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WRECK BAY
No. 171-2
B.T. COPY

17 AUG 1932

27 JUN 1932

Index No. 22019
33443
(For London Office only.)

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker
having POOP BRIDGE AND FORECASTLE.

Port of Survey Barry

Date of Survey August 18th 1932

Name of Surveyor W. J. Middlemiss

Particulars of Classification 100 A.1.

(Type of Superstructures.)					
Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build	
PENSILVA.	Swansea British	143999.	4258	1929. 11.	
Moulded Dimensions: Length	368'	Breadth	51' 16"	Depth	27' 54"
Moulded displacement at moulded draught = 85 per cent. of moulded depth					9974 tons
Coefficient of fineness for use with Tables					792

Depth for Freeboard (D)	
Moulded depth	<u>27' 54"</u>
Stringer plate	<u>03'</u>
Sheathing on exposed deck	<u>POOP 3"</u>
$T \left(\frac{L-S}{L} \right) =$	
Depth for Freeboard (D) =	<u>27' 57"</u>

Depth correction	
(a) Where D is greater than Table depth (D - Table depth) R =	<u>(27' 57" - 24' 53") 2.831 = + 8.61'</u>
(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	<u>/</u>
If restricted by superstructures	

Round of Beam correction	
Moulded Breadth (B)	<u>51' 16"</u>
Standard Round of Beam = $\frac{B \times 12}{50}$	<u>12' 28"</u>
Ship's Round of Beam	<u>12' 0"</u>
Difference	<u>28"</u>
Restricted to	
Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right)$	<u>= $\frac{28^2}{4} (1 - \frac{80.05}{368}) = + .01$</u>

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poep enclosed	<u>29' 4"</u>	<u>29' 42"</u>	<u>7' 46"</u>		<u>29' 42"</u>
" overhang					
R.Q.D. enclosed					
" overhang					
Bridge enclosed	<u>233' 1"</u>	<u>233' 08"</u>	<u>8' 5"</u>		<u>233' 08"</u>
" overhang aft					
" overhang forward	<u>29' 1"</u>	<u>29' 08"</u>	<u>8' 16"</u>		<u>29' 08"</u>
Fore enclosed	<u>3' 0"</u>	<u>3' 00"</u>			<u>3' 00"</u>
" overhang					
Trunk aft					
" forward					
Tonnage opening aft					
" forward					
Total	<u>294' 58"</u>	<u>294' 58"</u>			<u>294' 58"</u>

Standard Height of Superstructure	<u>7' 18"</u>
" " R.Q.D.	
Deduction for complete superstructure	<u>39' 87"</u>
Percentage covered $\frac{S}{L} =$	<u>80.05%</u>
" " $\frac{S_1}{L} =$	<u>80.05%</u>
" " $\frac{E}{L} =$	<u>80.05%</u>
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	
Percentage from Table, Line B. (corrected for absence of forecastle (if required))	<u>75.36%</u>
Interpolation for bridge less than 2L (if required)	
Deduction = $39' 87" \times .7536$	<u>= 30' 05"</u>

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	<u>46.80</u>	1		<u>46.80</u>	<u>65.5</u>	<u>65.5</u>	1		<u>65.50</u>
$\frac{1}{2}$ L from A.P.	<u>20.82</u>	4		<u>83.28</u>	<u>28.46</u>	<u>28.46</u>	4		<u>113.84</u>
$\frac{2}{3}$ L	<u>5.15</u>	2		<u>10.30</u>	<u>7.11</u>	<u>7.11</u>	2		<u>14.22</u>
Amidships		4					4		
$\frac{2}{3}$ L from F.P.	<u>10.30</u>	2		<u>20.60</u>	<u>12.44</u>	<u>12.44</u>	2		<u>24.88</u>
$\frac{1}{2}$ L	<u>41.65</u>	4		<u>166.60</u>	<u>49.75</u>	<u>49.75</u>	4		<u>199.00</u>
F.P.	<u>93.60</u>	1		<u>93.60</u>	<u>114.5</u>	<u>114.5</u>	1		<u>114.50</u>
Total				<u>421.18</u>					<u>531.94</u>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{110.76}{18} (.75 - .4002) = -2.15$

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	=	<u>27' 57"</u>
Summer freeboard	=	<u>3' 60"</u>
Moulded draught (d)	=	<u>23' 97"</u>

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 5' 99" = 6'

Addition for Winter North Atlantic Freeboard (if required =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$ 10300

Tons per inch immersion at summer load water line

$T =$ 37.44

Deduction = $\frac{\Delta}{40T}$ inches

= 6.88

= 7"

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{.992 + 680}{1.36} = \frac{1.472}{1.36}$

	+	-
Depth Correction	<u>8.61</u>	
Deduction for superstructures		<u>30.05</u>
Sheer correction		<u>2.15</u>
Round of Beam correction	<u>.01</u>	
Correction for Thickness of Deck amidships		
Other corrections, scantlings, etc.		

