

No. 2242

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 2238 No. in Register Book 3621

M/M F. W. MOORE

S.S. GEORGE L. EATON

Makers of Engines *Swanwick & Co. Ltd.*

Works No. 337

Makers of Main Boilers *Blair (1926) Ltd.*

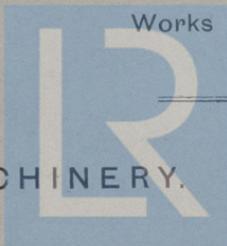
Works No. C. 182

Makers of Donkey Boiler

Works No.

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MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office

8th November 1929

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ~~Twin Quadruple~~ ^{Single Triple} Screw Steamer

"George L. Latou"

Official No. 160717 Port of Registry

Middlesbrough

Registered Owners

Hull Corporation of Canada

Engines Built by

Clyde Dock Co. Ltd.

at

South Bank-on-Sea

Main Boilers Built by

Blair & Co. (1926) Ltd.

at

Stockton-on-Tees

Donkey

at

Date of Completion

3-29

First Visit 19-11-28

Last Visit

26-3-29, Total Visits 40

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RECIPROCATING ENGINES.

Works No. *334* No. of Sets *1* Description *Triple expansion. C.P. Berks.*

No. of Cylinders each Engine *3* No. of Cranks *3*
 Diars of Cylinders *15"-25"-40"* Stroke *33"*
 Cubic feet in each L.P. Cylinder *24*

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.?

" " " each Receiver?

Type of H.P. Valves,

1st I.P. ,,

2nd I.P.,,

L.P. ,,

" Valve Gear

" Condenser

Cooling Surface sq. ft.

Diameter of Piston Rods (plain part)

Screwed part (bottom of thread)

Material "

Diars. of Connecting Rods (smallest part)

Material

" Crosshead Gudgeons

Length of Bearing

Material

No. of Crosshead Bolts (each)

Diars. over Thrd.

Thrds. per inch

Material

" Crank Pin " "

"

"

"

" Main Bearings

Lengths

" Bolts in each

Diars. over Thread

Threads per inch

Material

" Holding Down Bolts, each Engine

Diars.

No. of Metal Chocks

Are the Engines Bolted to the Tank Top or to a Built Seat?

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside?

If not, how are they fitted?

Connecting Rods, Forged by *Brown Bros.*

Piston " "

Crossheads " "

Connecting Rods, Finished by *Cuttler Sh. Co.*

Piston " "

Crossheads, " "

Date of Harbour Trial *19-3-29*

" Trial Trip *25-3-29*

Trials run at *In Lees Bay.*

Were the Engines tested to full power under Sea-going conditions? *yes.*

If so, what was the I.H.P.?

820

Revs. per min. *110*

Pressure in 1st I.P. Receiver, *59* lbs., 2nd I.P.,

lbs., L.P., *11* lbs., Vacuum, *25* ins.

Speed on Trial *no speed taken.*

If the Conditions on Trial were such that full power records were not obtained give the following estimated

data:—

Builders' estimated I.H.P.

Revs. per min.

Estimated Speed



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TURBO-ELECTRIC PROPELLING MACHINERY.

No. of Turbo-Generating Sets Capacity of each

Type of Turbines employed

Description of Generators

No. of Motors driving Propeller Shafting

Are the Propeller Shafts driven direct by the Motors or through Gearing?

Is Single or Double Reduction Gear employed?

Description of Motors

Diam. of 1st Reduction Pinion	}	Width	Pitch of Teeth
" 1st " Wheel			

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion	}	Width	Pitch of Teeth
" 2nd " Wheel			

Estimated Pressure per lineal inch

Revol. per min. of Generators at Full Power

"	"	Motors	"
"	"	1st Reduction Shaft	"
"	"	2nd	"
"	"	Propellers at Full Power	"

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Speed on Trial	Knots.	Propeller Revols. per min.	S.H.P.
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Makers of Turbines

" Generators

" Motors

" Reduction Gear

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.



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SHAFTING.

Are the Crank Shafts Built or Solid ?

