

No. 841

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 805 No. in Register Book 1349

T.S.S. "EL ZARATE"

Makers of Engines Cooper & Greig

Works No. 159-60

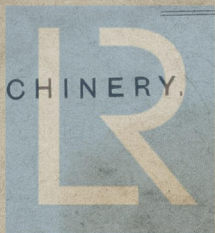
Makers of Main Boilers Cooper & Greig

Works No. 354-5

Makers of Donkey Boiler ✓

Works No. ✓

MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 805 No. in Register Book 1349

Received at Head Office

Surveyor's Report on the New Engines, Boilers, and Auxiliary  
Machinery of the *Lochin Screw, Meat carrying*  
*Steamship*  
**"EL ZARATE"**

Port of Registry

Registered Owners

Surveyor's District

Date of Completion of Engines

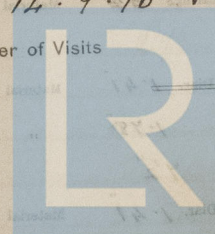
" " " " Main Boilers

" " " " Donkey "

Trial Run at *Aberlady Bay* Date *30.1.11*

First Visit *14.4.10* Last Visit *1.2.11*

Total Number of Visits



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## ENGINES.

Made by *Cooper & Greig*  
 " at *Dundee* Works No. *159-60*  
 Description *Compound*  
 No. of Cylinders, each Engine *2* Diars. *15" x 30"* Stroke *24" 22"*  
 Cub. feet in each L.P. Cylr. *9* each Revols. per Min. *187* I.H.P. *734*  
 Pressure in I.P. Receiver at full Power ☒ 2nd I.P. ☒ L.P. *11.5 lbs*  
 Thickness of Metal in H. P. Cylr. *1 1/8"* I.P. ☒ " ☒ " *1 1/16"*  
 " " " " Liner ☒ " ☒ " ☒ " ☒ " ☒ " ☒ " ☒ "  
 " " " " Valve Chest *1"* " ☒ " ☒ " ☒ " ☒ " ☒ " ☒ "  
 Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.? *Yes*  
 " " " " each Receiver? *LP Yes*  
 Number of ~~Dale~~ Studs in H.P. Cylr. Cover *14* I.P. ☒ 2nd I.P. ☒ L.P. *18*  
 Eff. Diar. " " " *84* " ☒ " ☒ " *84*  
 Pitch " " " *about 4 1/2"* " ☒ " ☒ " *5 3/8"*  
 Type of H.P. Valves (Piston or Slide) *Piston* " ☒ " ☒ " *Slide*  
 " Valve Gear *Ordinary crank*  
 Diameter of Piston Rods (plain part) *3 1/4"* At Bottom of Thread *2.28"*  
 Makers " *Life Forge* Material *Iron*  
 Diameter of Connecting Rods (smallest part) *3 1/4"* Material *Iron*  
 Makers " *Life Forge*  
 Diar. of Crosshead Gudgeons *3 1/2"* Length of Bearings *3 3/4"* Material *Steel*  
 No. of Top End Bolts (each Rod) *4* Effective Diar. *1.41"* Material *Iron*  
 " Bot. " " *2* " *1.48"* " *Iron*  
 " Main Bearings *4* Lengths *7 1/2"*  
 " Bolts in each *2* Effective Diar. *1.41"* Material *Iron*

No. of Holding Down Bolts, each Engine *26* No. of Metal Chocks *26*  
 Eff. Diar. " " " *84"* Average Pitch *1 through each frame & brevier bar*  
 Are the Engines bolted directly to the Tank Top? *No tank*  
 Are the Bolts tapped through the Tank Top and fitted with Nuts inside? ☒  
 Date of Test of Tank by Water Pressure with Holding Down Bolts in place ☒

## SKETCHES.



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## SKETCHES.

