

# REPORT ON MACHINERY.

No. 2843

REC'D NEW YORK May 18-1918.

Received at London Office

JUN 11 1918

Date of writing Report 14<sup>th</sup> May 1918 When handed in at Local Office 14<sup>th</sup> May 1918 Port of Philadelphia  
 No. in Survey held at Trenton N. J. Date, First Survey 4-4-14. Last Survey 3<sup>rd</sup> May 1918.  
 Reg. Book. on the STEEL SINGLE SCREW STEAMER. "PIQUA" (Number of Visits 41)

Master C. A. McLaughlin Built at Wilmington Del By whom built Pusey & Jones Co. When built 1918  
 Engines made at Trenton By whom made De Laval Steam Turbine Co (36634) when made 1917  
 Boilers made at Newport News By whom made Newport News S. & O. D. Co. when made 1914.  
 Registered Horse Power Owners United States Shipping Board Port belonging to Wilmington Del.  
 Shaft Horse Power at Full Power 1400 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes.

TURBINE ENGINES, &c.—Description of Engines De Laval Double Reduction Turbine No. of Turbines 1  
 Diameter of Rotor Shaft Journals, H.P. 9 L.P. 4 1/2" Diameter of Pinion Shafts 4 1/2" & 10 7/8"  
 Diameter of Journals 4 5/8" & 10" Distance between Centres of Bearings 22 1/2" 48" Diameter of Pitch Circle 6.6" & 11.25"  
 Diameter of Wheel Shaft 6" & 12" Distance between Centres of Bearings 48" 48" Diameter of Pitch Circle of Wheel 47.6" 69.25"  
 Width of Face 30" 31" Diameter of Thrust Shaft under Collars 11" Diameter of Tunnel Shaft as per rule 10.28" as fitted 10.5"  
 No. of Screw Shafts One. Diameter of same as per rule 12.46" as fitted 12.5" Diameter of Propeller 15'-0" Pitch of Propeller 14'-6"  
 No. of Blades 4 State whether Moveable no. Total Surface 40.57 sq Diameter of Rotor Drum, H.P. L.P. astern  
 Thickness at Bottom of Groove, H.P. L.P. Astern Revs. per Minute at Full Power, Turbine 4000 Propeller 90

## PARTICULARS OF BLADING.

	H. P.			L. P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	46.9.505	28.4.38.2	2				1.84.12.58	31.15.33.15	2
2ND	"	"	2						
3RD	1.77	29	1						
4TH	2.75	30.98	1						
5TH	3.15	31.78	1						
6TH	3.15	31.78	1						
7TH	4.00	33.5	1						
8TH	4.72	34.94	1						
9TH	5.51	35.14	1						
No. and size of Feed pumps Two 10x6x24"									
No. and size of Bilge pumps Two 7 1/2"x 7 1/2"x 6" and 9x7 1/2"x 10"									
No. and size of Bilge suction in Engine Room Four, 3-3" and 1-3 1/2"									

In Holds, &c. No 1 Hold 2-3" No 2 Hold 2-3"  
 103 Hold 3-3" Tunnel well 1-3"  
 No. of Bilge Injections 1 sizes 8" Connected to condenser, or to circulating pump 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 all connections with the sea direct on the skin of the ship yes. Are they Valves or Cocks valves.  
 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.  
 Is the Screw Shaft Tunnel watertight yes. Is it fitted with a watertight door yes. worked from upper engine platform  
 See Report 5a.

## BOILERS, &c.—(Letter for record)

Manufacturers of Steel  
 Total Heating Surface of Boilers Is Forced Draft fitted No. and Description of Boilers  
 Working Pressure Tested by hydraulic pressure to Date of test No. of Certificate  
 Can each boiler be worked separately Area of fire grate in each boiler No. and Description of Safety Valves to each boiler  
 Area of each valve Pressure to which they are adjusted Are they fitted with easing gear  
 Smallest distance between boilers or uptakes and bunkers or woodwork Mean dia. of boilers Length Material of shell plates  
 Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams  
 long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps  
 Per centages of strength of longitudinal joint rivets plates Working pressure of shell by rules Size of manhole in shell  
 Size of compensating ring No. and Description of Furnaces in each Boiler Material Outside diameter  
 Length of plain part top crown Thickness of plates Description of longitudinal joint No. of strengthening rings  
 bottom bottom  
 Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom  
 Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules  
 Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space  
 Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays  
 Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom  
 Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules  
 Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays  
 Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and  
 thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each  
 Working pressure by rules Steam dome: description of joint to shell % of strength of joint Diameter  
 Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets  
 Working pressure of shell by rules Crown plates: Thickness How stayed



