

No. 1770

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. *1614* No. in Register Book *2860*

S.S. "*DONGARTH*"

Makers of Engines *Smiths Dock Co Ltd*

Works No. *226*

Makers of Main Boilers *Newthome Leslie Co Ltd*

Works No. *8649 no 2.*

Makers of Donkey Boiler

Works No.

MACHINERY.



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009771-009779-0170

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office

22nd February 1923

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

"Dongarth"

Official No.

Port of Registry

Liverpool

Registered Owners

Rea Sawing Co. Ltd.

Engines Built by

Smiths Dock Co. Ltd.

at

South Bank-on-Sea.

Main Boilers Built by

Hawthorne Leslie Co. Ltd.

at

Newcastle-on-Tyne.

Donkey

at

Date of Completion

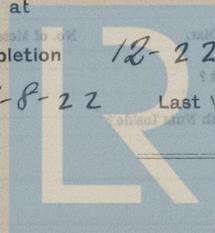
12-22

First Visit 8-8-22

Last Visit 30-11-22

Total Visits

35



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RECIPROCATING ENGINES.

Works No. *226* No. of Sets *1* Description *Triple expansion.**Surface condensing, Three cranks.*No. of Cylinders each Engine *3* No. of Cranks *3*Diars. of Cylinders *14" - 23" - 39"* Stroke *24"*Cubic feet in each L.P. Cylinder *18.6*

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

Diar. of Connecting Rods (smallest part)

Material

" Crosshead Gudgeons

Length of Bearing

Material

No. of Crosshead Bolts (each)

Diar. over Thrd.

Thirds. per inch

Material

" Crank Pin " "

" Main Bearings

Lengths

" Bolts in each

Diar. over Thread

Threads per inch

Material

" Holding Down Bolts, each Engine

Diar.

No. of Metal Chocks

Are the Engine Bolts fitted 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

Piston " "

Crossheads,

Connecting Rods, Finished by

Piston " "

Crossheads,

Date of Harbour Trial

24-11-22

" Trial Trip

*19-12-22*Trials run *in River, Inversey.*

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

In River.

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

*454*Revs. per min. *125*Pressure in 1st I.P. Receiver, *54.6 lbs.*, 2nd I.P.,lbs., L.P., *10.3 lbs.*, Vacuum, *25" ins.*

Speed on Trial

10.69 knots

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

data:—

Builders' estimated L.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

Revs. 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 Revs. per min. S.H.P.

Makers of Turbines

" Generators

" Motors

" Reduction Gear

Turbine Spindles forged by

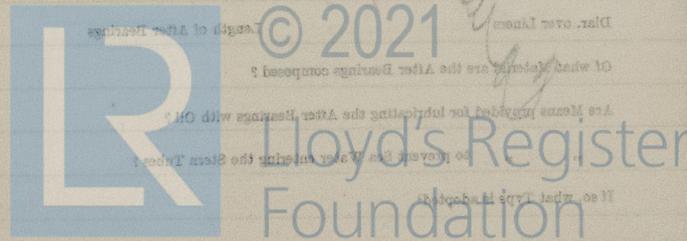
" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION

No. of Bolts each Coupling	Diam. at Mid Length	Length	No. of Couplings
Diam. of Keys in Crank Webs	Diam. of Crank Pins	Length	No. of Keys in Crank Webs
Diam. of Intermediate Shafting by Pins	Diam. at Mid Length	Actual	No. of Lengths
Diam. of Propeller Shafts by Pins	Diam. at Mid Length	Actual	No. of Couplings
Diam. of Turbine Shafts at bottom of Bolts	Diam. of Couplings	Actual	No. of Couplings
Type of Thrust Blocks	No. of Bolts	Actual	No. of Couplings
No. of Rings	No. of Couplings	Actual	No. of Couplings



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 " " Length

Diar. of Keys in Crank Webs Length Screwed or Plain

 " 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?

Handwritten: "Carbide"

SKETCH OF CRANK SHAFT.

Material of Shafts

Material of Liners

Material of Propellers

Material of Crank Shafts forged by

 " " Pins

 " " Webs

 " " Thrust Shafts

 " " Intermediate

 " " Propeller

 " " Crank

 " " Thrust

 " " Intermediate

 " " Propeller

STAMP MARKS ON SHAFTS.

