

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

Index. No. 18130  
(For London Office only.)

24 MAR 1932

Computation of Freeboard for Steamer, Sailing Ship, Tugboat

Forecastle and Bridge Combined.

Port of Survey *Antwerp.*Date of Survey *14/19 Feb 1932*  
*9th March 1932*Name of Surveyor *A. G. Setae*Particulars of Classification *+100 A1..*

Ship's Name *"COLUMBIA"* (Type of Superstructures.)  
*Belgian* Nationality and Port of Registry *British*  
*Liverpool* Official Number *140-517* Gross Tonnage *27.132* Date of Build *1917*

Moulded Dimensions: Length *670* Breadth *78* Depth actual *49'* (normal *49' 3"*)  
 Moulded displacement at moulded draught = 85 per cent. of moulded depth *47.298* tons  
 efficient of fineness for use with Tables *.761*

Depth for Freeboard (D)  
 depth ... actual ... *49' 00"*  
 Springer plate ... *.04*  
 Sheathing on exposed deck  
 $T \left( \frac{L-S}{L} \right) = .25 \left( 1 - \frac{S}{L} \right)$  *.04*  
 Depth for Freeboard (D) = *49.08*

Depth correction  
 (a) Where D is greater than Table depth  
 (D - Table depth) R = *(49.08 - 44.67) 3 = 13.23*  
 (b) Where D is less than Table depth (if allowed)  
 (Table depth - D) R =  
 If restricted by superstructures *✓*

Round of Beam correction  
 Moulded Breadth (B) *78.00*  
 Standard Round of Beam =  $\frac{B \times 12}{50} = 18.72$   
 Ship's Round of Beam = *12.72*  
 Difference *.1451*  
 Restricted to  
 Correction =  $\frac{\text{Diff}^{\circ}}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{12.72}{4} \times (1 - .8549) = 4.46$

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)
Poop enclosed ...					
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...	<i>570.5</i>	<i>572.73</i>	<i>9' 6"</i>	<i>✓</i>	<i>572.73</i>
" overhang aft ...					
" overhang forward ...					
F'cle enclosed ...	<i>combined with bridge</i>				
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward ...					
Total ...	<i>573.50</i>	<i>572.73</i>			<i>572.73</i>

Standard Height of Superstructure *7.5*  
 " " R.Q.D. *✓*  
 Deduction for complete superstructure *42.00*  
 Percentage covered  $\frac{S}{L} = 85.61\%$   
 "  $\frac{S_1}{L} = 85.49\%$   
 "  $\frac{E}{L} = 85.49\%$   
 Percentage from Table, Line A. *82.11%*  
 (corrected for absence of forecastle (if required)) *✓*  
 Percentage from Table, Line B. *✓*  
 (corrected for absence of forecastle (if required)) *✓*  
 Interpolation for bridge less than 2L (if required) *✓*  
 Deduction = *42.00*  $\times$  *.8211* = *- 34.48*

## SHEER CORRECTION. Sheers measured from 49' actual moulded depth.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<i>77</i>	1		<i>77.00</i>	<i>57</i>	<i>57.00</i>	1		<i>57.00</i>
$\frac{1}{4}L$ from A.P. <i>34.26</i>	<i>34.26</i>	4		<i>137.04</i>	<i>17 1/2</i>	<i>17.50</i>	4		<i>70.00</i>
$\frac{1}{2}L$ " <i>8.47</i>	<i>8.47</i>	2		<i>16.94</i>	<i>1 1/2</i>	<i>1.50</i>	2		<i>3.00</i>
Amidships <i>✓</i>	<i>0</i>	4		<i>✓</i>	<i>0</i>	<i>✓</i>	4		<i>✓</i>
$\frac{3}{4}L$ from F.P. <i>16.94</i>	<i>16.94</i>	2		<i>33.88</i>	<i>16 1/2</i>	<i>16.50</i>	2		<i>33.00</i>
$\frac{1}{4}L$ " <i>68.53</i>	<i>68.53</i>	4		<i>274.12</i>	<i>60</i>	<i>60.00</i>	4		<i>240.00</i>
F.P. ...	<i>154</i>	1		<i>154.00</i>	<i>141 1/2</i>	<i>141.50</i>	1		<i>141.50</i>
Total ...				<i>692.98</i>					<i>544.50</i>

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{148.48}{18} \times (.75 - .4280) = + 2.66$

If limited on account of midship superstructure. *✓*If limited to maximum allowance of  $1\frac{1}{2}$  ins. per 100 ft.