SKETCHES

## SHAFTING.

Are Crank Shafts Built? *Yes* No. of Lengths in each *1* Angle of Cranks *90°*  
 Diar. of Crank Shafts by Rule *6.365"* Actual *6'2"* Diar. in Way of Webs *6'5"*  
 Makers of *" Life Forge* Material *Ingot Steel*  
 Diar. of Crank Pins *6'2"* Diar. in Way of Web *6'5"*  
 Makers of *" Life Forge* Material *Ingot Steel*  
 Width across Crank Webs at Centre of Shaft *12 1/4"* Thickness *4 1/2"*  
 " " " " Crank Pins *12 1/4"* *4 1/2"*  
 " " " " Narrowest part *Parallel* *4 1/2"*  
 Makers of Crank Webs *Life Forge* Material *Ingot Steel*  
 Diar. or Breadth of Keys in Crank Webs *1 1/4" dia screws* Length *3 1/2"*  
 " of Dowel Pins in Crank Pins *1 1/4" dia* Length *3 1/2"* Screwed or Plain *Screwed*  
 No. of Bolts in each Coupling *6* Diar. at Mid Length *1 3/8"* Diar. of Pitch Circle *11 1/4"*  
 Material of Coupling Bolts *Iron*  
 Crank Shafts Finished by *Cooper & Greig*  
 Greatest Distance from edge of Main Bearing to Crank Web *3"*  
 Description of Thrust Blocks *Horse Shoe pattern*  
 Number " " Rings *3. with adjustable screws*  
 Diar. of Thrust Shafts by Rule *6.365"* Actual (at bot. of Collars) *6'2"* Over Collars *11 1/2"*  
 " " at Forward Coupling *6 1/2"* After Coupling *6 1/4"*  
 No. of Thrust Collars *3* Thickness *1 3/4"* Distance apart *3 3/4"*  
 Thrust Shafts Forged by *Life Forge* Material *Steel Ingot*  
 " Finished by *Cooper & Greig*  
 Diar. of Intermediate Shafting by Rule *✓* Actual *✓*  
 No. of Lengths, each Engine *✓* No. of Tannel Bearings *✓*  
 Diar. of Bearings *✓* Length *✓* Distance apart *✓*



No. of Bolts, each Coupling ✓  
 Intermediate Shafts Forged by ✓  
 " " Finished by ✓  
 Material ✓

Diar. of Propeller Shafts by Rule **6-89"** Actual **7"** At Couplings **7 1/4"**

Are Propeller Shafts fitted with Continuous Brass Liners? **no**

Diar. over Liners **8 1/2" + 8 5/16"** Length of After Bearings **4'-0"**

Of what Material are the After Bearings composed? **Brass Bush with lignum vitae**

Distance from After Bearing in Stern Tube to nearest Tunnel Bearing **Close to Stern gland.**

Are the After Bearings lubricated with Oil or Sea Water? **Sea Water**

What means are adopted to prevent Sea Water entering the Stern Tubes? **None**

Propeller Shafts Forged by **Life Forge** Material **Ingot Steel**  
 " " Finished by **Cooper & Greig**

No. of Propellers **2** Diar. **6'-0"** Pitch **7'-0"**

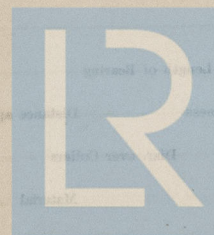
" Blades, each Propeller **3** Fitted or Solid **Solid**

Material of Blades **Cast iron** Boss **Cast iron**

Surface, each Propeller **15 ft expanded** Diar. of Propeller **11' 3 1/2"**  
**12 ft projected** Rule Diar. of Crank Shaft **11' 3 1/2"**

Coefficient of Displacement of Vessel at 1/2 Moulded Depth **18**

# SKETCHES



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## TURBINE ENGINES.

Type

No. of H.P. Turbines

No. of L.P. Turbines

No. of Astern "

How arranged

Revs. per Min.

