

REPORT ON MACHINERY.

No. 40671.

Received at London Office

DEC. 15 1920
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Date of writing Report *3rd Dec 20* When handed in at Local Office *9th Dec. 20* Port of *Glasgow*
 No. in Survey held at *Glasgow* Date, First Survey *2nd Sept 1919* Last Survey *7th Dec 1920*
 Reg. Book. on the *S.S. "Clan Macnab"* (Number of Visits *74*)
 Master Built at *Ironie* By whom built *Ayrshire Dockyard. S.L. No 485* Tons } Gross }
 Engines made at *Glasgow* By whom made *Dunsuir & Jackson. S.L. No 518* when made *1920* } Net }
 Boilers made at *Glasgow* By whom made *Dunsuir & Jackson. S.L. No 518* when made *1920*
 Registered Horse Power Owners *Clan Line* Port belonging to *Glasgow*
 Nom. Horse Power as per Section 28 *560* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes*

ENGINES, &c.—Description of Engines *Triple Expansion* No. of Cylinders *3* No. of Cranks *3*
 Dia. of Cylinders *27 1/2" x 45 1/2" x 75"* Length of Stroke *54"* Revs. per minute *42* Dia. of Screw shaft as per rule *15 7/8"* Material of screw shaft *S*
 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 *✓* 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 *✓* If two
 liners are fitted, is the shaft lapped or protected between the liners *✓* Length of stern bush *99"*
 Dia. of Tunnel shaft as per rule *14 5/8"* Dia. of Crank shaft journals as per rule *15 3/4"* Dia. of Crank pin *15 3/4"* Size of Crank webs *24 3/4" x 10 1/2"* Dia. of thrust shaft under
 collars *15 3/4"* Dia. of screw *18-6"* Pitch of Screw *19'-0"* No. of Blades *4* State whether moceable *Yes* Total surface *105 1/2" #*
 No. of Feed pumps *2* Diameter of ditto *4 3/4"* Stroke *30"* Can one be overhauled while the other is at work *Yes ✓*
 No. of Bilge pumps *2* Diameter of ditto *4 3/4"* Stroke *30"* Can one be overhauled while the other is at work *Yes ✓*
 No. of Donkey Engines *2* Sizes of Pumps *2* No. and size of Suctions connected to both Bilge and Donkey pumps
 In Engine Room *2 @ 3 1/2": Stokehold 2 @ 3 1/2": Tunnel 1 @ 2 1/2"* In Holds, &c. *No 1 - 2 @ 3 1/2": No 2 - 2 @ 3 1/2": No 3 (of dwp tank)*
2 @ 3 1/2": No 4 - 2 @ 3 1/2": No 5 - 1 @ 3 1/2"
 No. of Bilge Injections *1* sizes *8"* Connected to condenser, or to circulating pump *C.P.* 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 *None ✓*
 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 *BELOW ✓*
 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 *Engine room top platform.*