Summer Freeboard = 43' 30"

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

Tropical Fresh Water Line above Centre of Disc	<u>13'</u>
Fresh Water Line	<u>7'</u>
Tropical Line	<u>6'</u>
Winter Line below	<u>6'</u>
Winter North Atlantic Line	

Tropical Fresh Water Freeboard	<u>2' 6 1/4"</u>
Fresh Water	<u>3' 0 1/4"</u>
Tropical	<u>3' 1 1/4"</u>
Winter	<u>4' 1 1/4"</u>
Winter North Atlantic	

W481-0066(112)

29 SEP 1932
RECEIVED

27 MAY 1934
RECEIVED

18 AUG 1932
RECEIVED

2020
Lloyd's Register
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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
Description of Hatchway		No 1.	No 2.	No 3.	No 5.	No 2.	No 3.			
Dimensions of Hatchway		29' 3" x 20' 0"	30' 4" x 20' 0"	28' 4" x 20' 0"	30' 4" x 20' 0"	30' 4" x 20' 0"	28' 4" x 20' 0"			
COAMINGS	Height above Deck	42"	30"	30"	42"	9' 1"				
	Thickness	44	44	44	44					
	Stiffeners	8 x 3 x 50	7 x 3 x 42	2 x 2 1/2" Solid	8 x 3 x 5	none				
	Brackets, Stays	3-2 1/2" Solid		2-2 1/2" Solid	3-2 1/2" Solid	none				
HATCH BEAMS	Number	4	4	3	4	4	3			
	Spacing	5'-10"	6'-1"	5'-10"	6'-1"	6'-1"	5'-10"			
	Scantling and Sketch	4 x 3 x 44 20 1/2" x 38 4 x 3 x 44	16" x 34	16" x 34	21" x 38	20 1/2" x 38				
	Bearing Surface	3"								
FORE AND AFTERS	Number									
	Spacing									
	Unsupported Lengths									
	Scantling* and Sketch									
Bearing Surface										
HATCH COVERS	Material	wood								
	Thickness	3"		2 1/2"	3"	2 3/4"				
	How fitted	7' x 4"								
	Bearing Surface	3' x 4"								
Spacing of Cleats		24"								
Number of Tarpaulins		2								

*Are wood fore and afters steel shod at all bearing surfaces?
 Are battens and wedges efficient and in good condition?
 Are tarpaulins in good condition and in accordance with rule requirements?
 Are lashings provided in accordance with rule requirements?

Yes.
 Yes.
 Yes.

Particulars of fiddley, funnel and ventilator coamings:— Engine skylight strongly constructed of steel, with steel flaps and bullseyes.
 Funnel and ventilators of good sound construction.
 Fiddley gratings have hinged steel covers.

Particulars of Flush Bunker Scuttles:— none.

Particulars of Companionways:— Strongly constructed of steel on Poop Deck.
 4'-6" x 3'-0" x 5'-9" high, + 18" sill.
 Leak door 4'-0" x 29" fitted with lock and handle manipulated both sides.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:— wood plugs + canvas covers for all ventilators.
 on Fore Deck. 1- 6" dia x .32 x 36" high to peak. 1- 15" dia x .38 x 36" high to holds.
 on Bridge. 4- 15" dia x .38 x 30" high to holds. 2- 18" dia x .38 x 30" high to holds.
 on Poop. 1- 9" dia x .34 x 30" high to funnel.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—
 on Fore Deck. 1- 2 1/2" Swan necks 28 1/2" high.
 " Bridge. 4- 2 1/2" Swan necks 8" high; 2- 5" Swan necks 24" high.
 " After Well Deck. 1- 3" Swan neck 42" high.
 Wood plugs + canvas covers are provided

Particulars of Gangway Cargo and Coaling Ports:— none.

