

REPORT ON MACHINERY.

No. 3035

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of writing Report *NEW YORK* *Nov 20 1918* When handed in at Local Office *Nov 26 1918* Port of *Philadelphia*
p. in Survey held at *Trenton Wilmington* Date, First Survey *Aug 30 1917* Last Survey *Nov 15 1918* 19
Reg. Book. *S.S. "Lynchburg"* (Pusey & Jones #1004) (Number of Visits *25*) Gross *2585*
on the *S.S. "Lynchburg"* Net *1469*
Master *R. J. Johnstone* Built at *Wilmington Del* By whom built *Pusey & Jones* When built *1918*
Engines made at *Trenton* By whom made *De Laral Steam Turbine Co (26638)* when made *1918*
Boilers made at *Newport News* By whom made *Newport News S & Dry Dock Co* when made *1917*
Registered Horse Power *233 309* Owners *United States Shipping Board* Port belonging to *Washington*
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 Laral Double Reduction Turbine* No. of Turbines *1*
Diameter of Rotor Shaft Journals, H.P. *9* L.P. *4 1/2"* Diameter of Pinion Shaft *1st Red 4 1/2" : 2nd 10 7/8"*
Diameter of Journals *4 1/2" & 10"* Distance between Centres of Bearings *1st 22 1/2" : 2nd 48"* Diameter of Pitch Circle *1st 6.6" : 2nd 11.25"*
Diameter of Wheel Shaft *6 1/2" : 12"* Distance between Centres of Bearings *48" : 48"* Diameter of Pitch Circle of Wheel *47.6" : 2nd 69.25"*
Diameter of Face *20" : 2nd 31"* Diameter of Thrust Shaft under Collars *11"* Diameter of Tunnel Shaft as per rule *10.28"*
Diameter of same as fitted *12.46"* Diameter of Propeller *15' 0"* Pitch of Propeller *14-6"*
Diameter of Screw Shafts *1"* State whether Moveable *No* Total Surface *70 sq ft* Diameter of Rotor Drum, H.P. *Yes* L.P. *Yes* Astern *Yes*
Thickness at Bottom of Groove, H.P. *Yes* L.P. *Yes* Astern *Yes* Revs. per Minute at Full Power, Turbine *4000* Propeller *90*

DETAILS 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.
EXPANSION	46.9805	28.4928.5	2				1.8492.58	31.15.32.15	2
"	"	"	2						
"	1.77	29.5	1						
"	2.75	30.98	1						
"	3.15	31.78	1						
"	3.15	31.78	1						
"	4.00	33.5	1						
"	4.72	34.94	1						
"	5.51	35.14	1						

and size of Feed pumps *No 10' x 6' x 24"*
and size of Bilge pumps *No 7 1/2' x 8 1/2' x 6" and 9' x 7 1/2' x 10"*
and size of Bilge suction in Engine Room *No 3-3" = 1-3 1/2"*
In Holds, &c. *No 1-2-3". No 2-2-3". No 3. 3-3"*
of Bilge Injections *1* sizes *8"* Connected to condenser, or to circulating pump *Yes* 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 Co-cks *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*
How are they protected *Yes*
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 room platform*

BOILERS, &c. — (Letter for record *(5)*) Manufacturers of Steel *Yes*
Total Heating Surface of Boilers *4257* Is Forced Draft fitted *Yes* No. and Description of Boilers *2 SE Scotch*
Working Pressure *200* Tested by hydraulic pressure to *300* Date of test *1915* No. of Certificate *175*
Can each boiler be worked separately *Yes* Area of fire grate in each boiler *200 sq ft* No. and Description of Safety Valves to *Yes*
Each boiler *2 Direct Spring* Area of each valve *7.06 sq ft* Pressure to which they are adjusted *200 lbs* Are they fitted with raising gear *Yes*
Smallest distance between boilers or uptakes and bunkers or woodwork *12"* Mean dia. of boilers *20"* Length *12'* Material of shell plates *Yes*
Thickness *1/2"* Range of tensile strength *45,000* Are the shell plates welded or flanged *Yes* Descrip. of riveting: *circ. seams*
Working seams *Yes* Diameter of rivet holes in long. seams *1/4"* Pitch of rivets *2"* Lap of plates or width of butt straps *12"*
Percentages of strength of longitudinal joint *Yes* Working pressure of shell by rules *200* Size of manhole in shell *18"*
Size of compensating ring *Yes* No. and Description of Furnaces in each Boiler *2* Material *Steel* Outside diameter *48"*
Length of plain part *Yes* Thickness of plates *1/2"* Description of longitudinal joint *Yes* No. of strengthening rings *2*
Working pressure of furnace by the rules *200* Combustion chamber plates: Material *Steel* Thickness: Sides *1/2"* Back *1/2"* Top *1/2"* Bottom *1/2"*
Pitch of stays to ditto: Sides *Yes* Back *Yes* Top *Yes* If stays are fitted with nuts or riveted heads *Yes* Working pressure by rules *200*
Material of stays *Yes* Diameter at smallest part *1/2"* Area supported by each stay *Yes* Working pressure by rules *200* End plates in steam space *Yes*
Material *Yes* Thickness *1/2"* Pitch of stays *2"* How are stays secured *Yes* Working pressure by rules *200* Material of stays *Yes*
Diameter at smallest part *Yes* Area supported by each stay *Yes* Working pressure by rules *200* Material of Front plates at bottom *Yes*
Thickness *Yes* Material of Lower back plate *Yes* Thickness *1/2"* Greatest pitch of stays *2"* Working pressure of plate by rules *200*
Diameter of tubes *Yes* Pitch of tubes *Yes* Material of tube plates *Yes* Thickness: Front *1/2"* Back *1/2"* Mean pitch of stays *2"*
Pitch across wide water spaces *Yes* Working pressures by rules *200* Girders to Chamber tops: Material *Steel* Depth and *Yes*
Thickness of girder at centre *Yes* Length as per rule *Yes* Distance apart *Yes* Number and pitch of stays in each *Yes*
Working pressure by rules *200* Steam dome: description of joint to shell *Yes* % of strength of joint *Yes* Diameter *Yes*
Thickness of shell plates *Yes* Material *Steel* Description of longitudinal joint *Yes* Diameter of rivet holes *Yes* Pitch of rivets *Yes*
Working pressure of shell by rules *200* Crown plates: Thickness *Yes* How stayed *Yes*