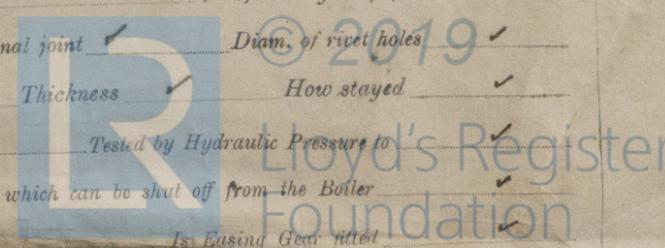
BOILERS, &c.—(Letter for record *5*) Manufacturers of Steel *J. Spence & Sons, Lanarkshire S.C. Beardmore Co.*
 Total Heating Surface of Boilers *7806 #* Is Forced Draft fitted *Yes* No. and Description of Boilers *3 Single ended multitubular*
 Working Pressure *200 lbs* Tested by hydraulic pressure to *400 lbs* Date of test *11-8-20* No. of Certificate *15412*
 Can each boiler be worked separately *Yes* Area of fire grate in each boiler *60 1/2 #* No. and Description of Safety Valves to
 each boiler *Two spring loaded* Area of each valve *9.62 #* Pressure to which they are adjusted *205 lbs* Are they fitted with easing gear *Yes*
 Smallest distance between boilers or uptakes and bunkers or woodwork *30"* ^{INT} dia. of boilers *15'-0 3/8"* Length *12'-0"* Material of shell plates *S*
 Thickness *13/8"* Range of tensile strength *28-32 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *L.D.R.*
 long. seams *T.R. D.W. Straps* Diameter of rivet holes in long. seams *1 7/16"* Pitch of rivets *10"* ~~Length of plates~~ width of butt straps *21 5/8"*
 Per centages of strength of longitudinal joint rivets *87.6* Working pressure of shell by rules *208* Size of manhole in shell *16" x 12"*
 Size of compensating ring *Flanged 1 3/8"* No. and Description of Furnaces in each boiler *3 Corrugated* Material *S* Outside diameter *48"*
 Length of plain part ^{top} *✓* Thickness of plates ^{bottom} *3 5/8"* Description of longitudinal joint *Weld* No. of strengthening rings *None*
 Working pressure of furnace by the rules *209* Combustion chamber plates: Material *S* Thickness: Sides *1 1/8"* Back *4 5/16"* Top *1 1/8"* Bottom *1"*
 Pitch of stays to ditto: Sides *9 1/4" x 8 1/2"* Back *9 1/8" x 8 1/8"* Top *8 3/4" x 8 3/4"* If stays are fitted with nuts or riveted heads *Nuts* Working pressure by rules *212*
 Material of stays *S* Area at smallest part *1.98 #* Area supported by each stay *78.6 #* Working pressure by rules *227* End plates in steam space:
 Material *S* Thickness *1 1/4"* Pitch of stays *20 3/4" x 15 3/4"* How are stays secured *S. Nuts* Working pressure by rules *209* Material of stays *S*
 Area at smallest part *69 #* Area supported by each stay *326.8 #* Working pressure by rules *219* Material of Front plates at bottom *S*
 Thickness *1 1/16"* Material of Lower back plate *S* Thickness *2 3/32"* Greatest pitch of stays *15" x 8 1/2"* Working pressure of plate by rules *218*
 Diameter of tubes *2 1/2"* Pitch of tubes *3 3/4" x 3 1/16"* Material of tube plates *S* Thickness: Front *1 1/16"* Back *7/8"* Mean pitch of stays *10 7/16"*
 Pitch across wide water spaces *13 1/2"* Working pressures by rules *203 lbs* Girders to Chamber tops: Material *S* Depth and
 thickness of girder at centre *16" x 1 3/4"* Length as per rule *34 27/16"* Distance apart *8 3/4"* Number and pitch of stays in each *3 @ 8 3/4"*
 Working pressure by rules *206* Steam dome: description of joint to shell *✓* % of strength of joint *✓*
 Diameter *✓* Thickness of shell plates *✓* Material *✓* Description of longitudinal joint *✓* Diam. of rivet holes *2019 ✓*
 Pitch of rivets *✓* Working pressure of shell by rules *✓* Crown plates *✓* Thickness *✓* How stayed *✓*

SUPERHEATER. Type *✓* Date of Approval of Plan *✓* Tested by Hydraulic Pressure to *✓*
 Date of Test *✓* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *✓*
 Diameter of Safety Valve *✓* Pressure to which each is adjusted *✓* Is Easing Gear fitted *✓*

If not, state whether, and when, one will be sent

Is a Report also sent on the Hull of the Ship?