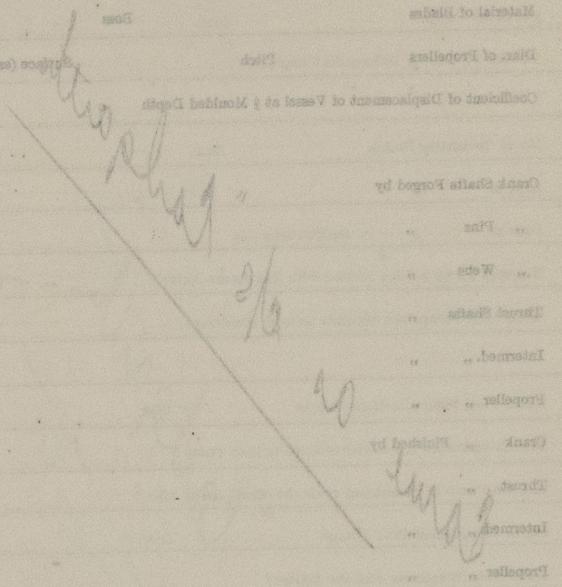
Handwritten: 1-4-22
A.H.B.

Handwritten: 8.0
4-10-21
J.M.S.



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No. of Blades each Propeller *Fitted or Solid?*

Material of Blades

Boss

Diam. of Propellers

Pitch

Surface (each

S. ft.

Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth

Crank Shafts Forged by

Material

,, Pins

,, Webs

Thrust Shafts

Intermed. ,,

Propeller ,,

Crank ,, Finished by

Thrust ,,

Intermed. ,,

Propeller ,,

STAMP MARKS ON SHAFTS.

Crank Shaft.

B.C.
N ^o 643
7-9-22
G. H. B.

Thrust & Sail Shafts.

B. G.
4-10-22
J. M. P.

SKETCH OF PROPELLER SHAFT.

Shafts

Diam.

No. of Air Pumps

Shafts

Diam.

No. of Crankshaft Pumps

Shafts

Shafts

Shafts



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SKETCH OF SHIP'S PUMPS, ETC.

No. of Air Pumps Diar. Stroke

Worked by Main or Independent Engines?

No. of Circulating Pumps Diar. Stroke

Type of " "

Diar. of " Suction from Sea

Has each Pump a Bilge Suction with Non-return Valve? Diar.

What other Pumps can circulate through Condenser?

No. of Feed Pumps on Main Engine Diar. Stroke

Are Spring-loaded Relief Valves fitted to each Pump?

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

No. of Independent Feed Pumps Diar. Stroke

What other Pumps can feed the Boilers?

No. of Bilge Pumps on Main Engine Diar. Stroke

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

No. of Independent Bilge Pumps

What other Pumps can draw from the Bilges?

Are all Bilge Suctions fitted with Roses?

Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilges?

Are all Sea Connections made with Valves or Cocks next the Ship's sides?

Are they placed so as to be easily accessible?

Are the Discharge Chests placed above or below the Deep Load Line?

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

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

Handwritten: "Underneath"

BOILERS

Handwritten: 800 lbs per sq in
 3-8-55
 200 lbs
 320
 10-10-55
 24-11-55
 200 lbs
 24-11-55
 210 lbs
 natural

Handwritten: R B + ...
 1420
 1420
 1420

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BOILERS.

Works No. 8649 No. 2.
 No. of Boilers 1 Type Cylindrical multitubular
 Single or Double-ended Single.
 No. of Furnaces in each 3
 Type of Furnaces Morrison
 Date when Plan approved 3-8-22
 Approved Working Pressure 200 lbs.
 Hydraulic Test Pressure 350 "
 Date of Hydraulic Test 10-10-22
 " when Safety Valves set 24-11-22
 Pressure at which Valves were set 205 lbs.
 Date of Accumulation Test 24-11-22
 Maximum Pressure under Accumulation Test 210 lbs.
 System of Draught natural.
 Can Boilers be worked separately? yfs.
 Makers of Plates Jno. Spencer Lows.
 " Stay Bars do
 " Rivets R. B. & Hat Co. Ld.
 " Furnaces James Marshall Co.
 Greatest Internal Diam. of Boilers 14'-0" $\frac{13}{32}$
 " " Length " 11'-9"
 Square Feet of Heating Surface each Boiler 2126 ϕ
 " " Grate " " 60 ϕ
 No. of Safety Valves each Boiler 2 Rule Diam. Actual 3"
 Are the Safety Valves fitted with Easing Gear? yfs.
 No. of Pressure Gauges, each Boiler 2 No. of Water Gauges one
 " Test Cocks " 3 " Salinometer Cocks 1

Test Mark on Boiler

B. O.
No 3910
350 lbs.
W. P. 200 lbs.
H. N.
10-10-22

Size of Compensation Rings
 Stacked $\frac{7}{16}$ " Port $\frac{13}{32}$ "

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 s/s Paulgarte

Diagonal Stays Approved

" " " " " in Boilers

Material

Thickness of Front Tube Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes at Spaces between Backs 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

" " " " "

External Diam. of Tubes

Material

Thickness of Furnace Plates Approved

" " " " " in Boilers

Smallest outside diam. of Furnaces

Length between Tube Plates

Width of Compound Flange (front of back)

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Handwritten notes and scribbles on the right page, including a large diagonal line and some illegible text.