Horse Power

Diar. of H.P. Turbine Drums

MATERIAL

THICKNESS OF METAL

Material of H.P. Turbine Casings

Lengths of Blades in H.P. Turbines

No. of Rows of Blades of each Length

Pitch of " " "

Diar. of L.P. Turbine Drums

MATERIAL

THICKNESS OF METAL

Material of L.P. Turbine Casings

Lengths of Blades in L.P. Turbines

No. of Rows of Blades of each Length

Pitch of " " "

Diar. of Astern Turbine Drums

MATERIAL

THICKNESS OF METAL

Material of Astern Turbine Casings

Lengths of Blades in Astern Turbines

No. of Rows of Blades of each Length

Pitch of " " "

Diar. of Turbine Spindles

Length of Bearing

No. of Thrust Collars on each Spindle

Thickness

Distance apart

Diar. of Spindles at Bottom of Collars

Diar. over Collars

Spindles Forged by

Material

" Finished by

## SKETCHES.



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## PUMPS, ETC

No. of Air Pumps *1 on each engine* Diar. *11½"* Stroke *11"*

Type of " *Ordinary*

Diar. of Air Pump Rod *2"* Material *Muntz Metal*

How are Air Pumps Worked? *Lever off LP cross-head*

No. of Centrifugal Circulating Pumps *2* Maker *Shwaite Bros*

" Reciprocating " " ✓ Diar. ✓ Stroke ✓

Diar. of Circulating Pump Rods ✓ Material ✓

How are Circulating Pumps Worked? *By independent engine*

Diar. of Circulating Pump Suction from Sea *5"*

Has each Circulating Pump a Bilge Suction with Non-return Valve? *Yes* Diar. *3½"*

No. of Feed Pumps on each Engine *1* Diar. *2½"* Stroke *11"*

Where do they pump from? *Hotwell*

" " discharge to? *Boilers*

Are Spring-loaded Relief Valves fitted to each Pump? *Yes*

Can one Pump be overhauled while the others are at work? *Yes*

No. of Bilge Pumps on each Engine *1* Diar. *2½"* Stroke *11"*

Where do they pump from? *all compartments & one pump from sea*

" " discharge to? *Overboard & on Deck*

Can one Pump be overhauled while the others are at work? *Yes*

No. of Bilge Injections connected to Condensers *None* Diar. ✓

Are all Bilge Suctions fitted with Roses? *Yes*

Are the Valves, Cocks, and Pipes so arranged as to prevent unintentional connection between Sea and

Bilges? *Yes*

Are all Sea Connections made with Valves or Cocks fitted direct to the Hull Plating? *Yes*

Are they placed so as to be easily seen and accessible? *Yes*

Are the Discharge Chests placed above the Deep Load Line? *Yes*

Are they fitted direct to the Hull Plating and easily accessible? *Yes*

Are all Blow-off Cocks or Valves fitted with Spigots through the Hull Plating and Covering Plates or

Flanges on the outside? *Yes*



## BOILERS.

Boilers made by *Messrs Cooper & Craig*  
 " at *Britannia Engine Works, Dundee*  
 Works No. *354 & 355*  
 Date when Plan approved *18.6.10*  
 Boiler Plates, Iron or Steel *Steel*  
 Makers of Shell Plates *Messrs Stewarts & Lloyds Ltd Glasgow*  
 " Internal Plates *Messrs Stewarts & Lloyds Ltd Glasgow*  
 " Furnaces *Weightons Patent Blue & White Co Ltd*  
 " Stay Bars *Lanarkshire Steel Co Ltd Motherwell*  
 " Rivets *Rivet Bolt & Nut Co Ltd Glasgow*  
 Material tested by (B.C., B.T., etc.) *B.C.*  
 No. of Boilers *2*  
 Single or Double-ended *Single*  
 No. of Furnaces, each Boiler *2*  
 Type of Furnaces *Weightons Patent*  
 Approved Working Pressure *140 lbs*  
 Hydraulic Test Pressure *280 lbs*  
 Date of Hydraulic Test *9-11-10*  
 " when Safety Valves set *14-1-11*  
 Pressure on Valves *144 lbs*  
 Date of Steam Accumulation Test *30.1.11*  
 Max. Pressure under Accumulation Test *150 lbs*  
 System of Draught *Howden*  
 Can Boilers be worked separately? *Yes*  
 Greatest inside Diam. of Boilers *11'-0"*  
 " " Length " *10'-3 1/2"*  
 Square Feet of Heating Surface, each Boiler *1180.4*  
 " Grate " " *35*



