

REPORT ON MACHINERY.

Port of *Copenhagen*

MON 6 DEC 1897

Received at London Office 18

Survey held at *Elsinore*

Date, first Survey *22nd December 1896* Last Survey *30th November 1897*

(Number of Visits *22*)

on the *Steel S/s "Herakles"*

Tons { Gross *698.74*
Net *285.53*

made at *Elsinore* Built at *Elsinore*

By whom built *Helsingors Jernskibs og Maskinbyggeri*

When built *1897*

made at *Elsinore*

By whom made *Helsingors Jernskibs og Maskinbyggeri*

when made *1897*

made at *Elsinore*

By whom made *Helsingors - dette delts*

when made *1897*

rated Horse Power *1100*

Owners *Bergnings och Bygeri = Aktieforsaget "Neptun"*

Port belonging to *Stockholm*

Horse Power as per Section 28 *198*

Is Electric Light fitted *Yes (with one dynamo)*

VES, &c. — Description of Engines *Triple expansion, surface Condensing* No. of Cylinders *3* No. of Cranks *3*

Number of Cylinders *20 x 32 x 57* Length of Stroke *30* Revolutions per minute *110* Diameter of Screw shaft as per rule *9.373*

Diameter of Tunnel shaft as fitted *9.904* Diameter of Crank shaft journals *9 1/2* Diameter of Crank pin *10* Size of Crank webs *6 1/4 x 11 3/4*

Diameter of screw *11-6"* Pitch of screw *12-6"* No. of blades *4* State whether moveable *No* Total surface *47.40*

Feed pumps *2* Diameter of ditto *3 1/2* Stroke *15* Can one be overhauled while the other is at work *Yes*

Bilge pumps *2* Diameter of ditto *3 1/2* Stroke *15* Can one be overhauled while the other is at work *Yes*

Donkey Engines *2* Sizes of Pumps *1 Centrifugal - 6" pipes* No. and size of Suctions connected to both Bilge and Donkey pumps *2 1/2" and 1" for bilge pumps*

Engine Room *2 off 2' x 1 off 3' in Engine room - 3 off 3' in Boiler room* Holds, &c. *3 off 2' from Alford tunnel 2 off 2' from Alford tunnel*

Bilge injections *2* sizes *1 1/4 - 3 1/2* Connected to condenser, or to circulating pump *Both* Is a separate donkey suction fitted in Engine room & size *Yes 3"*

Are 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 connections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Valves - except blow off cock*

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*

Are pipes carried through the bunkers *to fore tank & fore peak from Forehold & Boiler room* How are they protected *with strong wooden boxes*

Are 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*

Were stern tube, propeller, screw shaft, and all connections examined in dry dock *While building* Is the screw shaft tunnel watertight *Yes built watertight in deep tanks but open on top*

Is it fitted with a watertight door *No* worked from *Yes*

VES, &c. — (Letter for record *S*) Total Heating Surface of Boilers *3610* Is forced draft fitted *No*

Description of Boilers *2 horizontal cylindrical return tubular* Working Pressure *185* Tested by hydraulic pressure to *370*

Can each boiler be worked separately *Yes* Area of fire grate in each boiler *48* No. and Description of safety valves to boiler *2 Adams patent*

Area of each valve *14 1/8* Pressure to which they are adjusted *185* Are they fitted with easing gear *Yes*

Smallest distance between boilers or uptakes and bunkers or woodwork *14 1/2* Mean diameter of boilers *13-6"*

Material of shell plates *S.B. Steel* Thickness *1 1/4* Description of riveting: circum. seams *double at ends* long. seams *double but straps*

Number of rivet holes in long. seams *114* Pitch of rivets *7 3/4* Lap of plates or width of butt straps *16 3/4*

Advantages of strength of longitudinal joint *94.202* Working pressure of shell by rules *186.38* Size of manhole in shell *12 x 16*

Compensating ring *Mc Niels patent* No. and Description of Furnaces in each boiler *2 off Purvis patent* Material *S.B. Steel* Outside diameter *4-11 1/4*

Height of plain part top *9"* Thickness of plates crown *5/8"* Description of longitudinal joint No. of strengthening rings *—*

Working pressure of furnace by the rules *188.7* Combustion chamber plates: Material *S.B. Steel* Thickness: Sides *5/8"* Back *9/16"* Top *5/8"* Bottom *13/16"*

Working pressure of stays to ditto: Sides *7 1/2 x 8 1/2* Back *7 5/8 x 7 1/2* Top *7 3/4 x 8 1/2* If stays are fitted with nuts or riveted heads *Nuts inside & riveted outside* Working pressure by rules *187*

Material of stays *Steel* Diameter at smallest part *1.384* Area supported by each stay *6.33* End plates in steam space: Working pressure by rules *188*

Material *S.B. Steel* Thickness *15/16* Pitch of stays *13 1/2 x 13 1/2* How are stays secured *Nuts on both sides* Working pressure by rules *187.3* Material of stays *Steel*

