

REPORT ON MACHINERY.

To 186 (Received in London Office 16/12/80)
 No. in Survey held at Hull Date, first Survey 6th Nov. '80 Last Survey 4th Decr 1880
 Book. 598
 on the iron screw steamer 'Thunder' Tons 598
 ster Aclan Built at London When built 1853
 Compound Stull By whom made C. Holmes & Co. when made 1880
 Compound Stull By whom made M. Samuelson when made 1874
 Compound Stull By whom made plating ship - 1880
 Registered Horse Power 80 Owners J. Watkins Port belonging to London

GINES, &c.—

Description of Engines Vertical inverted, direct acting, compound.
 Diameter of Cylinders 24" x 44" Length of Stroke 30 No. of Rev. per minute Point of Cut off, High Pressure Low Pressure
 Diameter of Screw shaft 7 7/8" Diameter of Tunnel shaft 7 3/8" Diameter of Crank shaft journals 7 3/4" Diameter of Crank pin 7 1/2" size of Crank webs 7 x 9"
 Diameter of screw Pitch of screw No. of blades 4 state whether moveable no total surface
 No. of Feed pumps 2 diameter of ditto 3 1/4" Stroke 14" Can one be overhauled while the other is at work no
 No. of Bilge pumps 2 diameter of ditto 3 1/4" Stroke 14" Can one be overhauled while the other is at work yes
 Where do they pump from Engine room bilge main hold.
 No. of Donkey Engines one Size of Pumps Where do they pump from Bilge main hold & sea
 Are all the bilge suction pipes fitted with roses yes Are the roses always accessible yes Are the sluices on Engine room bulkheads always accessible yes
 No. of bilge injections one and sizes 5 Valve Are they connected to condenser, or to circulating pump Circulating pump
 How are the pumps worked By working lever from piston rod crosshead.
 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 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 spigot and brass covering plate man. yes
 What pipes are carried through the bunkers none How are they protected x
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times yes
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges yes
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock 6th November '80 (Shaft not drawn - said to be sound only 18 months old)
 Is the screw shaft tunnel watertight yes and fitted with a sluice door yes worked from deck

BOILERS, &c.—

Number of Boilers one Description Circular, multitubular, ordinary marine type—
 Working Pressure 65 lb Tested by hydraulic pressure to 130 lb Date of test 29th November 1880
 Description of superheating apparatus or steam chest None fitted
 Can each boiler be worked separately x Can the superheater be shut off and the boiler worked separately x
 No. of square feet of fire grate surface in each boiler 52 sq. ft. Description of safety valves Spring loaded.
 No. to each boiler two area of each valve 14.19 Are they fitted with easing gear yes
 No. of safety valves to superheater x area of each valve x are they fitted with easing gear x
 Smallest distance between boilers and bunkers or woodwork 6 1/2 inches
 Diameter of boilers 13' 6" Length of boilers 11' 0" description of riveting of shell long. seams abreast butt abutting circum. seams Lapped & double riveted.
 Thickness of shell plates 27/32 diameter of rivet holes 15/16 whether punched or drilled punched pitch of rivets 3"
 Lap of plating 9 1/4 Straps per centage of strength of longitudinal joint 68 working pressure of shell by rules 67 lb
 Size of manholes in shell 16 x 13 size of compensating rings 4 x 4 x 7/8 angle iron
 No. of Furnaces in each boiler 3 outside diameter 36" length, top 7' 6" bottom 10' 0"
 Thickness of plates 9/16" description of joint single butt lap if rings are fitted no greatest length between stays 8' 0"
 Working pressure of furnace by the rules 98 lb
 Combustion chamber plating, thickness, sides 5/8 back 5/8 top 5/8
 Pitch of stays to ditto 12 sides 12 back 10 1/2 top 15
 If stays are fitted with nuts or riveted heads Sides back riv. top large nuts working pressure of plating by rules
 Diameter of stays at smallest part 1 7/16 sides back working pressure of ditto by rules
 End plates in steam space, thickness 7/8 x 7/8 double plates pitch of stays to ditto 14 1/2 x 14 1/2 (the two in centre 19 1/2 apart) how stays are secured double nuts washers
 Working pressure by rules diameter of stays at smallest part 2 in working pressure by rules
 Front plates at bottom, thickness 5/8 Back plates, thickness 5/8 greatest pitch of stays 10 1/2 working pressure by rules

