

No. 1117

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 1077 No. in Register Book 1664

FIROZA EX  
SERINGA  
S.S. "FALLS CITY"

Makers of Engines Blair Co Ltd

Works No. 1780

Makers of Main Boilers Blair Co Ltd

Works No. 1780

Makers of Donkey Boiler Sudron Co

Works No. 3213

MACHINERY.



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004107-004115-0090

No.

THE BRITISH CORPORATION FOR THE SURVEY  
AND  
REGISTRY OF SHIPPING.

Report No. 1077 No. in Register Book 1664

Received at Head Office 25 Nov 1913

Surveyor's Report on the New Engines, Boilers, and Auxiliary  
Machinery of the Steel Screw Steamer  
"Yalls City"

Port of Registry Bideford

Registered Owners W. R. Smith Sons.

Surveyor's District Tees Wear.

Date of Completion of Engines 11-13

" " " Main Boilers 11-13

" " " Donkey " 11-13.

Trial Run North Sea

Date 22-11-13

First Visit 15-8-13

Last Visit 22-11-13

Total Number of Visits 29



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## SKETCHES.

SKETCHES.

## SHAFTING.

Are Crank Shafts Built? *Yls.* No. of Lengths in each *3* Angle of Cranks *120°*

Diar. of Crank Shafts by Rule Actual *14 1/4*" Diar. in Way of Webs *14 3/4*"

Makers of " *Jno. Spencer Sons* Material *I.P.*

Diar. of Crank Pins *14 3/4*" Diar. in Way of Web *14 3/4*"

Makers of " *Jno. Spencer Sons* Material *I.P.*

Width across Crank Webs at Centre of Shaft *28 1/4*" Thickness *9 1/2*"

" " " Crank Pins *28 1/4*" " *9 1/2*"

" " " Narrowest part *24*" " *9 1/2*"

Makers of Crank Webs *Blair Co. Ed.* Material *Iron*

Diar. or Breadth of Keys in Crank Webs *2.347*" Length *8 1/2*"

" of Dowel Pins in Crank Pins *2.047*" Length *8 1/2*" Screwed or Plain *screwed.*

No. of Bolts in each Coupling *9* Diar. at Mid Length *3*" Diar. of Pitch Circle *20 1/8*"

Material of Coupling Bolts *W. Iron*

Crank Shafts Finished by *Blair Co.*

Greatest Distance from edge of Main Bearing to Crank Web *1/8*"

Description of Thrust Blocks *Horseshoe type.*

Number " " Rings *6*

Diar. of Thrust Shafts by Rule Actual (at bot. of Collars) *14 1/4*" Over Collars *22 1/2*"

" " at Forward Coupling *14 1/4*" After Coupling *14 1/4*"

No. of Thrust Collars *6* Thickness *2 3/4*" Distance apart *5 5/8*"

Thrust Shafts Forged by *Jno. Spencer Sons* Material *I.P.*

" Finished by *Blair Co.*

Diar. of Intermediate Shafting by Rule Actual *13 3/4*"

No. of Lengths, each Engine *6* No. of Tunnel Bearings *6*

Diar. of Bearings *14*" Length *18*" Distance apart *17 1/6*"



TURBINE ENGINES.

Type

No. of H.P. Turbines

No. of L.P. Turbines

No. of Astern "

How arranged

Revol. 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      Diar. 23"      Stroke 34"

Type of "      *Single acting.*

Diar. of Air Pump Rod 3½"      Material *Iron & metal.*

How are Air Pumps Worked? *by levers from L. P. crosshead.*

No. of Centrifugal Circulating Pumps ✓      Maker ✓

" Reciprocating " " 1      Diar. 13½"      Stroke 34"

Diar. of Circulating Pump Rods 3½"      Material *Iron & metal*

How are Circulating Pumps Worked? *by levers from L. P. crosshead.*

Diar. of Circulating Pump Suction from Sea 10"

Has each Circulating Pump a Bilge Suction with Non-return Valve? *yes.*      Diar. 7"

No. of Feed Pumps on each Engine 2      Diar. 3½"      Stroke 34"

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 2      Diar. 3½"      Stroke 34"