Diameter at smallest part *2.384* Area supported by each stay *209.25* Working pressure by rules *192* Material of Front plates at bottom *S.B. Steel*

Thickness *7/8"* Material of Lower back plate *S.B. Steel* Thickness *13/16"* Greatest pitch of stays *12"* Working pressure of plate by rules *211*

Diameter of tubes *3 3/4"* Pitch of tubes *5 x 5 1/8"* Material of tube plates *S.B. Steel* Thickness: Front *1"* Back *7/8"* Mean pitch of stays *10 1/4"*

Working pressures across wide water spaces *114 1/2* Working pressures by rules *194.8* Girders to Chamber tops: Material *Steel* Depth and thickness of girder at centre *8 1/4 x 15 1/8"*

Length as per rule *2-7 7/16* Distance apart *7 3/4"* Number and pitch of Stays in each *2 off - 8 1/2"*

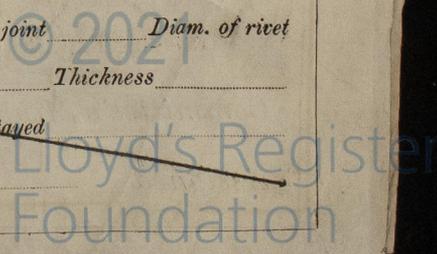
Working pressure by rules *195* Superheater or Steam chest; how connected to boiler *Yes* Can the superheater be shut off and the boiler worked separately *Yes*

Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet

Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

Strengthened 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



DONKEY BOILER— Description *None*

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 easing gear _____ If steam from main _____
enter the donkey boiler _____ Diameter of donkey boiler _____ Length _____ Material of shell plates _____ Thickness _____
Description of riveting long. seams _____ Diameter of rivet holes _____ Whether punched or drilled _____ Pitch of rivets _____
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 _____
joint _____ Thickness of furnace crown plates _____ Stayed by _____ Working pressure of shell by rule _____
Working pressure of furnace by rules _____ Diameter of uptake _____ Thickness of uptake plates _____ Thickness of water tubes _____

SPARE GEAR. State the articles supplied
1 propeller, 1/3 crankshaft, 3 crosshead & crankpin bolts, 2 bearing bolts, 1 set coupling bolts, 1 set feed & bridge pump, 1 set of springs for pistons, safety valves, cylinders and feed valves, 1 set of brasses for pump pistons, 1 air pump & circulating pump, 1 set of bars for cylinder covers, slide doors & pump covers. Assorted bolts, 36 conductor tubes, 26 boiler tubes, 12 gauge glasses - 1 set of fire bars and bearers.

The foregoing is a correct description, **LESLINGØRS JERNSKIBS- OG MASKINBYGGERI**
Manufacturer. *per: L. M. C.*

Dates of Survey while building
During progress of work in shops - *Sundry Dates from 22nd December 1896 - on Boiler, Material and Shop, - and on board on lining up of the shafts, fitting seacock*
During erection on board vessel - *Donkey & until Completion on 30th November 1897 - 22nd or*
Total No. of visits _____

General Remarks (State quality of workmanship, opinions as to class, &c.)
*I have examined the Material and Work in accordance with the Rules for Special Survey - from the Commencement until the final under stress & found it good in every respect. The Engines have 3 cranks. Shafts are forged in Bergmark & Hattuvorein in Osnabrück & I have examined them before & after rough turning finished & found them sound & good; piston rods, connecting rods & small are also of Steel & are sound. The Bearings of good Material & dimensions, Castings of The sea connections are fastened to Vessels' Bottom as per Rules. - The Boiler is of Steel from "The Steel Company of Scotland. Lim", the furnaces from "Atlas Iron (Co) Works" at Sheffield, is tested as required by the Rules, as per test notes recd. I have besides tested it hot & cold & found same of good quality; the workmanship good, scantling as specified & in accordance with the approved plans for herewith; are tested by hydraulic pressure & found by gauges no alterations in forms the Boilers tight. The safety Valves are set to working pressure, tested in the steam gauges are correct. Engine & Boiler scantling is strong & all well fastened. On the the Engines worked well and no defects found at the Boilers. -
The Machinery of S/S "Heracles" is in my opinion now in good efficient and safe working condition, so I would respectfully submit herewith have the Record of **L.M.C. 11.97** in the Register Books and a corresponding Certificate.*

It is submitted that this vessel is eligible for THE RECORD. *L.H.C. 11.97 Electric Light & Motors*

The amount of Entry Fee... £ 2 - - -
Special ... £ 29 - 14 -
Donkey Boiler Fee ... £ - - -
Travelling Expenses (if any) £ 2 - 6 -

L. M. C.
6/12/97
J. M. C.
Engineer Surveyor to Lloyd's Register of British & Foreign Ships

Committee's Minute **FRI, 7 JAN 1898**
Assigned *+ L.M.C. 11.97 Electric Light & Motors*
FRI, 10 MAR 1899
FRI, 24 MAR 1899
TUES, 29 AUG 1899
Lloyd's Register Foundation