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No. of Safety Valves, each Boiler 2

Diar. " " " 3"

Area " " " 4.06 each

Are the Valves fitted with Easing Gear? Yes

No. of Pressure Gauges, each Boiler one

" Water " " one. Fitted direct to shell

" Test Cocks, " 3

" Salinometer Cocks, " one

Are Water Gauge Pillars attached by Pipes to Steam and Water Spaces? ✓

Are these Pipes connected to Boilers by Cocks or Valves? ✓

Are Blow-off Cocks or Valves fitted on Boiler Shells? Valves

No. of Strakes of Shell Plating in each Boiler 1

" Plates in each Strake 2

Thickness of Shell Plates by Rule 11.7"

" " Approved 13 1/16"

" " in Boilers 13 1/16"

Are the Rivet Holes Punched or Drilled? Drilled

Are Rivets Iron or Steel? Steel

Are the Longitudinal Seams Butt or Lap Joints? Butt

Are the Double Butt Straps of equal width? Yes

Thickness of outside Butt Straps 3/4"

" inside " 3/4"

Are Longitudinal Seams Hand or Machine Riveted? Machine

Are they Single, Double, or Treble Riveted? Treble

Diar. of Rivet Holes 7/8"

Pitch " 5 13/16"

Width of Overlap ✓

Percentage of Strength in Longitudinal Seams Plate Section 84.94% Rivet Section 95%



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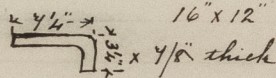


No. of Rows of Rivets in Centre Circumferential Seams ✓  
 Are these Seams Hand or Machine Riveted? ✓  
 Diar. of Rivet Holes ✓  
 Pitch " ✓  
 Width of Overlap ✓

No. of Rows of Rivets in End Circumferential Seams 2  
 Are these Seams Hand or Machine Riveted? Hand  
 Diar. of Rivet Holes 1"  
 Pitch " 3"  
 Width of Overlap 5 1/2"

Size of Manholes in Shell

Dimensions of Compensating Rings



Thickness of End Plates in Steam Space by Rule

" " " " " Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Eff. Diar. " " " by Rule

" " " " " Approved

" " " " " in Boilers

Material of " " "

How are Stays Secured?

*Nuts & Washers*

Diar. and Thickness of Loose Washers on End Plates

" " Riveted " " "

Width " " Doubling Strips " "

Thickness of Middle Back End Plate by Rule

" " " " " Approved

" " " " " in Boilers

$\frac{11.8}{16}$   
 $\frac{10}{16} + \frac{1}{2}$  doubling  
 do



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Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at

Eff. Diar. of Stays by Rule

" " " Approved

" " " in Boilers

Material

Are Stays fitted with Nuts outside?

Thickness of Back End Plates at Bottom by Rule

" " " " " Approved

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in

Thickness of Front End Plates at Bottom by Rule

" " " " " Approved

" " " " " in Boilers

No. of Long. Stays in Spaces between Furnaces

Eff. Diar. of Stays by Rule

" " " " " Approved

" " " " " in Boilers

Material of

Thickness of Front Tube Plates by Rule

" " " " " Approved

" " " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in

" Stay Tubes at

$$\frac{1}{2} \\ 13'' \times 8\frac{7}{8}''$$

$$1.398''$$

$$1.483''$$

$$1.483''$$

Steel

yes

$$\frac{11}{16}$$

$$58'' + \frac{5}{8}'' \text{ doubling}$$

$$58'' + \text{do}$$

$$13'' \times 8\frac{7}{8}''$$

$$2 \times \frac{57}{8}$$

$$\frac{11.6}{16}$$

$$11\frac{1}{16}'' + \frac{5}{8}'' \text{ doubling}$$

$$11\frac{1}{16}'' + \frac{57}{8}'' \text{ do}$$

$$4$$

$$2''$$

$$2.036$$

$$2.036$$

Steel

$$\frac{13.35}{16}$$

$$11\frac{1}{16}'' + \frac{57}{8}'' \text{ doubling}$$

$$11\frac{1}{16}'' + \frac{57}{8}'' \text{ do}$$

$$13\frac{1}{2}''$$

$$58''$$

$$5\frac{1}{16}''$$



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Are Stay Tubes fitted with Nuts at Front End?

