

IRON SHIPS.

3638 Survey held at Dundee Date 20th July Recd 22/7/90
 on the Steamer Jose A. Moreno Master Ed Tod
 Tonnage under tonnage deck 456.21 Built at Dundee When built 1890 Launched 30/5/90
 Ditto of poop 31.20 2nd deck 25.62 By whom Gowlay Brothers & Co Owners A Balfour
 Ditto of engine room 187.81 5 frames 22 24 Part belonging to Liburpool Destined Voyage Valparaiso
 Total Register tonnage 344.55
 Gross Tonnage 535.36
 Surveyed while Building, Afloat, or on Dry Dock Building & afloat

Feet.	Inches.	Feet.	Inches.	Depth from top of Upper Deck Beam to top of Floor	Feet.	Inches.	Horse.	N ^o . of Decks	
Length aloft <u>185</u>		Extreme Breadth <u>28</u>	<u>1 1/4</u>		<u>13</u>	<u>8 1/2</u>	Power of Engines <u>95 H</u>		
(Dimensions of Ship per Register, length <u>185</u> breadth <u>28.15</u> depth <u>13.65</u>)									
Keel, if bar iron, depth and thickness.....				Inches in Ship.	Plates in Garboard Strakes, breadth and thickness.....				Inches. In Ship.
,, if plate iron, breadth and thickness.....				<u>6</u> <u>2 3/4</u>	Ditto from Garboard to upper part of Bilges..				<u>26 1/2</u> <u>3 7/8</u> <u>24</u> <u>9 1/16</u>
Stem, if bar iron, moulding and thickness....				<u>6</u> <u>2 3/4</u>	,, from upper part of Bilge to a perpen- dicular height from upper side of Keel of 3/4ths the entire depth of Hold <u>1 1/4</u> Sheerstrake.....				<u>4 1/2</u> <u>7 1/16</u> <u>7 1/16</u>
,, if plate iron, breadth and thickness.....				<u>as per sketch</u> <u>6 3/4</u> <u>x 3</u>	,, from 3/4ths depth of Hold to lower edge of Sheerstrake.....				<u>3 1/8</u> <u>3 1/8</u>
Stern-post, if bar iron, moulding and thickness					,, Sheerstrake, breadth and thickness....				<u>30</u> <u>3 1/8</u> <u>30</u> <u>3 1/8</u>
,, if plate iron, breadth and thickness					Butt Straps to outside plating, breadth and thickness <u>equal to plates</u> <u>except</u> <u>1 1/2</u> <u>thick</u>				<u>9 1/2</u> <u>9 1/2</u>
Distance of Frames from moulding edge to moulding edge, all fore and aft.....				<u>23</u> <u>23</u>	Gunwale Plate or Stringer on ends of Upper Deck Beams, breadth and thickness..				<u>3 1/4</u> <u>7 1/16</u> <u>26 1/2</u> <u>9 1/16</u> <u>for 1/2 I</u>
Frames, Size of Angle Iron, single <u>50</u> double..				<u>3 1/2</u> <u>3</u> <u>7 1/16</u> <u>3 1/2</u> <u>2 3/4</u> <u>7 1/16</u>	Angle Iron on ditto.....				<u>4</u> <u>x 3</u> <u>x 3 1/8</u>
19. alternately Reversed Iron <u>to every frame</u>				<u>3</u> <u>2 1/2</u> <u>3 1/8</u> <u>2 3/4</u> <u>2 1/2</u> <u>3 1/8</u>	Stringer or Tie Plates fore and aft, on Upper Deck Beams, outside Hatchways..				<u>10 1/2</u> <u>7 1/16</u> <u>10 1/2</u> <u>7 1/16</u>
,, <u>up to about 1/2 depth of stem</u>					Diagonal Tie Plates on ditto.....				<u>9</u> <u>9</u> <u>5</u> <u>5</u>
Floors, depth and thickness of Floor Plate at Hold & Tank space <u>26 1/2</u> mid line <u>24</u> <u>8</u>				<u>26 1/2</u> <u>3 1/8</u> <u>19</u> <u>7 1/16</u>	Planksheer, materials and scantlings				
,, Ditto ditto at Bilge Keelson				<u>22</u> <u>3 1/8</u> <u>19</u> <u>7 1/16</u>	Waterway ditto ditto <u>Keel</u>				<u>4 1/2</u> <u>9</u>
,, Size of Reversed Angle Iron, and No. one at top of Floor Plate				<u>3</u> <u>2 1/2</u> <u>3 1/8</u> <u>2 3/4</u> <u>2 1/2</u> <u>3 1/8</u>	Flat of Upper Deck, thickness and material..				<u>3</u> <u>Keel</u> <u>2 5/8</u>
Beams, Deck (No. <u>28</u> <u>including 1/4 Bulb heads</u>)				<u>7</u> <u>7 1/16</u> <u>7</u> <u>7 1/16</u>	,, how fastened to Beams..				<u>Gal</u> <u>1/2</u> <u>seam bolts</u> <u>4</u> <u>nuts</u>