Deduction for Tropical Freeboard.  
 Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = *49.21*  
 Summer freeboard = *11.50*  
 Moulded draught (d) = *37.71*

Deduction for Tropical freeboard and addition for

Winter freeboard =  $\frac{d}{4}$  inches = *9.43* = *9 1/2"*Addition for Winter North Atlantic Freeboard (if required) = *✓*

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 42430$ 

Tons per inch immersion at summer load water line

 $T = 107.6$ Deduction =  $\frac{\Delta}{40T}$  inches= *9.86*= *9 3/4*

TABULAR FREEBOARD corrected for Fresh Deck (if required)

Correction for coefficient  $\frac{.761 + .68}{1.36} = \frac{1.441}{1.36}$ Depth Correction ... *13.23* *✓*Deduction for superstructures ... *34.48* *✓*Sheer correction ... *2.66* *✓*Round of Beam correction ... *.46* *✓*Correction for Thickness of Deck amidships ... *1.52* *✓*Other corrections, scantlings, etc. ... *✓**17.87* *34.48* - *16.61*Summer Freeboard = *137.98*

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:—

Tropical Fresh Water Line above Centre of Disc *19 1/4* *✓*  
 Fresh Water Line *19 3/4* *✓*  
 Tropical Line *19 1/2* *✓*  
 Winter Line *19 1/2* *✓*  
 Winter North Atlantic Line *✓*

Tropical Fresh Water Freeboard ... *9' - 10 3/4"*Fresh Water *MARKING FORM* *19' - 8 1/4"*Tropical *19' - 8 1/2"*Winter *12' - 3 1/2"*Winter North Atlantic *✓*

Additional marks to be placed on the vessels sides (a)  $5' 2\frac{1}{2}"$  and  $4' 2\frac{1}{2}"$  below the centre of the disc, corresponding to the subdivision loadlines viz (a)  $32' 6"$  when any of the passengers are accommodated on the lower deck and (b)  $33' 6"$  when none of the passengers are accommodated on the lower deck.



# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

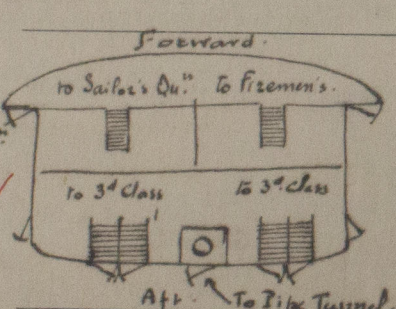
HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS		On Fide Deck	On Lower Promenade Deck	On Bridge Deck	On Arming Deck	On Main Deck	On Upper Deck
Description of Hatchway		No 1	No 2	No 3	No 4	No 5	No 6
Dimensions of Hatchway		16'5" x 17'4"	20'3" x 17'0"	20'3" x 17'0"	17'10" x 17'3"	17'10" x 17'3"	16'6" x 17'3"
COAMINGS							
Height above Deck		30"	32"	30"	31"	30"	30"
Thickness		1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Sides		1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Stiffeners		1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Brackets, Stays		3 Brackets on Fore End only	3 Brackets on Fore End only	3 Brackets on Fore End only	3 Brackets on Fore End only	3 Brackets on Fore End only	3 Brackets on Fore End only
HATCH BEAMS							
Number		Steel W.T.	4"	4"	4"	4"	4"
Spacing		arched	4'2"	4'2"	4'2"	4'2"	4'2"
Scantling and Sketch		Corr. 40"	2 off I 12" x 6"	2 off I 12" x 6"	2 off I 12" x 6"	2 off I 12" x 6"	2 off I 12" x 6"
Bearing Surface		3" x 3"	3" x 3"	3" x 3"	3" x 3"	3" x 3"	3" x 3"
FORE AND AFTERS							
Number		Steel W.T.	4"	4"	4"	4"	4"
Spacing		arched	4'2"	4'2"	4'2"	4'2"	4'2"
Unsupp'd Lengths		Corr. 40"	2 off I 12" x 6"	2 off I 12" x 6"	2 off I 12" x 6"	2 off I 12" x 6"	2 off I 12" x 6"
Scantling and Sketch		Corr. 40"	2 off I 12" x 6"	2 off I 12" x 6"	2 off I 12" x 6"	2 off I 12" x 6"	2 off I 12" x 6"
Bearing Surface		3" x 3"	3" x 3"	3" x 3"	3" x 3"	3" x 3"	3" x 3"
HATCH COVERS							
Material		Steel	Wood	Wood	Wood	Wood	Wood
Thickness		1/4"	3"	3"	3"	3"	3"
How fitted		1/4"	3"	3"	3"	3"	3"
Bearing Surface		3" x 3"	3" x 3"	3" x 3"	3" x 3"	3" x 3"	3" x 3"
Spacing of Cleats		11" x 11"	22"	24"	24"	24"	24"
Number of Tarpaulins		2	2	2	2	2	2