28671 Iron

Diameter of tubes $3\frac{3}{4}$ pitch of tubes 4.7 thickness of tube plates, front $\frac{7}{8}$ back $\frac{7}{8}$
 How stayed *Not stayed* pitch of stays *as drawing* width of water spaces 1"
 Diameter of Superheater or Steam chest *none fitted* length ∞
 Thickness of plates ∞ description of longitudinal joint ∞ diameter of rivet holes ∞ pitch of rivets ∞
 Working pressure of shell by rules ∞ Diameter of flue ∞ thickness of plates ∞
 If stiffened with rings ∞ distance between rings ∞ Working pressure by rules ∞
 End plates of superheater, or steam chest; thickness ∞ How stayed ∞
 Superheater or steam chest; how connected to boiler ∞
Not new
DONKEY BOILER Description *Vertical, circular with internal furnace uptake*
 Made at *Gateshead* By whom made *Clark Chapman & Co.* when made *1879*
 Where fixed *In the hold* working pressure *50 lb* Tested by hydraulic pressure to *100* No. of Certificate *246*
 Fire grate area ∞ Description of safety valves *one dead loaded one lever loaded* No. of safety valves *two* area of each *4.9*
 If fitted with easing gear ∞ If steam from main boilers can enter the donkey boiler ∞
 Diameter of donkey boiler ∞ length ∞ description of riveting ∞
 thickness of shell plates ∞ diameter of rivet holes ∞ whether punched or drilled ∞
 pitch of rivets ∞ lap of plating ∞ per centage of strength of joint ∞
 thickness of crown plates ∞ stayed by ∞
 Diameter of furnace, top ∞ bottom ∞ length of furnace ∞
 thickness of 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 plates ∞ thickness of water tubes ∞

The foregoing is a correct description,

Manufacturer.

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

A new Main Boiler (of iron) placed in the ship and tested by hydraulic pressure to 135 lb.
 (This Boiler was made in 1874 but has never yet been used). All new boiler mountings. Stop Safety
 valves. Blow off & Drain cocks. (Sea & river). Main & donkey feeds. Main Steam & all other Copper
 pipes. New Stop valve in Engine room. Two new Cylinders. Pistons. Slides. Cross & complete
 pistons turned up. Crank shaft stripped & examined. Surface condenser. all tubes
 out. cleaned & replaced with new ferrules & tubes as requisite. Thrust examined. Outer end of
 shaft. Propeller & Stern tube examined in dry dock. (Shaft said to be 18 mo old). Air & circulating
 pumps & Valves overhauled. Bilge injection made non return. Suction from hold fitted to Engine
 bilge pump & donkey. Sea locks fitted in compliance with rules. New donkey engine
 pump fitted.
 Safety valves of Main Boiler set & tested under steam. Engines moved round in air
 steam at mornings.
 Donkey Boiler overhauled. Safety Valve loading corrected.

The amount of Entry Fee £ 1 : 0 : 0 received by me,

Special £ 4 : 4 : 0

Certificate (if required) £ 2 : 6 : 0 11/12/80

To be sent as per margin.

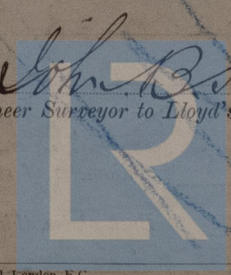
(Travelling Expenses, if any, £)

Committee's Minute

Friday, February 25th 1881.

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

It is submitted that this vessel
 is eligible to have the note
 Lloyd's Register of Shipping
 17/12/80



Lloyd's Register
 Foundation