2 in each boiler

Thickness of Back Tube Plates by Rule

 $\frac{19.4}{32}$ 

" " " Approved

 $\frac{23}{32}$ 

" " " in Boilers

 $\frac{23}{32}$ 

Pitch of Stay Tubes in Back Tube Plates

 $7\frac{1}{2} \times 11\frac{1}{4}$ 

" Plain "

 $3\frac{3}{4} \times 3\frac{3}{4}$ 

Thickness of Stay Tubes

 $5\frac{1}{16}$ 

" Plain "

17-9 W.G.

External Diar. of Tubes

 $2\frac{1}{2}$ 

Material " "

Iron

Thickness of Furnace Plates by Rule

 $\frac{6.26}{16}$ 

" " " Approved

 $\frac{4}{16}$ 

" " " in Boiler

 $\frac{4}{16}$  Fuzz

Smallest outside Diar. of Furnaces

 $3'-0\frac{3}{8}$ 

Length between Tube Plates

 $4'-0"$ 

Width of Combustion Chambers (Front to Back)

 $2'-6"$ 

Thickness of " " " Tops, by Rule,

 $\frac{8.93}{16}$ 

" " " " Approved

 $\frac{9}{16}$ 

" " " " in Boilers

 $\frac{9}{16}$ 

Pitch of Screwed Stays in C.C. Tops

 $8\frac{1}{2} \times 8"$ 

Eff. Diar. " " " by Rule

 $1-2\frac{1}{5}$ 

" " " " Approved

 $1-2\frac{3}{4}$ 

" " " " in Boilers

 $1-2\frac{3}{4}$ 

Material " "

Steel

Thickness of Combustion Chamber Sides by Rule

 $\frac{8.71}{16}$ 

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Thickness of Combustion Chamber Sides Approved

9 1/4"

" " " " in Boilers

9 1/4"

Pitch of Screwed Stays in C.C. Sides

8 3/4" x 8"

Eff. Diar. " " by Rule

1.23"

" " " Approved

1.23

" " " in Boilers

1.23

Material " "

Steel

Thickness of Combustion Chamber Backs by Rule

8 7/16"

" " " Approved

9 1/16"

" " " in Boilers

9 1/16"

Pitch of Screwed Stays in C.C. Backs

7 7/8" x 8 7/8"

Eff. Diar. " " by Rule

1.23

" " " Approved

Outside rows 1 5/8" others 1 3/8"

" " " in Boilers

" " "

Material " "

Steel

Are all Screwed Stays fitted with Nuts inside C.C.

Yes  
4 3/8"

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

5

" " " Centre "

✓

Depth and Thickness of Girders

Girders in 2 plates 2'-9" x 4 1/2" x 5/8" plates

Material of Girders

Steel

No. of Stays in each

3

No. of Stay Tubes, each Boiler

54

" " Plain " " "

150

Size of lower Manholes

15" x 12"

## VERTICAL DONKEY BOILERS

If the Donkey Boilers are Vertical the following particulars should be stated in addition to those on

previous pages applicable to such boilers:—

Type of boiler

Height of boiler Crown above fire Grate

Are boiler Crown flat or ribbed?

Internal Radius of Ribbed Crown

Description of seams in boiler Crown

Pitch of Rivet Heads

Height of Ribbed Crown above fire Grate

Are Ribbed Crown flat or ribbed?

Internal Radius of Ribbed Crown

No. of Crown Stays

External Diam. of Ribbed at Top

No. of Water Tubes

Material of Water Tubes

No. of Screwed Stays in Water Tubes

Are they fitted with Nuts inside?

## SUPERHEATERS

Description of Superheaters

Where situated

Which boiler are connected to Superheaters?