Particulars of Scuppers and Sanitary Discharge Pipes — 4 Scuppers in Bridge Space led overboard, with stormvalves on ship's side and upper ends closed with cement.
2 Scuppers in Bridge Space led to engine room bilges.
3 w.c. discharges led overboard and fitted with stormvalves at ship's side.

Particulars of Side Scuttles: In poop crewspace of good sound construction and fitted with hinged deadlights.

Particulars of Guard Rails:— Fore deck, 3'-6" high, 3 Rails + stanchions 5'-0" apart.
Bridge 3'-6" 3 Rails 5'-0" "
" Bulwark 3'-6" high for the length of saloon deckhouse and length of engine casings.
Poop deck, 3'-6" high, 3 Rails + stanchions 5'-0" apart.

Particulars of Gangways, Lifelines, etc.:—

Fore + aft gangway fitted from Bridge to Poop. and suitable provision is made for rigging lifelines where required for the use of the crew.

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	39'-8"	43"	11'-3" x 6 1/2" 5'-9" x 6 1/2"	2	9.31 sq. ft.	10.4 sq. ft.
Forward Well	33'-9"	44"	12'-0" x 6 1/2" 6'-0" x 6 1/2"	2	9.70 sq. ft.	9.9 sq. ft.

State position of each freeing port } After Well:— 10'-6" + 25'-0" from Bridge Bulkhead to centre of ports.
(F. and A. position and height above deck edge) } Forward Well:— 10'-6" + 25'-6" "
State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— none.
Additional area where sheer is less than standard. Height from deck edge 13".

Particulars of Superstructures, Trunks, Casings, Deckhouses.

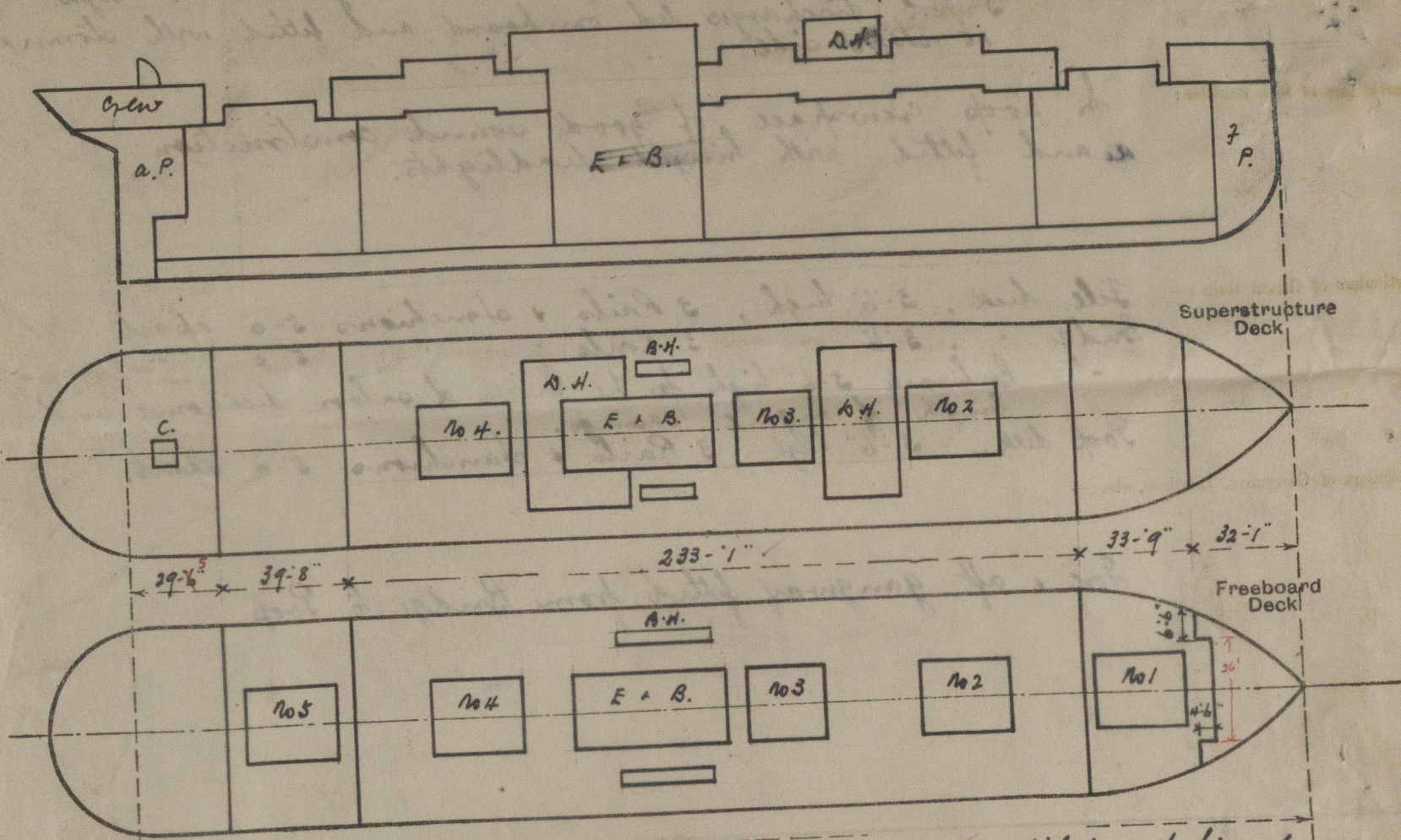
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead ... ..	.40	.30	6 x 3 x .40 L	30"	hug top + bottom	2-4'-6" x 22"	24"	7'-7"
Raised Quarter Deck Bulkhead ...	"	"	"	"	"	"	"	"
Bridge, After Bulkhead ... ..	.27	.27	2 1/2" Flanges	39"	none	2-4'-0" x 3'-0"	20"	8'-4"
Bridge, Forward Bulkhead ... ..	.45	.40	9 x 3 1/2 x .50 J	30"	hug top + bottom	none	-	8'-4"
Forecastle Bulkhead ... ..	.27	.27	3" Flanges	45"	none	1-4'-0" x 3'-0" 2-4'-6" x 24"	18"	8'-2"
Trunk, Aft	"	"	"	"	"	"	"	"
Trunk, Forward	"	"	"	"	"	"	"	"
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	"	"	"	"	"	"	"	"
Exposed Machinery Casings on Super-structure Decks ... ..	.35	.30	3 x 3 x .30 L	33"	none	4'-6" x 32" 4'-9" x 26"	18"	9'-3"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... ..	.33	.30	"	"	"	3'-0" x 24"	19"	8'-4"
Deckhouses on Flush Deck Ships ...	"	"	"	"	"	"	"	"

