

REPORT ON MACHINERY.

Port of **SUNDERLAND**

THUR, 25 AUG 1898

Received at London Office

No. in Survey held at *Sunderland* Date, first Survey *25th Sept. 96* Last Survey *19th Aug. 18 98*
 Book. *Steel S.S. "Tuscarora"* (Number of Visits *59*)
 on the *Steel S.S. "Tuscarora"* Tons { Gross *6117*
 ster *J. C. Payne* Built at **SUNDERLAND** By whom built *Sir James Laing* Net *3925*
 rines made at *Sunderland* By whom made *J. Dickinson & Sons* When built *1898*
 lers made at " By whom made " when made *1898*
 istered Horse Power *570* Owners *The Tuscarora Steamship Co. Ltd* Port belonging to *London.*
 n. Horse Power as per Section 28 *567* Is Electric Light fitted *Yes*

GINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*
 Diameter of Cylinders *29"-48"-78"* Length of Stroke *54"* Revolutions per minute *70* Diameter of Screw shaft as per rule *15¹/₈"*
 Diameter of Tunnel shaft as per rule *13¹/₄"* as fitted *15¹/₂"* Diameter of Crank shaft journals *15¹/₂"* Diameter of Crank pin *15¹/₂"* Size of Crank webs *Patent*
 Diameter of screw *14'-6"* Pitch of screw *18'-6"* No. of blades *4* State whether moveable *Yes* Total surface *113¹/₂ sq ft*
 No. of Feed pumps *2* Diameter of ditto *4¹/₂"* Stroke *30* Can one be overhauled while the other is at work *Yes*
 No. of Bilge pumps *2* Diameter of ditto *5"* Stroke *30* Can one be overhauled while the other is at work *Yes*
 No. of Donkey Engines *2* Sizes of Pumps *7¹/₂ x 5" x 6"* No. and size of Suctions connected to both Bilge and Donkey pumps
 Engine Room *2 P. 3¹/₂ 2 Cent. 3¹/₂" 2 Sh. 3¹/₂"* In Holds, &c. *F.B. Tank 1 of 5" No. 1 Coffdam. 1 of 5" No. 2 24 Coff. 1 of 6"*
2 Nos. 1, 2, 3, 4 Tween Decks 2 of 3¹/₂" in each. also oil pumping service in Nos. 1 to 10 tanks 2 of 1" dia in each
 No. of bilge injections *1* sizes *8"* Connected to ~~condenser, or to~~ circulating pump Is a separate donkey suction fitted in Engine room & size *Two 3¹/₂"*
 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 all 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 *Never* Is the screw shaft tunnel watertight *Yes*
 Is it fitted with a watertight door *Yes* worked from *Top Platform*

ILLERS, &c.—(Letter for record *S*) Total Heating Surface of Boilers *8080 sq ft* Is forced draft fitted *Yes*
 No. and Description of Boilers *2 Double ended Cylindrical* Working Pressure *170 lbs* Tested by hydraulic pressure to *340 lbs*
 Date of test *28/4/98* Can each boiler be worked separately *Yes* Area of fire grate in each boiler *104¹/₂ sq ft* No. and Description of safety valves to
 each boiler *2 Spring* Area of each valve *12.58 sq in* Pressure to which they are adjusted *175 lbs* Are they fitted
 with easing gear *Yes* Smallest distance between boilers or uptakes and bunkers or woodwork *4'-0"* Mean diameter of boilers *15'-1¹/₂"*
 Length *17'-0"* Material of shell plates *Steel* Thickness *1¹/₂"* Description of riveting: circum. seams *Double Lap* long. seams *Double Butt.*
 Diameter of rivet holes in long. seams *1³/₈"* Pitch of rivets *9⁵/₁₆"* Lap of plates or width of butt straps *1'-8¹/₈"*
 Percentages of strength of longitudinal joint rivets *85.2* Working pressure of shell by rules *172 lbs* Size of manhole in shell *16" x 12"*
 Size of compensating ring *37¹/₂ x 29¹/₂"* No. and Description of Furnaces in each boiler *6 Morrison* Material *Steel* Outside diameter *3'-11"*
 Length of plain part *6'-9¹/₃₂"* Thickness of plates *1¹/₃₂"* Description of longitudinal joint *Welded* No. of strengthening rings *None*
 Working pressure of furnace by the rules *174 lbs* Combustion chamber plates: Material *Steel* Thickness: Sides *3¹/₂"* Back *✓* Top *2¹/₃₂"* Bottom *1⁵/₁₆"*
 Pitch of stays to ditto: Sides *9" x 9"* Back *✓* Top *9" x 9"* If stays are fitted with nuts or riveted heads *None* Working pressure by rules *183 lbs*
 Material of stays *Steel* Diameter at smallest part *1.48"* Area supported by each stay *87 sq in* Working pressure by rules *170 lbs* End plates in steam space:
 Material *Steel* Thickness *1³/₃₂"* Pitch of stays *18" x 16"* How are stays secured *Double Butts* Working pressure by rules *174 lbs* Material of stays *Steel*
 Diameter at smallest part *2.66"* Area supported by each stay *288 sq in* Working pressure by rules *174 lbs* Material of Front plates at bottom *Steel*
 Thickness *3¹/₄"* Material of Lower back plate *Steel* Thickness *3¹/₄"* Greatest pitch of stays *✓* Working pressure of plate by rules *✓*
 Diameter of tubes *2¹/₂"* Pitch of tubes *3³/₄"* Material of tube plates *Steel* Thickness: Front *3¹/₂"* Back *1⁵/₁₆"* Mean pitch of stays *7¹/₂"*
 Pitch across wide water spaces *1'-1³/₄"* Working pressures by rules *177* Girders to Chamber tops: Material *Steel* Depth and
 Thickness of girder at centre *10¹/₄ x 1¹/₈ double* Length as per rule *4'-1¹/₁₆"* Distance apart *9* Number and pitch of Stays in each *4-9" pitch*
 Working pressure by rules *173 lbs* 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 *✓*
 Stays 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 *✓*