Can Superheaters be shut off from boiler without stopping?

No. of Safety Valves on Superheaters

Are they fitted with Nuts inside?

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## VERTICAL DONKEY BOILERS.

If the Donkey Boilers are Vertical the following particulars should be stated in addition to those on previous Pages applicable to such Boilers:—

Type of Boilers

Height of Boiler Crown above Fire Grate

Are Boiler Crowns Flat or Dished?

Internal Radius of Dished Ends

Thickness of Plates

Description of Seams in Boiler Crowns

Diar. of Rivet Holes

Pitch

Width of Overlap

Height of Firebox Crowns above Fire Grate

Are Firebox Crowns Flat or Dished?

External Radius of Dished Crowns

Thickness of Plates

No. of Crown Stays

Effective Diar.

Material

External Diar. of Firebox at Top

Bottom

Thickness of Plates

No. of Water Tubes

Int. Diar.

" "

Material of Water Tubes

No. of Screwed Stays in Firebox Sides

Eff. Diar.

Material

Are they fitted with Nuts inside?

Outside?

## SUPERHEATERS.

Description of Superheaters

Where situated

Which Boilers are connected to Superheaters?

Can Superheaters be shut off while Boilers are working?

No. of Safety Valves on Superheaters

Diar.

Area

Are " " fitted with Easing Gear?

Date of Hydraulic Test

Test Pressure

Date when Safety Valves set

Pressure on Valves

## SKETCHES.



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## MAIN STEAM PIPES.

No. of Lengths	4			
Material	Copper			
Brazed, Welded, or Seamless	Seamless			
Internal Diam.	4 1/2"			
Thickness	8-W.S.			
How are Flanges Secured?	Brazed			
Date of Hydraulic Test	10.1.11			
Test Pressure	300 lbs			

## REFRIGERATORS.

No. of Machines	1	Makers	Haslam Foundry & Eng. Co. Ltd
Description	Duplex, tandem, ammonia, double acting, Condensers in bedplate		
When any part of the Vessel is to be used for the Carriage of Refrigerated Cargo the following particulars should be stated:—	Separate steam Condenser		
Total Cubic Capacity of Refrigerated Spaces			
Nature, Construction, Thickness, &c., of Insulation			

Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage?  
 Are all Bilge Suction, Sounding, and Air Pipes in Insulated Spaces properly insulated?  
 Are Thermometer Tubes so arranged that Water cannot enter and freeze in the Tubes?  
 Are Sluice Valves fitted on any of the Bulkheads of Insulated Spaces?

Are these fitted with Brass Non-return Valves?

Are they always accessible?

Are the Bilges and Bilge Rose Boxes always accessible?

Are the Steam Suctions to Bilges fitted with Non-return Valves?

yes  
yes  
yes  
no  
  
✓  
✓  
yes  
yes

Is the Machine Room effectively separated from Insulated Spaces?

properly Ventilated and Drained?

No. of Steam Cylinders, each Machine

Diams. 10" & 17"

Compressors,

2

7 1/2"

10" stroke

Diam. of Crank Shafts

3 3/4"

No. of Cranks

2

Give particulars of Pumps in connection with Refrigerating Plant, and state whether worked by

Refrigerating Machines or independently

2 Lamont's Duplex, Double acting Brine Pumps, 6" x 6" x 6" Interchangeable.

1 Lamont's Duplex, Double acting Pump 7" x 7" x 8" for water circulation through both steam and Ammonia Condensers.  
 Independent combined Air & Feed Pump.

Are Brine and other Regulating Valves placed so as to be accessible without entering the Insulated Spaces?

Date of Test under Working Conditions

Fall of Temperature in Insulated Spaces

Time required to obtain this Result

Articles of Spare Gear for Refrigerating Plant carried on board

1 Set steam piston rings for H.P. & L.P. cylinders  
 1 " " " " " water & brine pumps  
 1 " valves " " " "  
 1 Top end & 1 bot. end connecting rod bush  
 4 " " 2 " " " bolts  
 1 Compressor rod complete  
 2 " section & delivery valves & seals  
 12 Springs for do  
 1 Lantern bush for compressor gland.