SUPERHEATER. Type *Foster* Date of Approval of Plan *In. C. G. Office* Tested by Hydraulic Pressure to *600 lb*
Date of Test *24-5-17. F.W.T.* 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 lb* Is Easing Gear fitted *Yes*

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

SPARE GEAR. State the articles supplied:— *2 studs & nuts for each pair of rotor bearing. 2 studs & nuts for low and high speed main gear bearing and pinion bearing. 1 set of coupling bolts of each size used. 20 total number of bolts and nuts for each gear case joint & turbine casing joint. 2 thermometers for oil circulating system. 2 sets of bearing bushes for gear wheel shaft. 1 set bearing bushes for rotor. 3 sets of bearing bushes for pinion shafts. 3 sets of carbon packing rings with springs. 2 thrust shoe 1 turbine thrust bearing complete. 1 set feed pump valves. 1 set bilge pump valves. 1 set valves for lubricating oil pump. 1 bucket and rod for lubricating oil pump. 2 safety valve springs. 1 propeller shaft. 1 propeller. 20 condenser tubes, 100 ferrules. a quantity of assorted bolts and nuts, a quantity of steel plates and b.*
The foregoing is a correct description.

De Naval, Leamington *The Lloyds Register of Shipping*
W. T. Thomas *Manufacturer.*
W. T. Thomas *General Manager*

1917 1918
Dates of Survey while building
During progress of work in shops -- *Aug 30. Apr 10. 20. 25. Nov 2. 19. Dec 6. 19. Jan 10. 24. Feb 25. Mar 7. 21. March 22. 30. April 25. May 9. 23. June 5. July 1-3. 1918*
During erection on board vessel -- *Apr 4-24. Oct 3. 14. 22-28. 31. Nov 2-4-12. 13. 14-15.*
Total No. of visits *38* Is the approved plan of main boiler forwarded herewith *Forwarded*

Dates of Examination of principal parts—Casings *19.12.17* Rotors *20.9.17* Blading *26.9.18* Gearing *11.9.18*
Rotor shaft *20.9.17* Thrust shaft *13-8-18* Tunnel shafts *13-8-18* Screw shaft *29-8-18* Propeller *29-8-18*
Stern tube *13-8-18* Steam pipes tested *4-11-18* Engine and boiler seatings *4-9-18* Engines holding down bolts *31-10-18*
Completion of pumping arrangements *12-11-18* Boilers fired *28-10-18* Engines tried under steam *14-11-18*
Main boiler safety valves adjusted *12-11-18* Thickness of adjusting washers *Locknuts*

Material and tensile strength of Rotor shaft *Steel : 82,000 to 91,000 lbs per sq in* Identification Mark on Do. *A. T. T.*
Material and tensile strength of Pinion shaft *Chrome nickel steel 110,000 lbs minimum* Identification Mark on Do. *A. T. T.*
Material of Wheel shaft *Steel* Identification Mark on Do. *A. T. T.* Material of Thrust shaft *Steel* Identification Mark on Do. *3122. FA*
Material of Tunnel shafts *Steel* Identification Marks on Do. *132. 3611 W. 3* Material of Screw shafts *Steel* Identification Marks on Do. *34790*
Material of Steam Pipes *Lap welded steel* Test pressure *600 lb*

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 *Yes* If so, state name of vessel *"Piqua"*
Is tail shaft fitted with a continuous line? *No*
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. It has been forwarded to Wilmington for fitting aboard.

The machinery of this vessel has been securely fitted on board and tried under steam with satisfactory results.

It is submitted that the vessel be eligible for record of + LMC 11-18 in the register book.

It is submitted that this vessel is eligible for THE RECORD. + LMC 11.18. F.D.
1 Geared Steam Turbine.

The amount of Entry Fee ... \$ 10 : 00 :
1/3 De Royal ... \$ 52 : 75 :
Special ...
1/3 Pusey & Jones ... \$ 52 : 75 :
Donkey Boiler Fee ...
De Royal Exps. ... \$ 6 : 00 :
Travelling Expenses (if any) ... £ 13 : 50 :
When applied for, *Nov 26. 1918.*
When received, *\$76.25 paid 27/11/18*

A. T. Thomas *W. T. Thomas*
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *New York DEC - 3 1918*

Assigned *+ LMC 11.18*



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MACHINERY CERTIFICATE
WRITTEN, 23.12.18