DONKEY BOILER— Description *Mult. Circ. 2 Horizontal Furnaces*
 Made at *Stockton* By whom made *Piley Bros* When made *5/2/98* Where fixed *Fidley*
 Working pressure *170 lbs* Tested by hydraulic pressure to *340 lbs* No. of Certificate *648* Fire grate area *32 sq ft* Description of safety valves *Spring*
 No. of safety valves *2* Area of each *7.07* Pressure to which they are adjusted *170 lbs* If fitted with easing gear *Yes* If steam from main boilers enter the donkey boiler *No* Diameter of donkey boiler *11.0"* Length *10.6"* Material of shell plates *Steel* Thickness *15/16"*
 Description of riveting long. seams *D. B. Shop.* Diameter of rivet holes *1 1/16"* Whether punched or drilled *drilled* Pitch of rivets *7 3/4"*
 Lap of plating — Per centage of strength of joint Rivets *90.0* Thickness of shell *end* plates *15/16"* Radius of do. *1 1/2"* of Stays to do. *15 1/2"*
 Dia. of stays *2 1/2"* Diameter of furnace Top *40"* Bottom — Length of furnace *6-10"* Thickness of furnace plates *15/32"* Description of joint *weld* Thickness of furnace crown plates *9/16"* Stayed by *1 1/8" stays* Working pressure of shell by rules *170 lbs*
 Working pressure of furnace by rules *170 lbs* Diameter of uptake *3 1/4"* Thickness of uptake plates *15/16"* Thickness of water tubes *5/16"*

SPARE GEAR. State the articles supplied:— *Two top & bottom end bolts & nuts, Two main bearing bolts & nuts, 1 set of coupling bolts, 1 set of feed & bilge pump valves, 1 set of piston springs, Assorted nuts & bolts, iron & nuts, Propeller, tail shaft.*

The foregoing is a correct description,
John Nicholson & Sons, Limited. Manufacturer of main engines & boilers

Dates of Survey while building
 During progress of work in shops — *90. Sep. 25. Oct. 16. 27. 31. Dec. 23. 97/ Jan. 28. Feb. 17. 18. Mch. 1. 9. 12. 18. Apl. 5. 7. 9. 14. 20. 98*
 During erection on board vessel — *6. 11. 13. 14. 18. 19. 20. 24. June 1. 17. 30. July 1. 25. Sep. 21. 28. Oct. 14. 18. Nov. 3. 26. 30. 98/ Mch. 3. 10. 1999*
 Total No. of visits *59*

General Remarks (State quality of workmanship, opinions as to class, &c.) *Satisfactory*
ENGINES—Length of stern bush *5-8 1/2"* Diameter of crank shaft journals *as per rule 1 1/4 3/8"* Diameter of thrust shaft under collars *1-3"*
BOILERS—Range of tensile strength *27,630 lbs* Are they welded or flanged *flanged* **DONKEY BOILERS**—No. *1* Range of tensile strength *27,630 lbs*
 Is the approved plan of main boiler forwarded herewith *Yes* Is the approved plan of donkey boiler forwarded herewith *No*

The machinery & boilers of this vessel have been built under Special Survey. The material & workmanship are good. Steam pipes tested to 340 lbs & found satisfactory.
Engines & boilers examined under steam & safety valves adjusted to working pressure.

In our opinion the machinery of this vessel is eligible for the Record in the Register Book of + L. M. C. 8/98

It is submitted that this vessel is eligible for THE RECORD. + L. M. C. 8.98 7 D. See lights.

25/8/98

The amount of Entry Fee... £ 3 : - :
 Special ... £ 48 : 10 :
 Donkey Boiler Fee ... £ 57 : 10 :
 Travelling Expenses (if any) £ : :
 Total £ 108 : 0 :
 When applied for, *22. Aug. 18. 98*
 Received, *25. 8. 98*
Robt. Balfour Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute *FRI, 26 AUG 1898*
 Assigned *+ L M C 8.98 7 D See lights*