## SKETCHES.

## Spare Gear

- 1 Regulating valve
- 2 sets lead joint rings
- 2 Thermometers
- 1 Condenser pressure gauge
- 1 Evaporator
- 1 Hydrometer
- 1 Compressor cyl. with covers (no valves)
- 1 Cover for H.P. & L.P. steam cylinder
- 1 HP and 1 LP main valve spindle & nuts
- 1 Steam piston rod & nuts complete
- 1 Crank shaft
- 1 Compressor piston with rings
- 1 H.P. steam
- 1 L.P. steam
- 1 Eccentric strap
- 1 Main bearing bush
- 1 Air pump rod, bucket & nut
- 1 Set Air pump valves
- 1 " Feed "
- 12 Condenser tubes & ferrules
- 1 Piston rod & pump rod for Brine pump
- 1 " " " " " Water
- 1 Pair ammonia flanges of each size

## ELECTRIC LIGHTING.

Installation Fitted by *Siemens Bros. Dynamo Works Ltd.*  
 No. and Description of Dynamos *one, 4 pole*  
 Makers of Dynamos *Siemens Bros. Dynamo Works Ltd.*  
 Capacity " *60* Amperes, at *100* Volts, *450* Revols. per Min.  
 Current Alternating or Continuous *Continuous*  
 Position of Dynamos *In Auxiliary Engine Room*  
 " Main Switch Board *do*  
 No. of Circuits to which Switches are provided on Main Switch Board *3*  
 Particulars of these Circuits:—

No. of Circuit.	Name of Circuit.	Number of Lights.	Candle Power.	Current Required, Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
1	Cabin Navigation	31	16	18	7/16		98%	600 meg
2	Holds Reflector	42	16	25	7/16		do	do
3	Eng. Rm.	19	16	12	7/8		do	do

Total No. of Lights *92* No. of Motors driving Fans, &c. No. of Heaters ✓

Current required for Motors and Heaters



On Main Switch Board, to Cables of Main Circuits

On Aux.	..	..	each Auxiliary Circuit
---------	----	----	------------------------

Wherever a Cable is reduced in size

To each Lamp Circuit

To both Flow and Return Wires of all Circuits when the Double-Wire System is adopted

### Are the Fuses of Standard Sizes?

Are all Switches and Cut-outs constructed of Non-inflammable Material?

Are they placed so as to be always and easily accessible?

Smallest Single Wire used, No. 18 S.W.G., Largest, No. ✓ S.W.G.

How are Conductors in Engine and Boiler Spaces protected?

"	"	Saloons, State Rooms, &c.,	"	?
---	---	----------------------------	---	---

What special protection is provided in the following cases?—

- (1) Conductors exposed to Heat or Damp

- (2) passing through Bunkers or Cargo Spaces

- (3) .. .. Deck Beams or Bulkheads

Are all Joints in accessible positions, none being made in Bunkers or Cargo Spaces?

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface

Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously affected by them?

Have Tests been made to prove that this condition has been satisfactorily fulfilled?

Has the Insulation Resistance over the whole system been tested?

What does the Resistance amount to?

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter?

Date of Trial of complete Installation 28-1-11 Duration of Trial

Double wire system throughout

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## EVAPORATORS.

No. *1* Type *Horizontal* Tons per Da *100*  
 Makers *Woodeson*  
 Working Pressure *15* Test Pressure *20* Date of Test *1911*  
 Date of Test of Safety Valves under Steam *1911*

## FEED WATER HEATERS.

No. *1* Type *Horizontal*  
 Makers *Woodeson*  
 Working Pressure *15* Test Pressure *20* Date of Test *1911*

## DONKEY

No. of Donkeys *2*  
 Type *Ballast*  
 Makers *Woodeson*  
 Single or Duplex *Clarke Chapman*  
 " Double-Acting *Single*  
 " *Double Acting*  
 Diar. of Steam Cylinders *10"*  
 " Pumps *11 1/2"*  
 Stroke of " *15*  
 Where do they pump from? *Sea. Tanks & Bilges*