Particulars of fiddle, funnel and ventilator coamings:— All fiddle openings on boat deck, fitted with hinged steel covers. Air trunks at ends of openings on boat deck, with fans ventilators. Fiddle top at 8 feet above the boat deck.

Particulars of Flush Bunker Scuttles:— None.

## Particulars of Companionways:—

On Fide Deck, within 1/4" from stem. Steel deckhouse, leading to 3rd Class Accommodation on Arming Deck, to 3rd Class Accommodation on Upper Deck, and to 3rd Class Accommodation on Lower Deck. 2' Handwood doors, double 6' x 4' or single 6' x 2'. Sills of doors 8' above wood deck.



## Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—

On Fide Deck: 2 12" x 35" x 40", 2 16" x 26" x 40", 2 20" x 31" x 40", 2 15" x 32" x 40", 2 14" x 33" x 40", 2 13" x 34" x 40". On Lower Promenade Deck: 2 22" x 34" x 40", 1 20" x 32" x 40", 2 13" x 24" x 36" on top of 11'3" hatch, 2 32" x 10'6" x 40" attached to Deckhouse ventilation. On Bridge Deck: 4 19" x 28" x 40", 2 15" x 31" x 40", 2 15" x 31" x 40", 2 10" x 35" x 40". On Arming Deck: 2 15" x 31" x 40", 2 10" x 35" x 40". All these ventilators are fitted with wood plugs and canvas covers lashed round the coamings.

## Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—

On Fide Deck, Lower Promenade Deck and Bridge Deck aft, 3' D. banks air pipes at sides: 2" steel pipes, height of opening 37" above deck, means of closing. On Arming Deck aft, 3' D. banks air pipes at sides: 3" steel pipes, height of opening 38" above deck, means of closing.

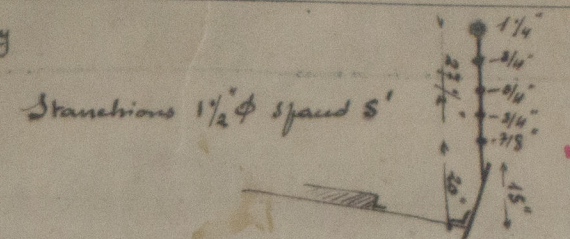
## Particulars of Gangway Cargo and Coaling Ports:—

I. Gangway Doors: 1) Leading to Upper Deck, Fr. 71 Fd. P. 1st St. 6'2" x 5'6" Single hinged steel door, with clips spaced 12" all round + 1 horizontal strong back. Fr. 51 Aft. 6'2" x 5'6" 2) Leading to Arming Deck, Fr. 42 Fd. P. 2nd St. 6'8" x 8'0" Double hinged steel door with clips spaced 18" all round + 1 vertical strong back. Fr. 92 Fd. P. 2nd St. 6'7" x 3'10" Single hinged steel door, with 3 clips at sides, 1 clip top + bottom + 1 vertical strong back. II. Oil Fuel Filling Cases: Leading to Upper Deck, Fr. 1 Fd. P. 1st St. 5'9" x 2'0 1/2" with 2 horizontal strong backs. III. Coaling Ports: 14 each side immediately below Upper Deck, 2'6" x 2'6" steel hinged door with 2 strong backs screwed on from the outside.