Where do they pump from? *Sea. Bilges*

" " discharge to? *Overboard, Deck.*

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

No. of Bilge Injections connected to Condensers *one*      Diar. 7"

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.*



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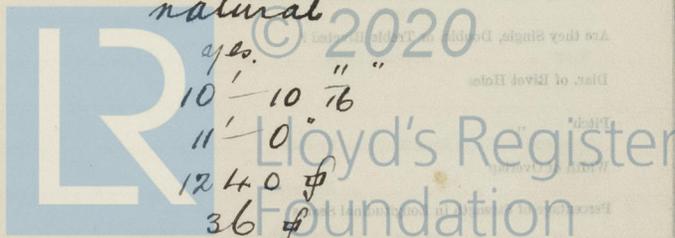
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## BOILERS.

Boilers made by	Blair Co. Ltd.
" at	Stockton
Works No.	1780
Date when Plan approved	
Boiler Plates, Iron or Steel	steel.
Makers of Shell Plates	Jno. Spencer Sons
" Internal Plates	do.
" Furnaces	Jno. Brown Sheffield.
" Stay Bars	Jno. Spencer Sons.
" Rivets	J. Miller Co.
Material tested by (B.C., B.T., etc.)	B.C.
No. of Boilers	two
Single or Double-ended	single
No. of Furnaces, each Boiler	four
Type of Furnaces	Mouison
Approved Working Pressure	180 lbs.
Hydraulic Test Pressure	360 lbs.
Date of Hydraulic Test	23-10-13
" when Safety Valves set	13-11-13
Pressure on Valves	185 lbs.
Date of Steam Accumulation Test	13-11-13
Max. Pressure under Accumulation Test	190 lbs.
System of Draught	natural
Can Boilers be worked separately?	ylo.
Greatest inside Diam. of Boilers	17' - 3 $\frac{1}{8}$ '
" " Length "	11' - 4 $\frac{31}{32}$ "
Square Feet of Heating Surface, each Boiler	3300 $\phi$
" Grate " "	73.25 $\phi$

## DONKEY BOILER.

Boilers made by	Cudron Co.
" at	Stockton
Works No.	3213.
Date when Plan approved	3-12-12
Boiler Plates, Iron or Steel	steel.
Makers of Shell Plates	Jno. Spencer Sons.
" Internal Plates	do
" Furnaces	do
" Stay Bars	do
" Rivets	do
Material tested by (B.C., B.T., etc.)	B.C.
No. of Boilers	one
Single or Double-ended	single
No. of Furnaces, each Boiler	two.
Type of Furnaces	plain.
Approved Working Pressure	100 lbs.
Hydraulic Test Pressure	200 lbs.
Date of Hydraulic Test	29-9-13.
" when Safety Valves set	13-11-13
Pressure on Valves	103 lbs.
Date of Steam Accumulation Test	13-11-13
Max. Pressure under Accumulation Test	103 lbs.
System of Draught	natural
Can Boilers be worked separately?	ylo.
Greatest inside Diam. of Boilers	10' - 10 $\frac{7}{8}$ "
" " Length "	11' - 0"
Square Feet of Heating Surface, each Boiler	1240 $\phi$
" Grate " "	36 $\phi$





No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes

Pitch

Width of Overlap

No. of Rows of Rivets in End Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diam. of Rivet Holes

Pitch

Width of Overlap

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. Diam. by Rule

Approved

in Boilers

Material of

How are Stays Secured?

Diam. and Thickness of Loose Washers on End Plates

Riveted

Width Doubling Strips

Thickness of Middle Back End Plate by Rule

Approved

in Boilers

*Same as s/s Devon City*  
*Same as s/s Devon City*

Thickness of Doublings in Wide spaces between Trirboxes

Pitch of stays at

Eff. Diam. of stays by Rule

Approved

in Boilers

Material of

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 Trirboxes

Thickness of Doublings in

Thickness of front end plates at bottom by Rule

Approved

in Boilers

No. of long stays in spaces between Trirboxes

Eff. Diam. of stays by Rule

Approved

in Boilers

Material of

Thickness of front end plates by Rule

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*Same as s/s Devon City*  
*Same as s/s Devon City*