SUPERHEATER. Type *Foster* Date of Approval of Plan *In New York* Tested by Hydraulic Pressure to *600 lbs*  
Date of Test *21-3-17* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *yes*  
Diameter of Safety Valve *1 1/2"* Pressure to which each is adjusted *208* Is Easing Gear fitted *yes*

IS A DONKEY BOILER FITTED? *no* If so, is a report now forwarded? *yes*

SPARE GEAR. State the articles supplied:— *2 studs & nuts for each size of rotor bearing; 2 studs & nuts for low & high speed main gear bearings also pinion bearings; 1 set of coupling bolts for each size used; 5 of total number of bolts & nuts for each gear case joint and turbine casing joint; 2 thermometers for oil circulating system; 2 sets of bearing bushes for gear wheel shaft, (1 high & 1 low speed); 1 set of bearing bushes for rotor; 3 sets of bearing bushes for pinion shafts; 3 sets of carbon packing rings with springs; 2 thrust shoes; 1 turbine thrust bearing complete; 1 set of valves each for feed pump, bilge pump, lubricating oil pump; 1 bucket & rod for lubricating oil pump; 2 safety valve springs; quantity of assorted bolts, studs & nuts; The foregoing is a correct description, quantity of steel plates & bars: ~~two pinion shafts, one high & one low speed~~; one propeller shaft; one propeller and 20 condenser tubes.*

*De Laval Steam Turbine Co. Manufacturer.*  
*R. H. Waller*

1917  
Dates of Survey while building  
During progress of work in shops --- *April 4, 17, May 4, 15, 34 June 8, 21, July 5, 11, Aug. 29, Oct 10, 14, Nov 6, 14, 21, 26.*  
During erection on board vessel --- *See 3, 5, 10, 15, 28, Jan 9, 18, Feb 6, 13, 19, Mar 1, 13, 16, 20, 22, 27, 30, April 10, 18, 25, 27, 29, 30, May 1, 3.*  
Total No. of visits *47*

Is the approved plan of main boiler forwarded herewith *no*  
" " " donkey " " " *yes*

Dates of Examination of principal parts—Casings *17-4-17* Rotors *24-5-17* Blading *15-5-17* Gearing *4-5-17*

Rotor shaft *8-6-17* Thrust shaft *26-11-17* Tunnel shafts *29-8-17* Screw shaft *21-11-17* Propeller *29-8-17*

Stern tube *21-11-17* Steam pipes tested *30-3-18* Engine and boiler seatings *6-11-17* Engines holding down bolts *6-2-18*

Completion of pumping arrangements *13-3-18* Boilers fired *13-3-18* Engines tried under steam *1-5-18*

Main boiler safety valves adjusted *27-2-18* Thickness of adjusting washers *lock nuts fitted*

Material and tensile strength of Rotor shaft *steel: 82,000 to 91,000 lbs per sq in* Identification Mark on Do. *26634*

Material and tensile strength of Pinion shaft *chrome nickel steel: 110,000 lbs minimum* Identification Mark on Do. *26634*

Material of Wheel shaft *steel* Identification Mark on Do. *26634* Material of Thrust shaft *steel* Identification Mark on Do. *2231*

Material of Tunnel shafts *steel* Identification Marks on Do. *2267* Material of Screw shafts *steel* Identification Marks on Do. *2229, 2231*

Material of Steam Pipes *steel* Test pressure *600 lbs*

Is an installation fitted for burning oil fuel *no* Is the flash point of the oil to be used over 150°F. *yes*

Have the requirements of Section 49 of the Rules been complied with. *yes*

Is this machinery a duplicate of a previous case. *no* If so, state name of vessel

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

*The machinery has been built under special survey: the material and workmanship being good.*

*The boilers and machinery of this vessel have been securely fitted aboard and satisfactorily tried under steam. It is submitted that the vessel be eligible for a record of + LMC 5-18 in the Register Book.*

*It is submitted that this vessel is eligible for THE RECORD + LMC 5-18. F.D. 1 Geared Steam Turbine.*

The amount of Entry Fee ... *\$ 10-00*  
*1/3 De Laval* ... *\$ 52-75*  
Special ... *\$ 52-75*  
*1/3 Pusey & Jones* ... *\$ 52-75*  
Donkey Boiler Fee ... *\$ 6-75*  
Travelling Expenses (if any) ... *\$ 20-00*  
*Pusey & Jones* ... *\$ 20-00*

When applied for, 19...

When received, 29.7.18

*A. T. Thomas, J. Belloch.*  
Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute *New York MAY 21 1918.*

Assigned *+ LMC 5.18*  
*3D Elec Light*



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