## Belgianland.

Particulars of Scuppers and Sanitary Discharge Pipes: 1) Weather deck scuppers discharging led to shipside through open bands without storm valves. 2) Scuppers and pipes from Arming Deck spaces led to shipside through geared storm valves, with the exception of 3) Discharges from Upper Deck spaces, a Main Deck space forward, led to shipside through geared storm valves, operated from Upper Deck, indicating opening or closing fitted to all operating gears. 4) Discharges from main deck and after main deck spaces a space below led to sludge tanks on deck. 5) Slope shoots a root shoot discharging on shipside through 10' open bands without storm valves are fitted in following positions: \* When shoot are fitted with flapper valve, kept down by means of a counterweight, and with a hinged steel cover secured by 2 wing bolts. The openings of the discharges on the shipside are situated immediately above the main deck, except forward of frame 31' where they are below the main deck. Particulars of Side Scuttles: 1) Inside superstructure, 12" sidelights with fixed covers forward. 14" x 15" sidelights without covers aft. 2) Upper Deck spaces, 12" x 14" opening lights with steel sidelights permanently attached. 3) Main Deck spaces, 10" x 10" lights, opening, operated with special spanner, and fitted with C.S. covers permanently attached. 4) Lower Deck spaces, 8" x 8" lights, opening, operated with special spanner, and fitted with C.S. covers permanently attached.

## Particulars of Guard Rails:— On Fide Deck only



## Particulars of Gangways, Lifelines, etc.:—

Lifelines for the protection of the crew on the weather decks satisfactory.

## Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well	120'	4' 2"	36" x 12"	2	26'	27'
Forward Well	120'	4' 2"	36" x 12"	2	26'	27'

