

Date of writing Report

19

When handed in at Local Office

19

Port of *Copenhagen*No. in Survey held at *Copenhagen*Date, First Survey *13 March*Last Survey *19 November 1907*

Reg. Book.

(Number of Visits *37*)Built on the *S. S. Birtang*Master *J. F. Gale*Built at *Copenhagen*By whom built *A. S. Bernmeister & Søn, Masking, Skibbygaard*Tons Gross *2860*Net *1819*When built *1907*Engines made at *Copenhagen*By whom made *A. S. Bernmeister & Søn, Masking, Skibbygaard*when made *1907*Boilers made at *Copenhagen*By whom made *A. S. Bernmeister & Søn, Masking, Skibbygaard*when made *1907*Registered Horse Power *252*Owners *Det Østasiatiske Kompagni*Port belonging to *Copenhagen*Nom. Horse Power as per Section 28 *252*Is Refrigerating Machinery fitted for cargo purposes *no*Is Electric Light fitted *yes*

ENGINES, &c.—Description of Engines *Two Triple exp. exp. condensing* No. of Cylinders *3* No. of Cranks *3*
 Dia. of Cylinders *21 1/2, 34 1/2, 60* Length of Stroke *39* Revs. per minute *70* Dia. of Screw shaft *as per rule 12 1/2* Material of *1 1/2 in. 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 *5'-0"*
 Dia. of Tunnel shaft *as per rule 10.68* Dia. of Crank shaft journals *as per rule 11.21* Dia. of Crank pin *11 1/2* Size of Crank webs *8 x 15 3/4* Dia. of thrust shaft under
 collars *11 1/2* Dia. of screw *15-9* Pitch of Screw *15-9* No. of Blades *4* State whether moveable *no* Total surface *75 sq*
 No. of Feed pumps *2* Diameter of ditto *4"* Stroke *19 1/2* Can one be overhauled while the other is at work *yes* One 15 tons water
 No. of Bilge pumps *2* Diameter of ditto *4"* Stroke *19 1/2* Can one be overhauled while the other is at work *yes* One feed water cleaner
 No. of Donkey Engines *1* Sizes of Pumps *6" x 4" x 8"* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *4 off 3" dia., one in dry well 3" dia.* In Holds, &c. *7-1 held 2 off 3" dia., 9-2 held 2 off 3" dia., 9-3*
held 4 off 3" dia., Tunnel well 1 off 3" dia., Tank suction in DB 3 1/2 in FPT. APT 2 1/2"
 No. of Bilge Injections *one* sizes *6"* Connected to condenser, or to circulating pump *yes* Is a separate Donkey Suction fitted in Engine room & size *yes 6 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 *no*
 Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *Valves except low off cocks from bilges*
 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 *bilge suction to fore hold* How are they protected *by the ceiling, pipes fitted in gutters*
 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 *18/9* of Stern Tube *3/9* Screw shaft and Propeller *11/9*
 Is the Screw Shaft Tunnel watertight *yes* Is it fitted with a watertight door *yes* worked from *upper deck*

BOILERS, &c.—(Letter for record *R*)Manufacturers of Steel *Blackburn & Co. Ltd. of Scotland, Schuch & Co.*

Total Heating Surface of Boilers *4000 sq* Is Forced Draft fitted *no* No. and Description of Boilers *2 single end. hor. return tubular*
 Working Pressure *180 lbs* Tested by hydraulic pressure to *360 lbs* Date of test *25 July 07* No. of Certificate *279, 280*
 Can each boiler be worked separately *yes* Area of fire grate in each boiler *50 sq* No. and Description of Safety Valves to
 each boiler *2 spring loaded* Area of each valve *9.6211 sq* Pressure to which they are adjusted *180 lbs* Are they fitted with easing gear *yes*
 Smallest distance between boilers or uptakes and bunkers or woodcock *11"* Mean dia. of boilers *14'-4 1/2"* Length *10'-4"* Material of shell plates *Sh. steel*
 Thickness *1 3/16* Range of tensile strength *28-32 tons* Are the shell plates welded or flanged *no* Descrip. of riveting: cir. seams *double rio.*
 long. seams *double rio.* 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 3/4"*
 Per centages of strength of longitudinal joint rivets *87.8* Working pressure of shell by rules *183.8 lbs* Size of manhole in shell *16" x 20"*
 plate *85.7* Size of compensating ring *3'-6" x 2'-6" x 1"* No. and Description of Furnaces in each boiler *3 horizontal flat* Material *Sh. steel* Outside diameter *44 1/2"*
 Length of plain part *top 9.12" bottom 9.16"* Thickness of plates *9.12" bottom 9.16"* Description of longitudinal joint *welded* No. of strengthening rings *1*
 Working pressure of furnace by the rules *180.05* Combustion chamber plates: Material *Sh. steel* Thickness: Sides *9/16* Back *5/8* Top *9/16* Bottom *3/4*
 Pitch of stays to ditto: Sides *8 1/4" x 7"* Back *7 1/4" x 7 1/4"* Top *7 1/2" x 7"* If stays are fitted with nuts or riveted heads *yes* Working pressure by rules *184.2 lbs* Material of stays *steel*
 Material of stays *Sh. steel* Diameter at smallest part *1.614"* Area supported by each stay *57.75 sq* Working pressure by rules *233 lbs* End plates in steam space:
 Material *Sh. steel* Thickness *1"* Pitch of stays *17" x 15"* How are stays secured *double nuts & washers* Working pressure by rules *184.2 lbs* Material of stays *steel*
 Diameter at smallest part *2.634"* Area supported by each stay *255 sq* Working pressure by rules *213.5 lbs* Material of Front plates at bottom *Sh. steel*
 Thickness *3/4"* Material of Lower back plate *Sh. steel* Thickness *1 3/16* Greatest pitch of stays *2 3/4" x 7 3/4"* Working pressure of plate by rules *204.3 lbs*
 Diameter of tubes *3 1/4"* Pitch of tubes *4 1/2" x 4 1/2"* Material of tube plates *Sh. steel* Thickness: Front *1"* Back *1 1/2" x 5/8"* Mean pitch of stays *11 1/4"*
 Pitch across wide water spaces *14"* Working pressures by rules *183 lbs* Girders to Chamber tops: Material *Sh. steel* Depth and
 thickness of girder at centre *7 1/4" x 3 1/4" x 2"* Length as per rule *2'-5"* Distance apart *7 1/2"* Number and pitch of stays in each *3 off 7' pitch*
 Working pressure by rules *186.4 lbs* Superheater or Steam chest; how connected to boiler *none* Can the superheater be shut off and the boiler worked
 separately *yes* Diameter *yes* Length *yes* Thickness of shell plates *yes* Material *yes* Description of longitudinal joint *yes* Diam. of rivet
 holes *yes* Pitch of rivets *yes* Working pressure of shell by rules *yes* Diameter of flue *yes* Material of flue plates *yes* Thickness *yes*
 If stiffened with rings *yes* Distance between rings *yes* Working pressure by rules *yes* End plates: Thickness *yes* How stayed *yes*
 Working pressure of end plates *yes* Area of safety valves to superheater *yes* Are they fitted with easing gear *yes*