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

Poop Bulkhead	Hinged steel doors with lock + handle manipulated both sides.
Raised Quarter Deck Bulkhead ...	"
Bridge, After Bulkhead	3" weather boards in riveted channels full height.
Bridge, Forward Bulkhead	no openings.
Forecastle Bulkhead	2 1/2" weather boards in riveted channels full height.
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	Hinged steel doors with locks + handles manipulated both sides.
Exposed Machinery Casings on Super-structure Decks	Hinged steel doors with lock + handle manipulated both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel door with snib fastener manipulated both sides.
Deckhouses on Flush Deck Ships ...	"

Pensilva

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:—



Trimmers escape hatches in Bridge space 24" x 24" x 9" J, fitted with hinged steel watertight covers secured with bolts.
 Bunkers hatches on Bridge Deck 14'-0" x 3'-0" x 30" coaming. Rosts 3". Covers 24". Cleats 24" apart. Battening arrangements and tarpaulins.

Measured in dry dock.

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

Bunkers hatches in Bridge Space, 23'-2" x 3'-3" x 9" J, Rosts 3", Covers 24". Cleats 20" apart. Battens and tarpaulins.

Drafts	Deadweight	Imp. p. inch.
23'-10 1/2"	7825	37.4
22'-0 1/2"	7000	37.33
19'-9 1/2"	6000	37.2
17'-7"	5000	37.05
15'-4"	4000	36.85
13'-1"	3000	36.56

Eq. p. h. d. —
 $32.08 - \frac{26 \times 4.9}{39.0}$
 $32.08 - 3.0 = 29.08$
 Orkney 3'

out

Builder's name and yard number *Burntisland S.B. Co. Ltd. Burntisland*

Names of sister ships _____

Owners *Whellan Navigation Co. Ltd. (F.C. Porman)*

Fee £ *12* : *15* : *0* Received by me *[Signature]*