Diar. 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 Diar. of Tubes

Material "

Thickness of Furnace Plates Approved

" " " in Boilers

Smallest outside Diar. 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

Same as s/s Cardgarts

Diar. of Screwed Stays Approved

" " in Boilers

Material

Thickness of Combustion Chamber Sides Approved

" " in Boilers

Pitch of Screwed Stays in C.O. Sides

Diar. " Approved

" " in Boilers

Material

Thickness of Combustion Chamber Heads Approved

" " in Boilers

Pitch of Screwed Stays in C.O. Heads

Diar. " Approved

" " in Boilers

Material

Are all Screwed Stays fitted with Nuts in C.O.S.

Thickness of Combustion Chamber Bottom

No. of Girders over each Wind Chamber

" " Centre

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tops and Bottom

Size of Lower Mainframe



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Diag. 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

Diag. " " Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Backs

Diag. " " 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 sp Carhart's

VERTICAL DONKEY BOILERS

No. of Boilers

Type

Greatest Int. Diam.

Height of Boiler Crown above Fire Grate

Are Boiler Crowns Flat or Dished?

Internal Radius of Dished Boilers

Thickness of Plates

Thickness of Beams in Boiler Crowns

Width of Overlap

Diag. of Rivet Bores

Height of Firebox Crown above Fire Grate

Are Firebox Crowns Flat or Dished?

External Radius of Dished Crowns

Thickness of Plates

No. of Crown Stays

Diag.

External Diag. of Firebox at Top

Thickness of Plates

No. of Water Tubes

Material of Water Tubes

Size of Manhole in Shell

Dimensions of Compressing Ring

Boiling Surface each Boiler

Diag. Surface

SUPERHEATERS

Description of Superheaters

Water elevated?

Which Boilers are connected with Superheaters?

Can Superheaters be shut off while Boilers are working?

No. of Safety Valves on each Superheater

Date of Hydrostatic Test

Pressure on Valves



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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 Basing Gear ?

Date of Hydraulic Test Test Pressure

Date when Safety Valves set Pressure on Valves

MAIN STEAM PIPES

Handwritten notes:
 No. of Lengths
 Material
 Radius, Width of Seams
 Internal Diar.
 Thickness
 How are Joints secured?
 Date of Hydraulic Test
 Test Pressure

No. of Lengths

Material

Radius, Width of Seams

Internal Diar.

Thickness

How are Joints secured?

Date of Hydraulic Test

Test Pressure



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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

4
Copper.
S. D.
4 1/2"
5 W.
braced.
26-11-22.
400 lbs.

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

STEAM EVAPORATORS.

No. of Lengths
Material
Brazed, Welded or Seamless
Internal Diam.
Thickness
How are Flanges secured?
Date of Hydraulic Test
Test Pressure

4
Copper.
S. D.
4 1/2"
5 W.
braced.
26-11-22.
400 lbs.

FEED WATER HEATERS.

FEED WATER FILTERS.



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

No. of Circuits to which switches are provided on Main Switch Board	Main Switch Board	Position of Dynamos	Single or Double Wire System	Current Alternating or Continuous	Capacity	Amperes at	Voltage	Revolvs. per Min.

Are Cut-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 Cut-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

Duration of Trial

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



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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: *Yes.*

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

Has the Installation Resistance over the whole system been tested?

What does the Resistance amount to?

At the Installation with Voltmeter?

Date of Trial to complete Installation

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

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. *"Dougart"*

as ascertained by *me* from personal examination

Signature: *J.D. Stephenson*

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

Fees—

MAIN BOILERS.		£	s.	d.	
H.S.	<i>2126</i>	Sq. ft.	<i>14</i>	<i>4</i>	<i>5</i>
G.S.	<i>60.5</i>	"	:	:	
DONKEY BOILERS.					
H.S.	<i>✓</i>	Sq. ft.	:	:	
G.S.	<i>✓</i>	"	:	:	
		£	:	:	
ENGINES.					
L.P.C.	<i>18.6</i>	Cub. ft.	<i>18</i>	<i>10</i>	<i>0</i>
		£	:	:	
Testing, &c. ...			:	:	
		£	:	:	
Expenses ...			:	:	
Total ...		£	<i>32</i>	<i>14</i>	<i>5</i>

It is submitted that this Report be approved.

Walter King
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the

7th March 1923

Fees advised

Fees paid



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Secretary.

GENERAL CONTRACTS

H.S. 2120
 H.S. 2008
 H.S. 2120
 H.S. 2008

Total ... 2,514.2

It is submitted that this Report be approved.

[Signature]
 Approved by the Committee for the Class of M.B.S. on the 11th day of ... 1922

Sougarth

[Signature]
[Signature]



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