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			Pitch 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:—2 com. rod Top & Bottom and Bolts & nuts 2 main bearing Bolts & nuts 1 set coupling bolts. 1 set of feet & bilge pump valves & seats. 1 Ramshot bottom ring to each piston. A quantity of assorted Bolts & nuts. Iron of various sizes. 1 Propeller. 1 propeller shaft. 1 pair of connecting rod Top and bottom and braces. 1 pair of air pump valves. 2 check valves. 3 valves for each donkey pump. 6 junking bolts. 35 boiler tubes. 36 condenser tubes. 1 set of safety valve springs. 24 water-gauge glasses. 2 for centrifugal circulating pump:—1 set main bearing braces. 1 set crank & crank braces.

The foregoing is a correct description,

Richard Manufacturer.


Dates of Survey while building	{	During progress of	13/3, 23/3, 15/4, 16/4, 17/4, 3/5, 14/5, 29/5, 3/6, 17/6, 21/6, 27/6, 1/7, 8/7, 9/7, 17/7, 25/7, 2/8, 3/8, 9/8, 19/8, 22/8, 27/8, 3/9, 11/9
		work in shops -	18/9, 23/9
		During erection on	5/10, 10/10, 23/10, 30/10, 6/11, 11/11, 14/11, 16/11, 18/11, 19/11
		board vessel -	
		Total No. of visits	37

Is the approved plan of main boiler forwarded herewith *yes*

" " " donkey " " none
 Dates of Examination of principal parts—Cylinders $3/5$ Slides $15/4$ Covers $15/4$ Pistons $14/5$ Rods $3/6$
 Connecting rods $17/6$ Crank shaft $8/7$ Thrust shaft $9/7$ Tunnel shafts $8 \cdot 9/7$ Screw shaft $27/8 + 5/10$ Propeller $11/9$
 Stern tube $27/8$ Steam pipes tested $21/10$ Engine and boiler seatings $5/10$ Engines holding down bolts $10/10$
 Completion of pumping arrangements $23/10$ Boilers fixed $5/10$ Engines tried under steam $19/11$

Main boiler safety valves adjusted 18/11 Thickness of adjusting washers $\frac{3}{8}$ " + $\frac{3}{8}$ " + $\frac{1}{32}$ " R. N: 832
Material of Crank shaft St. Steel Identification Mark on Do. 7.07 ATP Material of Thrust shaft St. Steel Identification Mark on Do. 7.07 ATP R. N: 859.874
Material of Tunnel shafts St. Steel Identification Marks on Do. 7.07 ATP Material of Screw shafts St. Steel Identification Marks on Do. 8.07 + 10.07 ATP R. N: 833-37
Material of Steam Pipes Steel Test pressure 360 lbs

General Remarks (State quality of workmanship, opinions as to class, &c. In accordance with the rules for special survey we have examined the material and workmanship from the commencement until the final trial under steam and found it good in every respect. All the forgings are of Lincens Martin steel and have been found good. All the castings are sound and good, the bearings of proper dimensions and sound material. The boiler material has been tested as per rules as per test notes received and satisfactory hot & cold test of the material has been carried out by us. The dimensions are as specified and in accordance with the rules and the approval plan. On the trial trip the engines & boilers worked satisfactorily.

It is submitted that
this vessel is eligible for
THE RECORD.  L. M. C. 11.07
ELEC LIGHT

The amount of Entry Fee..	<i>Ru</i> 36.74 :	When applied for.
Special ..	<i>Ru</i> 598.86 :	30/11.....1927
Donkey Boiler Fee <i>Electro Sign</i>	91.85 :	When received.
Travelling Expenses (if any) £	:	11. 12. 1927

Committee's Minute

TUES. 10 DEC 1907

Assigned

MACHINERY CERTIFICATE
WRITTEN.

Lloyd's Register
Foundation