No. of Lengths in each Angle of Cranks

Diar. by Rule Actual In Way of Webs

 " of Crank Pins Length between Webs

Greatest Width of Crank Webs Thickness

Least " " " "

Diar. of Keys in Crank Webs Length

 " Dowels in Crank Pins Length Screwed or Plain

No. of Bolts each Coupling Diar. at Mid Length Diar. of Pitch Circle

Greatest Distance from Edge of Main Bearing to Crank Web

Type of Thrust Blocks

No. " Rings

Diar. of Thrust Shafts at bottom of Collars No. of Collars

 " " Forward Coupling At Aft Coupling

Diar. of Intermediate Shafting by Rule Actual No. of Lengths

No. of Bolts, each Coupling Diar. at Mid Length Diar. of Pitch Circle

Diar. of Propeller Shafts by Rule Actual At Couplings

Are Propeller Shafts fitted with Continuous Brass Liners ?

Diar. over Liners Length of After Bearings

Of what Material are the After Bearings composed ?

Are Means provided for lubricating the After Bearings with Oil ?

 " " to prevent Sea Water entering the Stern Tubes ?

If so, what Type is adopted ?

Same as main shaft

SKETCH OF CRANK SHAFT.

Handwritten notes and sketches:

- Material of Shafts*
- Dist. of Propeller*
- Condition of Displacement of Vent at 1/2 Stroke Depth*
- Material of Shafts forged by*
- Web*
- Thrust Shafts*
- Intermed.*
- Propeller*
- Collars*
- Thrust*
- Intermed.*
- Propeller*

STAMP MARKS ON SHAFTS

Handwritten notes:

- Crack thru the shaft*

Handwritten stamp:

P.O. 14220
21-12-22



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No. of Blades each Propeller
 Material of Blades
 Diam. of Propellers
 Pitch
 Surface (each
 S. ft.)
 Content of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth

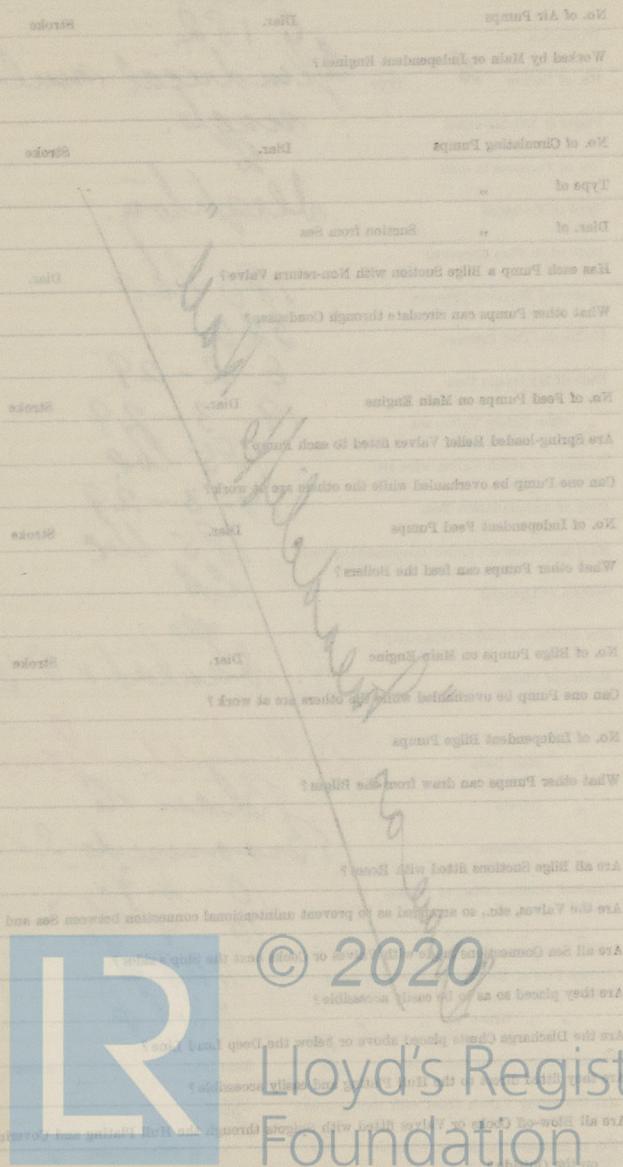
Cranks Shafts Forged by *Yife Yorg Coy.* Material *I.S.*
 ,, Pins ,, " " " " " "
 ,, Webs ,, " " " " " "
 Thrust Shafts ,, " " " " " "
 Intermed. ,, " " " " " "
 Propeller ,, " " " " " "
 Crank ,, Finished by " " " " " "
 Thrust ,, " " " " " "
 Intermed. ,, " " " " " "
 Propeller ,, " " " " " "

STAMP MARKS ON SHAFTS.

Crank, Thrust & Tail Shafts:—

*B. O.
 N° 220
 21-12-28
 R. S.*

SKETCH OF PROPELLER SHAFT.