Where do they discharge to? *Condenser. Overboard & into Peak Tanks*  
*also Refrigerating Plant Condensers*

Capacity, Tons per Hour of Ballast Donkey *100*

Diar. of Pipe required by Rule for

## FEED WATER FILTERS.

No. *1* Type *Horizontal* Size *10"*  
 Makers *Woodeson*  
 Working Pressure *15* Test Pressure *20* Date of Test *1911*

## FORCED DRAUGHT FANS.

No. of Fans *One* Diar. *66"* Revols. per min. *300 (max)*  
 How are Fans driven? *Direct coupled to engine*

## PUMPS.

*1 Feed*  
*Woodeson*  
*Clarke Chapman*  
*Single*  
*Double Acting*  
*8"*  
*6"*  
*12"*  
*Sea. Hotwell & Tanks*

*Boilers. Deck & Overboard.*

largest Ballast Tank *3*

Velocity of Water in Pipe *506* *per min*



## FEELT SPARE GEAR

No. of Top End Bolts	2 + nuts	No. of Bot. End Bolts	2 + nuts
" Main Bearing Bolts	2 d	" Coupling Bolts	6 + d
" Cylr. Cover Bolts Studs	6	" Valve Chest Cover Bolts Studs	4
" Feed Pump Valves	1 set	" Bilge Pump Valves	1 set
" Safety Valve Springs	1 set	" Fire Bars	1 set
" Piston Rings	✓	" Junk Ring Bolts Studs	6
" Piston Rods	None	" Connecting Rods	None
" Valve Spindles	1	" Air Pump "	1
" Air Pump Valves	1/2 set	" " Buckets	none
" Crank Pin Bushes	1 set	" Crosshead Bushes	1 set
" Crank Shafts	1	" Propeller Shafts	1
" Propellers	2	" " Blades	1
" Boiler Tubes	2 doz	" Condenser Tubes	3 doz

## OTHER ARTICLES OF SPARE GEAR:-

- 1 Eccentric strap complete
- 1 set eccentric top end bushes
- 1 set boiler check valves
- 1 Cyl. escape valve for each side
- 2 Piston valve rings

## GENERAL CONSTRUCTION.

Have all the Requirements under Sections 31 and 32 of the Rules been complied with? *Yes*

If not, give details of the points of difference, and state when these were sanctioned by the Chief

Surveyor

Are the Steam Pumping Arrangements in accordance with the approved Plan? *Yes*

If not, state in what respects they differ and when such differences were sanctioned by the Chief

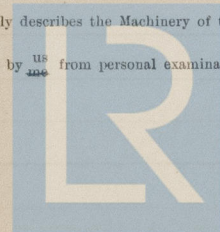
Surveyor

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and trustworthy? *Yes*

Is the Workmanship throughout thoroughly satisfactory? *Yes*

The above correctly describes the Machinery of the S.S. *© 2021 "El. Parate"*

as ascertained by *us* from personal examination.



*James Pettus*  
*James Barr*  
Engineer Surveyor to the British Corporation for the  
Survey and Registry of Shipping.



Fees—

## MAIN BOILERS.

H.S. 2361'4

Sq. ft.

G.S.

70

"

:

:

## DONKEY BOILERS.

H.S.

Sq. ft.

:

:

G.S.

"

:

:

£

:

:

## ENGINES.

L.P.C.

18

Cub. ft.

:

:

£

:

:

Tusting, &amp;c.

:

:

£

:

:

Expenses ...

:

:

Total ... £

:

:

It is submitted that this Report be approved,

Chief Surveyor.

Approved by the Committee,

Fees applied for

Fees paid

Secretary.



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State Division

23614

U.S. 70

DORSEY ELLIOTT

U.S. 70

U.S. 70

Elliott

U.S. 70

The following information was obtained from the records of the

The following information was obtained from the records of the

U.S. 70

It is submitted that this report be approved.

U.S. 70

Approved by the Commission

Not signed by

Date



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