

# REPORT ON MACHINERY.

No. 18427

Port of *Hull*

Received at London Office

SAT 20 OCT 1906

No. in Survey held at *Hull* Date, first Survey *Dec. 19/05* Last Survey *17<sup>th</sup> Oct 1906*  
 Reg. Book. *99* on the *Steel S. S. San Hong Liong* (Number of Visits *41*)  
 Master Built at *Montrose* By whom built *Montrose S. B. Co.* Tons } Gross  
 Engines made at *Hull* By whom made *Messrs Earle's Co. Ltd* when made *1906* } Net  
 Boilers made at *Hull* By whom made *Messrs Earle's Co. Ltd* when made *1906* }  
 Registered Horse Power \_\_\_\_\_ Owners \_\_\_\_\_ Port belonging to *London*  
 Nom. Horse Power as per Section 28 *125* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

**ENGINES, &c.**—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*  
 Dia. of Cylinders *16" - 26 1/2" - 43"* Length of Stroke *30"* Revs. per minute *112* Dia. of Screw shaft *as per rule 9.76* Material of *Iron*  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube *No* 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 *two separate liners* 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 \_\_\_\_\_ If two  
 liners are fitted, is the shaft lapped or protected between the liners *No* Length of stern bush *43"*  
 Dia. of Tunnel shaft *as per rule 7.91* Dia. of Crank shaft journals *as per rule 8.35* Dia. of Crank pin *8 1/2"* Size of Crank webs *15 1/2" x 5 1/2"* Dia. of thrust shaft under  
 collars *8 1/4"* Dia. of screw *12-0* Pitch of Screw *11-0"* No. of Blades *4* State whether moveable *No* Total surface *43 sq*  
 No. of Feed pumps *2* Diameter of ditto *2 1/2"* Stroke *18"* Can one be overhauled while the other is at work *Yes*  
 No. of Bilge pumps *2* Diameter of ditto *3"* Stroke *18"* Can one be overhauled while the other is at work *Yes*  
 No. of Donkey Engines *Two* Sizes of Pumps *6" x 4" x 6" & 6" x 6" x 6"* No. and size of Suctions connected to both Bilge and Donkey pumps  
 In Engine Room *Three 2 1/2", One 3", One 3 1/2"* In Holds, &c. *3 to aft tank, 1 to aft peak tank, 2 to aft hold*  
 (all 2 1/2"), *1 to tunnel well, 1 to feed tank, 1 to space under boiler, two to fore hold, (all 2 1/2")*  
 No. of Bilge Injections *1 sizes 3 1/2"* Connected to condenser, or to circulating pump *Is a separate Donkey Suction fitted in Engine room & size Yes 3"*  
 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 *0*  
 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 \_\_\_\_\_  
 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*  
 Dates of examination of completion of fitting of Sea Connections *5.10.06* of Stern Tube *5.10.06* Screw shaft and Propeller *5.10.06*  
 Is the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *top platform*

**BOILERS, &c.**—(Letter for record *S*) Manufacturers of Steel *Steel Company of Scotland*  
 Total Heating Surface of Boilers *1735 sq* Is Forced Draft fitted *Yes* No. and Description of Boilers *One cyl. Multitubular*  
 Working Pressure *175 lbs* Tested by hydraulic pressure to *350 lbs* Date of test *16.8.06* No. of Certificate *1496*  
 Can each boiler be worked separately \_\_\_\_\_ Area of fire grate in each boiler *40 sq* No. and Description of Safety Valves to  
 each boiler *Two Spring* Area of each valve *7.07 sq* Pressure to which they are adjusted *178 lbs* Are they fitted with easing gear *Yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *20"* Mean dia. of boilers *12-9"* Length *11-4"* Material of shell plates *Steel*  
 Thickness *1 1/8"* Range of tensile strength *28-32 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *L. D.*  
 long. seams *D. S. Y. R.* Diameter of rivet holes in long. seams *1 3/8"* Pitch of rivets *8"* Lap of plates or width of butt straps *17 1/2"*  
 Per centages of strength of longitudinal joint rivets *91.52* Working pressure of shell by rules *194 lbs* Size of manhole in shell *16" x 12"*  
 plate *85.15* Size of compensating ring *2-7" x 2-3" x 1 1/2"* No. and Description of Furnaces in each boiler *Two Daighons* Material *Steel* Outside diameter *4-0 1/2"*  
 Length of plain part top \_\_\_\_\_ bottom \_\_\_\_\_ Thickness of plates crown *19/32"* Description of longitudinal joint *Welded* No. of strengthening rings *0*  
 Working pressure of furnace by the rules *195 lbs* Combustion chamber plates: Material *S* Thickness: Sides *5/8"* Back *5/8"* Top *5/8"* Bottom *5/8"*  
 Pitch of stays to ditto: Sides *8" x 8"* Back *8" x 8"* Top *8" x 8"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *210 lbs*  
 Material of stays *Steel* Diameter at smallest part *Steel* Area supported by each stay *64 sq* Working pressure by rules *185 lbs* End plates in steam space:  
 Material *Steel* Thickness *1 1/4"* Pitch of stays *16" x 18"* How are stays secured *D. No.* Working pressure by rules *241 lbs* Material of stays *Steel*  
 Diameter at smallest part *2 1/8"* Area supported by each stay *288 sq* Working pressure by rules *215 lbs* Material of Front plates at bottom *Steel*  
 Thickness *7/8"* Material of Lower back plate *Steel* Thickness *7/8" & 3/4" Old* Greatest pitch of stays *16" x 12"* Working pressure of plate by rules *252 lbs*  
 Diameter of tubes *2 1/2"* Pitch of tubes *3 3/4" x 3 3/4"* Material of tube plates *Steel* Thickness: Front *7/8"* Back *7/8"* Mean pitch of stays *7 1/2"*  
 Pitch across wide water spaces *13 1/2"* Working pressures by rules *182 lbs* Girders to Chamber tops: Material *Steel* Depth and  
 thickness of girder at centre *7 1/2" x 1 3/4"* Length as per rule *2-3 1/2"* Distance apart *8"* Number and pitch of stays in each *Two 8"*  
 Working pressure by rules *227 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 \_\_\_\_\_  
 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 \_\_\_\_\_