## Particulars of Superstructures, Trunks, Casings, Deckhouses.

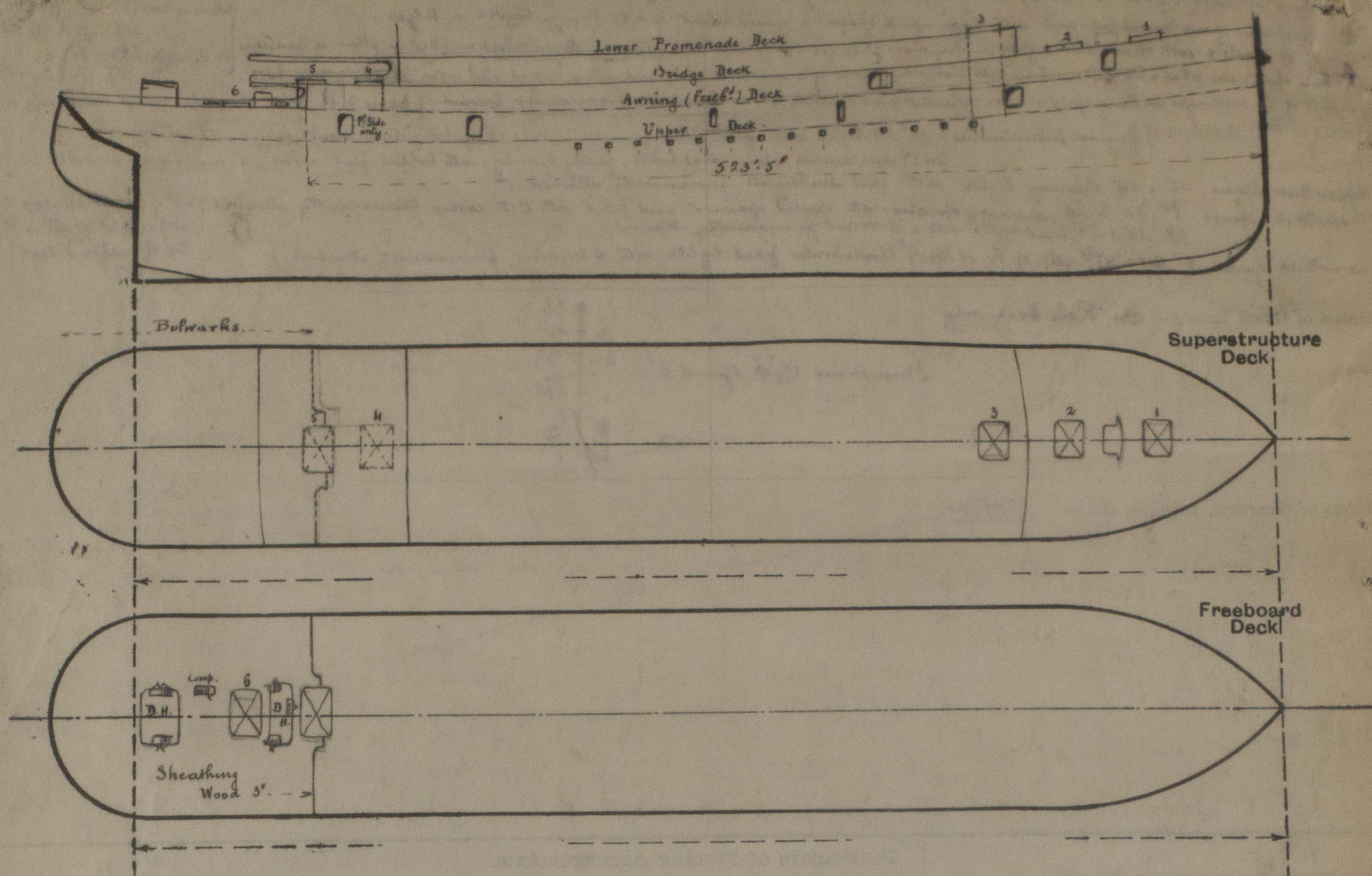
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead								
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead								
Bridge, Forward Bulkhead								
Forecastle Bulkhead								
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks								
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
Deckhouses on Flush Deck Ships								

## Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	I. I. Hardwood Doors 2" thick, leading to 1st Class Accommodation, with ordinary locks. II. I.V. Steel, hinged doors fitted with ordinary locks. Used only when 3rd class passengers in Upper Fore Deck.
Bridge, Forward Bulkhead	
Forecastle Bulkhead	
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	
Exposed Machinery Casings on Superstructure Decks	
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	
Deckhouses on Flush Deck Ships	



Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling, hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shown on the following sketches:—



State any special features in the construction of the ship:—

Freeboard deck sheathing, 3" teak where exposed. 2" bitumastic inside superstructure.

The ventilator coaming are riveted to the deck plating with rivets spaced 4 diameters. — ✓

The lowest point of the sheer line is at frame W 37 aft. —

The bridge after bulkhead is situated at frame 94 aft, but the bridge deck extends to frame 108 aft. —

Tons per inch at 35' draught: 107,45 Tons.  
 " " at 36' draught: 107,80 Tons } according to Builder's displacement scale. —

$$\begin{aligned} \text{Length BR B} &= 573.50 \checkmark \\ \frac{6 \times 5 \times 2}{78} &= .77 \checkmark \\ &572.73 \checkmark \end{aligned}$$

$$\begin{aligned} \text{Hull dis} &= 37.71 \\ &= 37.8 \frac{1}{2} \\ \text{Keel} &= \frac{3}{37.11 \frac{1}{2}} \checkmark \end{aligned}$$

$$\begin{aligned} \text{T.P.I. @ } 37' 11 \frac{1}{2} &= 107.60 \checkmark \\ \Delta @ 37' 11 \frac{1}{2} &= 49010 \end{aligned}$$

Builder's name and yard number Harland & Wolff Ltd. Belfast

Names of sister ships \_\_\_\_\_

Owners F. Leyland & Co. Ltd.

Fee £ \_\_\_\_\_

Received by me \_\_\_\_\_

W

*[Signature]*



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