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 " " "

*Same as sps "Devon City"*  
*Same as sps "Devon City"*  
*Same as sps "Devon City"*  
*Same as sps "Devon City"*

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 " " "

*Same as sps "Devon City"*  
*Same as sps "Devon City"*  
*Same as sps "Devon City"*  
*Same as sps "Devon City"*



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Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back Tube Plates by Rule

" " " 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 by Rule

" " " Approved  
" " " in Boilers

Smallest outside Diam. of Furnaces

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Thickness of " " Tops, by Rule  
" " " " Approved  
" " " " in Boilers

Pitch of Screwed Stays in C.C. Tops

Ext. Diam. " " by Rule  
" " " Approved  
" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides by Rule

*Same as sps "Blowon City"*

*Same as sps "Blowon City"*



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Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Sides

Eff. Diar. " " by Rule

" " " Approved

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs by Rule

" " " " Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Backs

Eff. Diar. " " by Rule

" " " Approved

" " " in Boilers

Material " "

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

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 Stay Tubes, each Boiler

" " Plain " " "

Size of Lower Manholes

*Same as Sp's Devon City*

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 the Grate

Are Boiler Crowns Flat or Dished?

Internal Radius of Dished Ends

Description of Stays in Boiler Crowns

Dist. of Rivet Holes

Height of Rivet Crown above the Grate

Are Rivet Crowns Flat or Dished?

External Radius of Dished Crowns

No. of Crown Stays

Internal Dist. of Rivets at Top

No. of Water Tubes

Material of Water Tubes

No. of Screwed Stays in Rivet Sides

Are they fitted with Nuts inside?

SUPERHEATERS

Description of superheaters

Where situated

Which Boilers are connected to superheaters?

Can superheaters be shut off with the engine's stop valve?

No. of safety valves on superheaters



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*Same as Sp's Devon City*



### MAIN STEAM PIPES.

No. of Lengths	1	1		
Material	copper.			
Brazed, Welded, or Seamless	seamless.			
Internal Diam.	7 <sup>1</sup> / <sub>4</sub> "	5 <sup>1</sup> / <sub>2</sub> "		
Thickness	5/16"	1/4"		
How are Flanges Secured?	braced.			
Date of Hydraulic Test	30-10-13			
Test Pressure	400 lbs.			

### REFRIGERATORS.

No. of Machines          Makers  
Description

When any part of the Vessel is to be used for the Carriage of Refrigerated Cargo the following particulars should be stated:—

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?

Is the Machine Room effectively separated from Insulated Spaces?

" " properly Ventilated and Drained?

No. of Steam Cylinders, each Machine          Diars.

" Compressors,          "

Diam. of Crank Shafts          No. of Cranks

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

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



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

No. of Circuits	Rating of Circuit	Number of Lights	Rating of Lamp	Rating of Fuse	Rating of Switch	Rating of Cut-out	Rating of Conductor	Rating of Cable
-----------------	-------------------	------------------	----------------	----------------	------------------	-------------------	---------------------	-----------------

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?

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter?

Date of Trial of complete Installation

Duration of Trial

DONKEY

*Ballan 400  
Vertical  
Blair 100  
single  
double  
8  
4  
10  
Bridge, bridge  
sea lamp  
Lamp, lamp*



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## EVAPORATORS.

No. 1 Type *Blair's patent.* Tons per Day *20*  
 Makers *Blair Co.*  
 Working Pressure *10 lbs.* Test Pressure *50 lbs.* Date of Test *13-10-13*  
 Date of Test of Safety Valves under Steam *22-11-13*

## FEED WATER HEATERS.

No. 1 Type *suction.*  
 Makers *Blair Co.*  
 Working Pressure *180 lbs.* Test Pressure *360 lbs.* Date of Test

## DONKEY

No. of Donkeys *Feed.*  
 Type *Vertical*  
 Makers *Blair Co.*  
 Single or Duplex *single*  
 " Double-Acting *double-acting.*  
 Diar. of Steam Cylinders *8"*  
 " Pumps *4"*  
 Stroke of " *8"*  
 Where do they pump from? *Hotwells.*

Where do they discharge to?