BOILERS.

Works No.

No. of Boilers

2

Type

C. 182.
Cylindrical multitubular
single.

Single or Double-ended

No. of Furnaces in each

2

Type of Furnaces

Mighton.

Date when Plan approved

Approved Working Pressure

180 lbs.

Hydraulic Test Pressure

320 "

Date of Hydraulic Test

6-2-29

" when Safety Valves set

19-3-29

Pressure at which Valves were set

185 lbs.

Date of Accumulation Test

19-3-29

Maximum Pressure under Accumulation Test

185 lbs.

System of Draught

C.A.

Can Boilers be worked separately?

Yes.

Makers of Plates

J. Daulak & Co. Ltd.

" Stay Bars

D. Leavelle & Sons Ltd.

" Rivets

Blair Co.

" Furnaces

Brookside S. & Co. @

Greatest Internal Diam. of Boilers

10' - 4 3/8"

" " Length "

10' - 9 15/16"

Square Feet of Heating Surface each Boiler

1128 sq

" " Grate "

33.8 sq

No. of Safety Valves each Boiler

2

Rule Diam.

Actual

2 1/2"

Are the Safety Valves fitted with Easing Gear?

Yes.

No. of Pressure Gauges, each Boiler

2

No. of Water Gauges

1

" Test Cocks

3

" Salinometer Cocks

1



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Are the Water Gauges fitted direct to the Boiler Shells or mounted on Pillars?

Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes?

Are these Pipes connected to Boilers by Cocks or Valves?

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

No. of Strakes of Shell Plating in each Boiler

„ Plates in each Strake

Thickness of Shell Plates Approved

„ „ in Boilers

Are the Rivets Iron or Steel?

Are the Longitudinal Seams Butt or Lap Joints?

Are the Butt Straps Single or Double?

Are the Double Butt Straps of equal width?

Thickness of outside Butt Straps

„ inside „

Are Longitudinal Seams Hand or Machine Riveted?

Are they Single, Double, or Treble Riveted?

No. of Rivets in a Pitch

Diam. of Rivet Holes „ Pitch

No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes „ Pitch

No. of Rows of Rivets in Front End Circumferential Seams

Are these Seams Hand or Machine riveted?

Diam. of Rivet Holes „ Pitch

No. of Rows of Rivets in Back End Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes „ Pitch

Size of Manholes in Shell

Dimensions of Compensating Rings

Handwritten note: "I mean as in the shell wall"



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Faint, mostly illegible text from the reverse side of the page, including phrases like "Approved", "in Boilers", and "Thickness of Shell Plates".

Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Diar. " " " " Approved Threads per Inch

" " " " " in Boilers "

Material of " " "

How are Stays Secured?

Diar. and Thickness of Loose Washers on End Plates

" " Riveted " "

Width " " Doubling Strips "

Thickness of Middle Back End Plates Approved

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at " " "

Diar. of Stays Approved " Threads per Inch

" " in Boilers "

Material "

Are Stays fitted with Nuts outside?

Thickness of Back End Plates at Bottom Approved

" " " " " in Boilers

Pitch of Stays at Wide spaces between Fireboxes

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom Approved

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces

Same as Headplate wall



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Same as Headplate wall

Diam. of Stays Approved Threads per Inch

" " in Boilers

Material "

Thickness of Front Tube Plates Approved

" " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " " "

" Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End ?

Thickness of Back Tube Plates Approved

" " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

" Plain "

Thickness of Stay Tubes

" Plain "

External Diam. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diam. of Furnaces

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Thickness of " " Tops Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Tops

"As per manufacturer's rule"

Threads per Inch

Diam. of Screwed Stays Approved

" " in Boilers

Material "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Sides

Diam. " Approved " " " in Boilers

Material " " " " in Boilers

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Backs

Diam. " Approved " " " in Boilers

Material " " " " in Boilers

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

Thickness of Combustion Chamber Bottoms

No. of Girders over each Flue (Length)

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Diar. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Sides

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Backs

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

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

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " Centre "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

same as available

VERTICAL DONKEY BOILERS

Type
 Height
 Height of Boiler Crown above Fire Grate
 Are Boiler Crowns Flat or Dished?
 Internal Radius of Dished Ends
 Description of Joints in Boiler Crown
 Diam. of Rivet Heads
 Pitch
 Width of Overlap
 Height of Rivet Crowns above Fire Grate
 Are Pressure Crowns Flat or Dished?
 External Radius of Dished Crowns
 Thickness of Plates
 No. of Crown Stays
 Diam.
 External Diam. of Pressure as Top
 Thickness of Plates
 No. of Water Tubes
 Diam. Diam.
 Material of Water Tubes
 Size of Manhole in Shell
 Dimensions of Compensating Diam.
 Heating Surface, each Boiler
 (List Surface)

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 each Superheater
 Date of Installation
 Date when Safety Valves set



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VERTICAL DONKEY BOILERS.