0920 LFEM



IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *Yes*

SPARE GEAR. State the articles supplied:— *1 set each of top & bottom end, main bearing & coupling bolts thru 1 Impeller Shaft, 1 air pump rod, 1 set of rings for each piston, 1 Valve spindle for main engine, 1 pair of top end & one pair of bottom end braces, 1 screw shaft, 1 set of feed & bilge tank pump valves, assorted cast iron, plates, bolts & nuts.*

The foregoing is a correct description,
DUNSMUIR & JACKSON, Limited.

James Fletcher Director Manufacturer.

Dates of Survey while building: During progress of work in shops - - - 1919: Sep 2-11-25-30 Oct 3-9-14-20-30 Nov 3-25 Dec 1-5-8-11-16-19-20-29 (1920) Jan 12-16-21-28-30 Feb 5-17-26 Mar 2-4-15
During erection on board vessel - - - 17-23-29 Apr 14-20-29 May 3-13-19-23-24-28 Jun 4-9-17-21-29 July 1-7-13-14-27-29 Aug 11-20-27-31 Sep 6-8-10-16-21-28
Oct 1-3-14-17-19-25 Nov 1-9-12-23 Dec 2-7
Total No. of visits *74.*

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

Dates of Examination of principal parts—Cylinders *1-7-20* Slides *7-7-20* Covers *14-7-20* Pistons *7-7-20* Rods *7-7-20*
Connecting rods *29-3-20* Crank shaft *29-12-19* Thrust shaft *29-12-19* Tunnel shafts *16-9-20* Screw shaft *17-7-20* Propeller *13-7-20*
Stern tube *27-7-20* Steam pipes tested *14-25/10 7-11-20* Engine and boiler seatings *29-7-20* Engines holding down bolts *14-10-20*
Completion of pumping arrangements *7-12-20* Boilers fixed *14-10-20* Engines tried under steam *7-12-20*
Completion of fitting sea connections *29-7-20* Stern tube *29-7-20* Screw shaft and propeller *29-7-20*
Main boiler safety valves adjusted *12-11-20* Thickness of adjusting washers *P. A. $\frac{25}{64}$ S. = $\frac{5}{16}$; C. P. $\frac{25}{64}$ S. = $\frac{3}{8}$; S. P. $\frac{3}{8}$ S. = $\frac{25}{64}$*
Material of Crank shaft *S* Identification Mark on Do. *29-12-19 J.E.S.* Material of Thrust shaft *S* Identification Mark on Do. *29-12-19 J.E.*
Material of Tunnel shafts *S* Identification Marks on Do. *16-9-20 J.E.S.* Material of Screw shafts *S* Identification Marks on Do. *17-7-20 J.E.*
Material of Steam Pipes *Lapwelded iron* Test pressure *600 lbs*
Is an installation fitted for burning oil fuel *Yes* 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 duplicate of a previous case *Yes* If so, state name of vessel *"St. Blair Murdoch"*

General Remarks (State quality of workmanship, opinions as to class, &c.)
These engines and Boilers have been built under special survey and in accordance with the Rules, the materials and workmanship are sound and good. They have been fitted on board in an efficient manner, tried under working conditions and found satisfactory and are eligible in my opinion to be classed with record of $\frac{12-20}{20}$ L.M.C. 12-20: and the notation of fitted for Oil fuel F.P above 150°F.

It is submitted that
this vessel is eligible for
THE RECORD. + L.M.C. 12.20 FU
FITTED FOR OIL FUEL 12.20. FP ABOVE 150°F.

MACHINERY CERT
WRITTEN
15-12-20

W. Bell
18/12/20
J.M.

The amount of Entry Fee ... £ *3* : - : When applied for, *9/12/1920*
Special ... £ *48* : - :
Donkey Boiler Fee ... £ : :
Travelling Expenses (if any) £ : :
When received, *21/12/1920*

J. J. Selles
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *Glasgow 14 DEC 1920*

Assigned + L.M.C. 12.20 *FD.*

Fitted for oil fuel 12.20 F.P above 150°F!



Glasgow

The Surveyors are requested not to write on or below the space for Committee's Minutes.