W1202-0249

Lloyd's Register Foundation

**VERTICAL DONKEY BOILER—** Manufacturers of Steel

No. \_\_\_\_\_ Description \_\_\_\_\_

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

Working pressure tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_ Fire grate area \_\_\_\_\_ Description of Safety Valves \_\_\_\_\_

No. of Safety Valves \_\_\_\_\_ Area of each \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Date of adjustment \_\_\_\_\_

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 \_\_\_\_\_ Separation of rivets \_\_\_\_\_ Lap of plating \_\_\_\_\_ Per centage of strength of joint \_\_\_\_\_ Rivets \_\_\_\_\_ Plates \_\_\_\_\_

Working pressure of shell by rules \_\_\_\_\_ 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 \_\_\_\_\_

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

Diameter of uptake \_\_\_\_\_ Thickness of uptake plates \_\_\_\_\_ Thickness of water tubes \_\_\_\_\_ Dates of survey \_\_\_\_\_

**SPARE GEAR.** State the articles supplied:— One propeller, one screw shaft, two each top and bottom end connecting rod bolts and nuts, two main bearing bolts, and nuts, one set coupling bolts and nuts, one set each feed, bilge circulating pump valves, and a quantity of assorted bolts, nuts etc

The foregoing is a correct description,

**FOR EARLE'S**

Manufacturer.

SHIPBUILDING & ENGINEERING CO. LIMITED

*F. J. Dalrymple* SECRETARY

Dates of Survey while building	During progress of work in shops—	1905: Dec. 19.	1906: Jan. 20.	Feb. 7.	22.	Mar. 5.	9.	16.	22.	Apr. 5.	24.	May 3.	8.	10.	18.	21.	29.	Jun. 1.	8.				
	During erection on board vessel—	Jun. 18.	25.	27.	July 2.	11.	21.	27.	Aug. 13.	16.	Sep. 17.	18.	21.	26.	Oct. 1.	3.	5.	6.	8.	10.	11.	15.	17.
	Total No. of visits	41																					

Is the approved plan of main boiler forwarded herewith  Yes

" " " donkey " " "  Yes

**Dates of Examination of principal parts—** Cylinders 9.3.06 Slides 9.3.06 Covers 9.3.06 Pistons 3.5.06 Rods 3.5.06

Connecting rods 3.5.06 Crank shaft 24.4.06 Thrust shaft 24.4.06 Tunnel shafts 10.5.06 Screw shaft 17.9.06 Propeller 5.10.06

Stern tube 5.10.06 Steam pipes tested 26.9.06 Engine and boiler seatings 17.9.06 Engines holding down bolts 1.10.06

Completion of pumping arrangements 12.10.06 Boilers fixed 1.10.06 Engines tried under steam 11.10.06

Main boiler safety valves adjusted 1.10.06 Thickness of adjusting washers 3/8" 3/8"

Material of Crank shaft *Steel* Identification Mark on Do. *496A.EC* Material of Thrust shaft *Iron* Identification Mark on Do. *53 GAH*

Material of Tunnel shafts *Iron* Identification Marks on Do. *53 GAH* Material of Screw shafts *Iron* Identification Marks on Do. *47 GAH*

Material of Steam Pipes *Solid drawn Copper* Test pressure *400 lbs*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The engines and boiler of this vessel have been constructed under special survey in accordance with the Rules, the materials and workmanship are good. The boiler tested by hydraulic pressure and with the engines placed on board and tested under steam. They are now in good order, and safe working condition and respectfully submitted as being eligible in my opinion to be classed with the notation of 1/2 L.M.C. 10.06 in the Register Book.*

It is submitted that this vessel is eligible for **THE RECORD** H.L.M.C. 10.06. F.D. ELEC. LIGHT.

The amount of Entry Fee...	£ 2 : -	When applied for,	19/10/06
Special .....	£ 18 : 15	When received,	23/10/06
Donkey Boiler Fee .....	£ - : -		
Travelling Expenses (if any) £	- : -		

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

Committee's Minute TUES. 23 OCT 1906

Assigned

+ L.M.C. 10.06

F. D. Elec. Light

MACHINERY CERTIFICATE WRITTEN 23-10-06



Lloyd's Register Foundation

Certificate (if required) to be sent to \_\_\_\_\_

FLAT (If B. GARE) State thick way of Bo. S. Br. DOUB. Long and thick. POOR. RAISE. BRID. FORE. LENC. main. Plate. Has. FRA. REVE. Re. Low. Bows. Top. Rigs. Sall. Equ. Num. Cert. 83. 83. 83. 30. 30. Nu. Ce. 30. At. St. Sta. Boa. Pun. Wh. Eng. Wh. Coa. Nu. Cel. Can. Sta. Nu. Bu. Th. Bu.