No. of Boilers Type

Greatest Int. Diar. Height

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 Diar. Material

External Diar. of Firebox at Top Bottom Thickness of Plates

No. of Water Tubes Ext. Diar. Thickness

Material of Water Tubes

Size of Manhole in Shell

Dimensions of Compensating Ring

Heating Surface, each Boiler Grate Surface

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 each Superheater Diar.

Are " " fitted with Easing Gear ?

Date of Hydraulic Test Test Pressure

Date when Safety Valves set Pressure on Valves

MAIN STEAM PIPES



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MAIN STEAM PIPES.

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

4
Copper.
S. P.
3 1/2"
w/ply.
braked.
15-3-29
400 lbs

LIST OF DONKEY PUMPS
EVAPORATORS

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

FEED WATER HEATERS

No. of Lengths

Material

Brazed, Welded or Seamless

FEED WATER FILTERS

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

SUPERHEATERS



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No. of Machines	Description of Machine	No. of Lamps	No. of Lamps	Description of Machine

Description

No. of Circuits to which Switches are provided on Main Switch Board

Description of Machine

No. of Lamps

ELECTRIC LIGHTING

Installation Fitted by

R. Pickersque Sons, Ltd.

No. and Description of Dynamo

One compound wound
Cumberland Forge Casto Ltd.

Makers of Dynamos

Capacity " 110 Amperes at $\frac{1}{2}$ Volts 350 Revols. per Min.

Current Alternating or Continuous

Continuous.

Single or Double Wire System

Double

Position of Dynamos

Starting Platform

" Main Switch Board

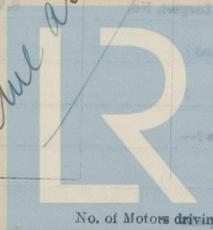
No. of Circuits to which Switches are provided on Main Switch Board

4

Particulars of these Circuits:—

Circuit.	Number of Lights.	Candle Power.	Current Required. Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.

Same as made up wall



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Total No. of Lights

No. of Motors driving Fans, &c.

No. of Heaters

Current required for Motors and Heaters

Positions of Auxiliary Switch Boards, with No. of Switches on each

Insulation Resistance per Mile	Continuity of Connections	Capacity of Cables	Position of Dynamos	Single or Double Wire System	Currents Alternating or Continuous	Capacity	Position of Dynamos	Location of Dynamos	Main Switch Board	No. of Outlets to which switches are attached on Main Switch Board	Locations of these Outlets
--------------------------------	---------------------------	--------------------	---------------------	------------------------------	------------------------------------	----------	---------------------	---------------------	-------------------	--	----------------------------

Are Out-outs fitted as follows?—

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 Out-outs constructed of Non-inflammable Material?

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

Smallest Single Wire used, No. 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 Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables

is unimpaired?

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?

Ohms.

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter

Date of Trial of complete Installation 25-3-29. Duration of Trial 6 hours.

Have all the requirements of Section 42 been satisfactorily carried out? yes.



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GENERAL CONSTRUCTION.

Have the Machinery and Boilers been constructed in accordance with the requirements of the Rules and the

Approved Plans? *yes.*

If not, give details of the points of difference, and state when these 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. *11* GEORGE L. EATON *11*

as ascertained by ^{me} from personal examination

J. B. Stephenson
 Engineer Surveyor to the British Corporation for the
 Survey and Registry of Shipping.

Fees—

MAIN BOILERS.		£	s.	d.
H.S.	<i>2256</i> Sq. ft.	:	:	:
G.S.	<i>64.6</i> "	:	:	:
DONKEY BOILERS.				
H.S.	Sq. ft.	:	:	:
G.S.	"	:	:	:
		£	:	:
ENGINES.				
L.P.O.	<i>24</i> Cub. ft.	:	:	:
		£	:	:
Testing, &c. ...		:	:	:
		£	:	:
Expenses ...		:	:	:
		£	:	:
Total ...		£	:	:

It is submitted that this Report be approved,

Gas Barr for Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *13th November 1929.*

Fees advised

Fees paid



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