

# REPORT ON MACHINERY.

Port of **SUNDERLAND**

THUR, 25 AUG 1898

Received at London Office

No. in Survey held at *Sunderland* Date, first Survey *25<sup>th</sup> Sept 96* Last Survey *19<sup>th</sup> Augst. 18 98*

Book. on the *Steel S.S. "Suscarora"*

(Number of Visits *59*)

Tons { Gross *6117*  
Net *3925*  
When built *1898*

Master *J. C. Payne* Built at **SUNDERLAND** By whom built *Sir James Laing*

Rivets made at *Sunderland* By whom made *J. Dickenson & Sons* when made *1898*

Welders made at " By whom made " when made *1898*

Registered Horse Power *570* Owners *The Suscarora Steamship Co. Ltd* Port belonging to *London.*

Net 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 *15-<sup>5</sup>/<sub>8</sub>"*  
as fitted *15-<sup>1</sup>/<sub>2</sub>"*

Diameter of Tunnel shaft as per rule *13-<sup>3</sup>/<sub>4</sub>"* Diameter of Crank shaft journals *15-<sup>1</sup>/<sub>2</sub>"* Diameter of Crank pin *15-<sup>1</sup>/<sub>2</sub>"* Size of Crank webs *Patent*  
as fitted *15"*

Diameter of screw *14'-6"* Pitch of screw *18'-6"* No. of blades *4* State whether moveable *Yes* Total surface *113-<sup>1</sup>/<sub>2</sub> sq ft*

No. of Feed pumps *2* Diameter of ditto *4-<sup>1</sup>/<sub>2</sub>"* 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 *7-<sup>1</sup>/<sub>2</sub> x 5" x 6"* No. and size of Suctions connected to both Bilge and Donkey pumps

Engine Room *2 P. 3-<sup>1</sup>/<sub>2</sub> 2 Cent. 3-<sup>1</sup>/<sub>2</sub>" 2 Sh. 3-<sup>1</sup>/<sub>2</sub>"* In Holds, &c. *F.B. Tank 1 of 5" No. 1 Coffdam. 1 of 5" No. 2 2 of 4" Coff. 1 of 6"*

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 3-<sup>1</sup>/<sub>2</sub>"*

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*

How are the 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*

**WATERS, &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 *107-<sup>1</sup>/<sub>2</sub> sq ft* No. and Description of safety valves to each boiler *2 Spring* Area of each valve *12-55 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-<sup>1</sup>/<sub>2</sub>"*

Length *17'-0"* Material of shell plates *Steel* Thickness *1-<sup>3</sup>/<sub>32</sub>"* Description of riveting: circum. seams *Double Lap* long. seams *Double Butt.*

Diameter of rivet holes in long. seams *1-<sup>3</sup>/<sub>8</sub>"* Pitch of rivets *9-<sup>5</sup>/<sub>16</sub>"* Lap of plates or width of butt straps *1'-8-<sup>1</sup>/<sub>8</sub>"*

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 *37-<sup>1</sup>/<sub>2</sub> x 29-<sup>1</sup>/<sub>2</sub>"* No. and Description of Furnaces in each boiler *6 Morrison* Material *Steel* Outside diameter *3'-11"*

Length of plain part top *6-9-<sup>1</sup>/<sub>32</sub>"* Thickness of plates crown *1-<sup>1</sup>/<sub>32</sub>"* 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 *3-<sup>1</sup>/<sub>2</sub>"* Back *✓* Top *2-<sup>1</sup>/<sub>32</sub>"* Bottom *1-<sup>1</sup>/<sub>16</sub>"*

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 *870 sq in* Working pressure by rules *170 lbs* End plates in steam space:

Material *Steel* Thickness *1-<sup>3</sup>/<sub>32</sub>"* 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 *2880 sq in* Working pressure by rules *174 lbs* Material of Front plates at bottom *Steel*

Thickness *3-<sup>1</sup>/<sub>4</sub>"* Material of Lower back plate *Steel* Thickness *3-<sup>1</sup>/<sub>4</sub>"* Greatest pitch of stays *✓* Working pressure of plate by rules *✓*

Diameter of tubes *2-<sup>1</sup>/<sub>2</sub>"* Pitch of tubes *3-<sup>3</sup>/<sub>4</sub>"* Material of tube plates *Steel* Thickness: Front *3-<sup>1</sup>/<sub>2</sub>"* Back *1-<sup>5</sup>/<sub>16</sub>"* Mean pitch of stays *7-<sup>1</sup>/<sub>2</sub>"*

Pitch across wide water spaces *1'-1-<sup>3</sup>/<sub>4</sub>"* Working pressures by rules *177* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *10-<sup>1</sup>/<sub>4</sub> x 1-<sup>1</sup>/<sub>8</sub> double* Length as per rule *4'-1-<sup>5</sup>/<sub>16</sub>"* 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 *✓*

Are they 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 *✓*

SLD1012-0154



**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 *Sprung*  
 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. Shap.* Diameter of rivet holes *1/16"* Whether punched or drilled *drilled* Pitch of rivets *7/16"*  
 Lap of plating — Per centage of strength of joint Rivets *90.0* Plates *86.3* Thickness of shell *15/16"* Radius of do. *15/16"* of Stays to do. *15/16"*  
 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" Stay 1 1/8" Pitch* 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" & 5/8"* 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. Apr. 5. 7. 9. 14. 20.
	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.
	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 *7-3"*  
**BOILERS**—Range of tensile strength *27 to 30 tons* Are they welded or flanged *flanged* **DONKEY BOILERS**—No. *1* Range of tensile strength *27 to 30*  
 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.N.C. 8/98*

It is submitted that this vessel is eligible for THE RECORD. *L.N.C. 8.98 7 D. See light.*

*25/8/98*

The amount of Entry Fee... £ 3 : - : When applied for, *22. Aug. 18. 98*  
 Special ... £ 48 : 10 :  
 Donkey Boiler Fee Total £ 51 : 10 :  
 Travelling Expenses (if any) £ : :  
 £ 51 : 10 :  
 When received, *25. 8. 98*  
*W. J. Palford*  
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

Committee's Minute **FRI, 26 AUG 1898** X MACHINERY CERTIFICATE WRITTEN.  
 Assigned *+ 2 Mch 8, 98 7 D See light*