*Boilers*

Capacity, Tons per Hour of Ballast Donkey

*100*

Diar. of Pipe required by Rule for

## FEED WATER FILTERS.

No. Type Size  
 Makers  
 Working Pressure Test Pressure Date of Test

## FORCED DRAUGHT FANS.

No. of Fans. Diar. Revols. per min.  
 How are Fans driven?

## PUMPS.

*Ballast*  
*Vertical*  
*Blair Co.*  
*single*  
*double-acting*  
*11"*  
*9"*  
*10"*  
*Bilges, bilge direct.*  
*sea tanks.*

*Tanks, deck, overhead.*

largest Ballast Tank

*5 1/2"*

Velocity of Water in Pipe

*413*

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## SPARE GEAR.

No. of Top End Bolts	2	No. of Bot. End Bolts	2
" Main Bearing Bolts	2	" Coupling Bolts	1 set.
" Cylr. Cover Bolts Studs	-	" Valve Chest Cover Bolts Studs	-
" Feed Pump Valves	2 seats	" Bilge Pump Valves	2
" Safety Valve Springs	1	" Fire Bars	$\frac{1}{2}$ set
" Piston Rings	1 set for H.P. & M.P.	" Junk Ring Bolts Studs	-
" Piston Rods	-	" Connecting Rods	-
" Valve Spindles	-	" Air Pump "	-
" Air Pump Valves	6	" " " Buckets	-
" Crank Pin Bushes	-	" Crosshead Bushes	-
" Crank Shafts	-	" Propeller Shafts	-
" Propellers	1	" " " Blades	-
" Boiler Tubes	6	" Condenser Tubes	6

## OTHER ARTICLES OF SPARE GEAR:—

- 1 set feed donkey pump valves.  
 1 " ballast "  
 24 Taylor's ring (assorted sizes)  
 2 Fire bars patterns.  
 6 Gauge glasses  
 1 set springs (L. P. piston)  
 6 iron bars (assorted)  
 3 iron plates (assorted thickness)  
 6 sheets tin, 2 sheets copper.  
 12 picker blades, 100 condenser ferrules  
 2 main feed check valve lids  
 2 donkey "  
 12 piston bolts nuts.  
 12 assorted studs for gland covers.

## GENERAL CONSTRUCTION.

Have all the Requirements under Sections 31 and 32 of the Rules been complied with? *y<sup>es</sup>*

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? *y<sup>es</sup>*

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

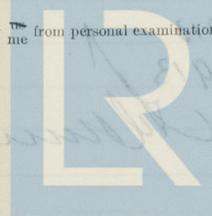
Surveyor

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and trustworthy? *y<sup>es</sup>*

Is the Workmanship throughout thoroughly satisfactory? *y<sup>es</sup>*

The above correctly describes the Machinery of the S.S. "Yalls City"

as ascertained by me from personal examination.



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

Fees -

GENERAL CONSTRUCTION

MAIN BOILERS.

H.S. \$6600 Sq. ft. 21 : 0 : 0

G.S.

DONKEY BOILERS.

H.S. Sq. ft. 3 : 13 : 6

G.S.

ENGINES.

L.P.C. 106.9 Cub. ft. 21 : 0 : 0

Testing, &c.

Expenses

Total ... £ 145 : 13 : 6

It is submitted that this Report be approved,

*W. Green King*

Chief Surveyor.

Approved by the Committee for the class of No. B. 6. \*  
on the 14<sup>th</sup> January 1914.

Fees applied for 22<sup>nd</sup> May 1913

Fees paid 25<sup>th</sup> May 1913

*Robert Manning*

Secretary.



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Year

EDUCATIONAL REPORT

MAY BROWN

M.S. \$66.00 21 0 0

G.S.

DONKEY DOLLAR

H.S. 3 13 6

G.S.

REVENUE

100 00 21 0 0

Working for...

Expenses

143 16 6

It is submitted that this Report be approved.

*W. B. Brown*

Approved by the Committee for the class of Mr. B. B. X on the 14<sup>th</sup> January 1914.

Money sent for 22<sup>nd</sup> Nov. 1913  
Money paid 25<sup>th</sup> Nov. 1913

*W. B. Brown*



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