

# REPORT ON MACHINERY.

Port of Belfast

Received at London Office **THURS. 22 SEP. 1892**

No. in Survey held at Belfast  
Reg. Book.

Date, first Survey Oct 24<sup>th</sup> 1891 Last Survey Sept 14<sup>th</sup> 1892  
(Number of Visits 50)

on the Steel screw steamer "Southern Cross" Tons <sup>Gross</sup> 5049  
<sub>Net</sub> 3311

Master A. Child Built at Belfast By whom built Workman Clark & Co Ltd When built 1892

Engines made at Belfast By whom made Workman Clark & Co Ltd when made 1892

Boilers made at Belfast By whom made Workman Clark & Co Ltd when made 1892

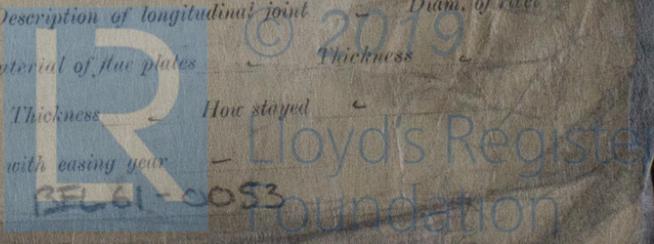
Registered Horse Power 600 Owners Wincott Cooper & Co Port belonging to London

Nom. Horse Power as per Section 28 504

**ENGINES, &c.—** Description of Engines Triple expansive No. of Cylinders Three  
 Diameter of Cylinders 29 : 46 : 75 Length of Stroke 54 Revolutions per minute 68 Diameter of Screw shaft as per rule 14.12  
 Diameter of Tunnel shaft as fitted 13.42 Diameter of Crank shaft journals 15" Diameter of Crank pin 15" Size of Crank webs 10 1/2 x 21 shaped  
 Diameter of screw 19" 3" Pitch of screw 19" 0" No. of blades 4 State whether moveable No Total surface 85.6 projected  
96.2 actual  
 No. of Feed pumps 2 Diameter of ditto 5 1/4 Stroke 27" Can one be overhauled while the other is at work yes  
 No. of Bilge pumps 2 Diameter of ditto 6 1/4 Stroke 27" Can one be overhauled while the other is at work yes  
 No. of Donkey Engines Two Cent. Sizes of Pumps (Pearce duplex 4 x 6 x 6) No. and size of Suctions connected to both Bilge and Donkey pumps  
weiss feed 10 x 8 x 21 (Two 10" suction for circulating & one for ballast)  
 In Engine Room one centre 3 1/2" & two wing 3" suction in Holds, &c. No 1 (foremost) hold, one 3"  
No 2 hold, two 3". No 3 hold, two 3". No 4 hold, two 3". No 5 hold well 3" & tunnel well 3"  
 No. of bilge injections one size 7" Connected to condenser, or to circulating pump at main Is a separate donkey suction fitted in Engine room & size yes 3 1/2"  
 Are all the bilge suction pipes fitted with roses except bilge injection Are the roses in Engine room always accessible yes Are the sluices on Engine room bulkheads always accessible yes  
 Are all connections with the sea direct on the skin of the ship yes Are they Valves or Cocks valves & cocks  
 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 a spigot and brass covering plate yes  
 What pipes are carried through the bunkers bilge suction pipes How are they protected wood casing  
 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 21.7.92 before launching Is the screw shaft tunnel watertight yes  
 Is it fitted with a watertight door yes worked from upper deck.

