. of Crank pin 13.4 Size of Crank webs 20.4 x 8.2 Dia. of thrust shaft under

collars 13.4 Dia. of screw 17 - 0 Pitch of screw 16.2 No. of blades 4 State whether moveable No Total surface 78 sq

No. of Feed pumps 2 Diameter of ditto 3 Stroke 30 Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 4.2 Stroke 30 Can one be overhauled while the other is at work Yes

No. of Donkey Engines Two Sizes of Pumps Feed 4 x 8 Bilge 9 x 10 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Three 3" diameter In Holds, &c. Six 3" dia. Tunnel well Suction 3" dia

No. of bilge injections 1 sizes 6.4 Connected to condenser, or to circulating pump CR 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 No

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 No

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 new Is the screw shaft tunnel watertight yes

Is it fitted with a watertight door Yes worked from Top platform

## BOILERS, &c.—

(Letter for record 7) Total Heating Surface of Boilers 4450 sq Is forced draft fitted No

No. and Description of Boilers Two Cyl. Multitubular Working Pressure 180 lb Tested by hydraulic pressure to 360 lb

Date of test 1-11-05 Can each boiler be worked separately Yes Area of fire grate in each boiler 61.2 sq No. and Description of safety valves to

each boiler Two spring Area of each valve 8.29 sq 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 18" Dia. of boilers 15 - 7.2 Length 10 - 3 Material of shell plates Steel

Thickness 5/16 Range of tensile strength 27/32 Are they welded or flanged No Descrip. of riveting: cir. seams 29 1/2 in long. seams 13 in

Diameter of rivet holes in long. seams 1.576 Pitch of rivets One row 3.37 Two 4.38 Lap of plates or width of butt straps 1 - 7.4

Per centages of strength of longitudinal joint 87.5 Working pressure of shell by rules 182 lb Size of manhole in shell 17 x 13

Size of compensating ring 31.25 - 1.976 No. and Description of Furnaces in each boiler 3 Mains Material Steel Outside diameter 3 - 11

Length of plain part top 6 - 7.2 bottom 6 - 7.2 Thickness of plates top 9/16 bottom 9/16 Description of longitudinal joint Welded No. of strengthening rings No

Working pressure of furnace by the rules 187 lb Combustion chamber plates: Material Steel Thickness: Sides 11/16 Back 11/16 Top 11/16 Bottom 13/16

Pitch of stays to ditto: Sides 9 x 8 3/4 Back 9 1/8 x 8 5/8 Top 9 1/2 x 9 1/2 If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 181 lb

Material of stays Top steel Back & sides steel Diameter at smallest part 1 1/16 Area supported by each stay 90.25 sq Working pressure by rules 182 lb End plates in steam space:

Material Steel Thickness 1 1/16 Pitch of stays 19 x 20 1/2 How are stays secured Nuts Working pressure by rules 182 lb Material of stays Steel

Diameter at smallest part 3 Area supported by each stay 384.7 sq Working pressure by rules 183 lb Material of Front plates at bottom Steel

Thickness 1 1/2 Material of Lower back plate Steel Thickness 1 1/2 Greatest pitch of stays 16 x 8 7/8 Working pressure of plate by rules 222 lb

Diameter of tubes 3 1/4 Pitch of tubes 4 1/2 x 4 5/8 Material of tube plates Steel Thickness: Front 1 1/2 Back 1 3/16 Mean pitch of stays 9 1/8

Pitch across wide water spaces 14 1/4 Working pressures by rules 201 lb Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 7 x 17 1/8 Length as per rule 26 1/4 Distance apart 9 1/2 Number and pitch of Stays in each Two 9 1/2

Working pressure by rules 189 lb Superheater or Steam chest; how connected to boiler None Can the superheater be shut off and the boiler worked

separately No Diameter No Length No Thickness of shell plates No Material No Description of longitudinal joint No Diam. of rivet

holes No Pitch of rivets No Working pressure of shell by rules No Diameter of flue No Material of flue plates No Thickness No

If stiffened with rings No Distance between rings No Working pressure by rules No End plates: Thickness No How stayed No

Working pressure of end plates No Area of safety valves to superheater No Are they fitted with easing gear No



**DONKEY BOILER—** No. \_\_\_\_\_ Description \_\_\_\_\_

Made at \_\_\_\_\_ By whom made \_\_\_\_\_ When made \_\_\_\_\_ Where fixed \_\_\_\_\_

Working pressure \_\_\_\_\_ tested by hydraulic pressure to \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of safety valves \_\_\_\_\_

No. of safety valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ If fitted with easing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_

Dia. of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_

Descrip. of riveting long. seams \_\_\_\_\_ Dia. of rivet holes \_\_\_\_\_ Whether punched or drilled \_\_\_\_\_ Pitch of rivets \_\_\_\_\_

Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ 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 \_\_\_\_\_

Thickness of furnace crown plates \_\_\_\_\_ Stayed by \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_

Working pressure of furnace by rules \_\_\_\_\_ Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_

**SPARE GEAR.** State the articles supplied :—

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

*W. Eschellby* Manufacturer. *of main engines & boilers*

Dates of Survey while building { During progress of work in shops - - 1905 Sept: 14-24-29 Oct. 2-2-5-10-12-13-14-18-22-25-26-31 Nov: 1-1-3-3-16-21-22-24-29  
During erection on board vessel - - 24 Hpl. 19 05 Dec. 6-12-14-31  
Total No. of visits 24

Is the approved plan of main boiler forwarded herewith *No. 7 Plans*  
" " " donkey " " "

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

The boiler and machinery of this vessel have been constructed under special survey, the materials and workmanship are good & efficient - and when tested under steam were found satisfactory and in our opinion eligible for the notification *L.M.C. 12-05* in the Register Book. Subject to repairs to Donkey Boiler. See Report attached

It is submitted that this vessel is eligible for **THE RECORD** *L.M.C. 12-05* Subject to the S. Pr. being permanently repaired on vessel's return.

*Emd.*  
*21-12-05*  
*L.S.*  
*21-12-05*

The amount of Entry Fee.. £ 2 : 0 : 0 When applied for, 5-12-05  
Special .. .. £ 24 : 8 : 0  
Donkey Boiler Fee .. .. £ : :  
Travelling Expenses (if any) £ : : When received, 11-12-05

*Geo. A. Milner & A. Graham*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute *21-12-05*  
Assigned *W.M.*  
FRI. 22 DEC 1905  
*+ L.M.C. 12-05 subject*

MACHINERY CERTIFICATE  
WRITTEN.