

# REPORT ON MACHINERY.

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Date of writing Report 19 When handed in at Local Office MAR 8 1911 10 Port of Newcastle on Tyne  
 No. in Survey held at Newcastle Date, First Survey 28<sup>th</sup> July 1910 Last Survey 1<sup>st</sup> March 1911  
 Reg. Book. on the S. S. Arabien (Number of Visits 54)  
 Master Walker Built at Walker By whom built Swan Hunter & Wigham Richardson When built 1911  
 Engines made at Walker By whom made Ditto when made 1911  
 Boilers made at Walker By whom made Ditto when made 1911  
 Registered Horse Power Owners Ostasiatische Kompagnie Alstenaalshol Port belonging to Kopenhagen  
 Nom. Horse Power as per Section 28 491 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted Yes

**ENGINES, &c.**—Description of Engines Inverted triple expansion No. of Cylinders 3 No. of Cranks 3  
 Dia. of Cylinders 27" 44" 73" Length of Stroke 48" Revs. per minute 70 Dia. of Screw shaft 14 1/2" Material of screw shaft Steel  
 Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes 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 Yes 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 Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 4' 11 1/2"  
 Dia. of Tunnel shaft 13 3/4" Dia. of Crank shaft journals 13 9/8" Dia. of Crank pin 14" Size of Crank webs 9 1/2" x 22 1/2" Dia. of thrust shaft under collars 14 1/4" Dia. of screw 18.0" Pitch of Screw 16.9" No. of Blades 4 State whether moveable no Total surface 96 sq ft  
 No. of Feed pumps 2 Diameter of ditto 4" Stroke 26" Can one be overhauled while the other is at work Yes  
 No. of Bilge pumps 2 Diameter of ditto 4" Stroke 26" Can one be overhauled while the other is at work Yes  
 No. of Donkey Engines 3 Sizes of Pumps 9 x 11 x 10, 8 x 6 x 8, 7 x 4 1/2 x 8" No. and size of Suctions connected to both Bilge and Donkey pumps in Engine Room 4 of 3 1/2" in Holds, &c. 2 of 3 1/2" to each & 1 of 2 1/2"  
 No. of Bilge Injections oversizes 8" Connected to condenser, or to circulating pump Centrifugal Pump Is a separate Donkey Suction fitted in Engine room & size Yes 3 1/2"  
 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 Yes  
 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 forward hold suction How are they protected strong 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  
 Dates of examination of completion of fitting of Sea Connections 24.1.11 of Stern Tube 24.1.11 Screw shaft and Propeller 24.1.11  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from upper platform

**BOILERS, &c.**—(Letter for record Y) Manufacturers of Steel J. Spence & Sons  
 Total Heating Surface of Boilers 8810 sq ft Is Forced Draft fitted no No. and Description of Boilers 4 S. E. Cylindrical Mult  
 Working Pressure 180 lbs Tested by hydraulic pressure to 360 lbs Date of test 24 & 30 Nov 1910 No. of Certificate 8059 & 8062  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 60 sq ft No. and Description of Safety Valves to each boiler 2 Spring Patent Area of each valve 7.06 sq in Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 28" Mean dia. of boilers 15.0 3/8" Length 11.0" Material of shell plates Steel  
 Thickness 1 3/16" Range of tensile strength 28 3/4/32 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams d. r. lap long. seams L. r. d. v. s. Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 3/4" Lap of plates or width of butt straps 18 1/2"  
 Per centages of strength of longitudinal joint rivets 87 Working pressure of shell by rules 183 lbs Size of manhole in shell 16 x 12" plate 85.7  
 Size of compensating ring 9 x 1 3/16" No. and Description of Furnaces in each boiler 3 Drighdon Material steel Outside diameter 47 3/8"  
 Length of plain part top 1 bottom 1 Thickness of plates crown 9/16" bottom 9/16" Description of longitudinal joint weld No. of strengthening rings 1  
 Working pressure of furnace by the rules 186 lbs Combustion chamber plates: Material steel Thickness: Sides 1/16" Back 1/16" Top 1/16" Bottom 7/16"  
 Pitch of stays to ditto: Sides 9 3/4 x 9 1/4" Back 9 3/4 x 8 1/2" Top 9 3/4 x 9 1/4" If stays are fitted with nuts or riveted heads nuts Working pressure by rules 194 lbs  
 Material of stays Iron Diameter at smallest part 2.03" Area supported by each stay 82.87 sq in Working pressure by rules 183 lbs End plates in steam space: Material steel Thickness 1 1/4" Pitch of stays 18 x 22" How are stays secured d. n. w. Working pressure by rules 183 lbs Material of stays steel  
 Diameter at smallest part 7.24" Area supported by each stay 396 sq in Working pressure by rules 190 lbs Material of Front plates at bottom steel  
 Thickness 13/16" Material of Lower back plate steel Thickness 7/8" Greatest pitch of stays 13 x 8 1/2" Working pressure of plate by rules 184 lbs  
 Diameter of tubes 3 1/2" Pitch of tubes 4 1/2 x 4 3/8" Material of tube plates steel Thickness: Front 13/16" Back 3/4" Mean pitch of stays 9 x 8 3/4"  
 Pitch across wide water spaces 14 1/4" Working pressures by rules 223 lbs Girders to Chamber tops: Material steel Depth and thickness of girder at centre 9 1/2 x 1 3/8" Length as per rule 33 1/2" Distance apart 9 1/2" Number and pitch of stays in each 2 - 9 3/4"  
 Working pressure by rules 184 lbs Superheater or Steam chest; how connected to boiler Yes Can the superheater be shut off and the boiler worked separately Yes Diameter 18" Length 18" Thickness of shell plates 1/8" Material steel Description of longitudinal joint butt Diam. of rivet holes 1 1/4" Pitch of rivets 8" Working pressure of shell by rules 183 lbs Diameter of flue 18" Material of flue plates steel Thickness 1/8"  
 If stiffened with rings Yes Distance between rings 18" Working pressure by rules 183 lbs End plates: Thickness 1 1/4" How stayed Yes  
 Working pressure of end plates 183 lbs Area of safety valves to superheater 183 lbs Are they fitted with easing gear Yes