**OILERS, &c.—** (Letter for record S) Total Heating Surface of Boilers 8936.5  
 No. and Description of Boilers Three double ended Working Pressure 170 Tested by hydraulic pressure to 340  
 Date of test 10.8.92 Can each boiler be worked separately yes Area of fire grate in each boiler 96 No. and Description of safety valves to  
 each boiler Two Cockburn's Area of each valve 9.62 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 15" Mean diameter of boilers 13.6"  
 Length 17' 0" Material of shell plates Steel Thickness 1 1/4" Description of riveting: circum. seams ends doub riv long. seams double straps  
other treble riv  
 Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/4" & 4 1/8" Lap of plates or width of butt straps 18 1/8" x 1" thick  
 Per centages of strength of longitudinal joint 88.8 Working pressure of shell by rules 188 Size of manhole in shell 12 x 16  
 Size of compensating ring 24 x 28 x 1" No. and Description of Furnaces in each boiler Four ribbed Material Steel Outside diameter 49 3/16  
 Length of plain part top 19 Thickness of plates bottom 32 Description of longitudinal joint welded No. of strengthening rings 8 ribs  
 Working pressure of furnace by the rules 176 Combustion chamber plates: Material Steel Thickness: Sides 9/16 Back 9/16 Top 9/16 Bottom 11/16  
 Pitch of stays to ditto: Sides 7 5/8 Back 7 5/8 Top 7 5/8 If stays are fitted with nuts or riveted heads nuts Working pressure by rules 188  
 Material of stays Steel Diameter at smallest part 1 3/8 Area supported by each stay 58.2 Working pressure by rules 203 End plates in steam space:  
 Material Steel Thickness 7/8 Pitch of stays 15 3/4 How are stays secured doub. nuts & doublers Working pressure by rules 173 Material of stays Steel  
 Diameter at smallest part 2 1/2 Area supported by each stay 248 Working pressure by rules 182 Material of Front plates at bottom Steel  
 Thickness 3/4 Material of Lower back plate Steel Thickness 3/4 Greatest pitch of stays as approx Working pressure of plate by rules 170  
 Diameter of tubes 3 1/2 Pitch of tubes 4 3/4 Material of tube plates Steel Thickness: Front 15/16 Back 1 1/16 Mean pitch of stays 9 1/2  
 Pitch across wide water spaces 15 1/2 Working pressures by rules 170 + Girders to Chamber tops: Material Steel Depth and  
 thickness of girder at centre 10 1/2 x 3/4 (x 2) Length as per rule 39 7/8 Distance apart 7 5/8 Number and pitch of Stays in each four at 7 5/8  
 Working pressure by rules 170 Superheater or Steam chest; how connected to boiler 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

Form No. 8-12 (2/92) 30, same lbs. (12) L.R.P.H. 5,000.



**DONKEY BOILER**— Description *No donkey boiler*

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 casing gear \_\_\_\_\_ If steam from main boilers can enter the donkey boiler \_\_\_\_\_

Description of riveting long seams \_\_\_\_\_ Diameter of donkey boiler \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_ Thickness \_\_\_\_\_

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:— *Interchangeable length of crank shaft. Propeller. Set escape valves & springs. Set coupling bolts & nuts: 2 top end & 2 bot. end con. rod bolts: 2 main bearing bolts: spare holding down-punk ring & cylinder cover bolts: set packing rings & springs for each cyl: Air pump bucket, rod, guards & head valve & seat: 50 condenser tubes: The foregoing is a correct description, 12 boiler tubes. Bilge & feed pump valves: safety valve & springs. Chas. Allaw DIRECTOR. Manufacturer. Fire bars. Assorted iron & bolt & nuts. White metal.*

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

The engines & boilers have been made & fitted on board under special survey & the workmanship throughout is good.

The boilers are made in accordance with the approved drawings & have been tested to double the working pressure.

The engines were worked under full steam for several hours in the Belfast Lough with good results. The safety valves are adjusted to blow off at 175 lbs per sq in.

The vessel is fitted with an electric light installation by Messrs J. M. Holmes & Co. A report of the particulars will be forwarded shortly.

In my opinion the machinery renders the vessel eligible for the record of **+LMC 9.92** in the Register Book.

The plan of boilers, & three plans showing the pumping arrangements are returned herewith.

It is submitted that this vessel is eligible for THE RECORD. **+LMC 9.92**

*W.A.*  
22-9-92

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

The amount of Entry Fee... £ 3 : 0 : 0 When applied for.

Special ... .. £ 45 : 4 : 0 17<sup>th</sup> Sep. 18.92

Donkey Boiler Fee ... .. £ : : : When received.

Travelling Expenses (if any) £ : 8 : 6 21<sup>st</sup> Sep. 18.92

*A.L. Jones*  
Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.

Committee's Minute \_\_\_\_\_

Assigned \_\_\_\_\_

FPI 23 SEP 1892

**+LMC 9.92**