,, Plate, <u>8</u> <u>single</u> <u>Angle Iron</u>				<u>2 1/2</u> <u>2 1/2</u> <u>5 1/16</u> <u>2 1/2</u> <u>2 1/2</u> <u>5 1/16</u>	Ceiling betwixt Decks and in Hold, thickness and material <u>same as 1/2 in. Plank</u>				<u>2 1/2</u> <u>2 1/2</u>
,, double <u>or</u> single Angle Iron,					batten & space from Bilge up <u>fine</u> Clamps or Spicketing.....				<u>2 1/2</u> <u>2</u>
,, on upper edge.....				<u>2 1/2</u> <u>2 1/2</u> <u>5 1/16</u> <u>2 1/2</u> <u>2 1/2</u> <u>5 1/16</u>	Stringer Plates on ends of Hold or Lower Deck Beams, breadth and thickness				<u>18</u> <u>7 1/16</u> <u>18</u> <u>7 1/16</u>
,, average space between.....				<u>3.10</u> <u>3.10</u>	,, or Tie Plates fore and aft outside Hatchways, on Hold or Lower Deck Beams.....				<u>AE</u> <u>4-3-3</u> <u>see app section</u>
,, Hold, or Lower Deck (No. <u>5</u> Bulb)				<u>7</u> <u>7 1/16</u> <u>7</u> <u>7 1/16</u>	Stringers in Hold <u>about 17</u> depth.....				<u>2 1/2</u> <u>2 1/2</u>
,, Cabin sole <u>double</u> Angle, <u>2</u> <u>Plate</u> , <u>or</u> Bulb Iron				<u>4</u> <u>3</u> <u>3 1/8</u> <u>4</u> <u>3</u> <u>3 1/8</u>	Flat of Lower Deck, thickness and material..				<u>2 1/2</u> <u>2 1/2</u>
,, <u>double</u> <u>or</u> single Angle Iron				<u>2 1/2</u> <u>2 1/2</u> <u>5 1/16</u> <u>2 1/2</u> <u>2 1/2</u> <u>5 1/16</u>	Main piece of Rudder, diameter at head....				<u>4 1/2</u> <u>4 1/2</u>
,, edge.....					,, at heel.....				<u>4 1/2</u> <u>2 1/2</u> <u>4 1/2</u> <u>x 2 1/2</u>
,, average space between.....					(Can the Rudder be unshipped afloat <u>No</u>)				
,, Paddle, sided and moulded, thick- ness of Plate <u>size of Angle Iron</u>					Bulkheads, No. <u>4</u> Thickness of				<u>5 1/16</u>
,, Engine <u>2 1/2</u> <u>of floors</u>					Height up <u>Main Deck</u> <u>in 3</u> <u>or</u> <u>one to Cabin sole</u> <u>Beams</u>				<u>4</u> <u>3</u> <u>3</u> <u>3</u>
Keelson, single <u>or</u> double plate, <u>box</u> , <u>or</u> <u>intercostal</u>				<u>12 1/4</u> <u>9 1/16</u> <u>11 3/4</u> <u>9 1/16</u>	,, how secured to the sides of the ship <u>double</u> <u>AT</u> <u>frames</u>				<u>4 1/2</u> <u>4 1/2</u>
,, Size of Plates <u>(4</u> <u>inches</u> <u>16 1/2</u> <u>x 1 1/2</u>)				<u>4</u> <u>3</u> <u>3 1/8</u> <u>4</u> <u>3</u> <u>3 1/8</u>	,, size of vertical angle irons <u>3 1/2</u> <u>x 3 1/2</u> and their distance apart <u>30</u>				<u>3 1/2</u> <u>3 1/2</u> <u>30</u>
,, Size of Angle Irons.....					The Frames extend in one length from <u>Center line</u> to <u>Stringer Plate</u>				<u>3 1/2</u> <u>3 1/2</u> <u>3 1/2</u> <u>3 1/2</u>
,, Side, single <u>or</u> double, plate, <u>box</u> , <u>or</u> <u>intercostal</u>				<u>3 1/8</u> <u>3 1/8</u>	The reverse angle irons on the floors extend in one length <u>across the middle line</u> from <u>Center line</u> to <u>6 inches above Stringer at 1/2 depth</u>				<u>3 1/8</u> <u>3 1/8</u>
,, Bilge (No. <u>one</u>) at each Bilge,				<u>7</u> <u>7 1/16</u> <u>7</u> <u>7 1/16</u>	,, on the frames <u>19</u> <u>inches</u> <u>from</u> <u>alternating frames</u> <u>before</u> <u>a</u> <u>raft</u> <u>that</u> <u>space</u>				<u>19</u> <u>inches</u> <u>from</u> <u>alternating frames</u> <u>before</u> <u>a</u> <u>raft</u> <u>that</u> <u>space</u>
,, single, <u>or</u> double, plate, <u>box</u> , <u>or</u> Bulb				<u>4</u> <u>3</u> <u>3 1/8</u> <u>4</u> <u>3</u> <u>3 1/8</u>	Keelson, how are the various lengths of plates or angle irons connected? <u>double</u> <u>butt straps</u> <u>equal to</u> <u>plates</u> <u>over</u> <u>Bulbs</u> <u>of</u> <u>plates</u> <u>x</u> <u>2 1/2</u> <u>bottom</u> <u>pieces</u>				<u>double</u> <u>butt straps</u> <u>equal to</u> <u>plates</u> <u>over</u> <u>Bulbs</u> <u>of</u> <u>plates</u> <u>x</u> <u>2 1/2</u> <u>bottom</u> <u>pieces</u>
Transoms, material <u>Iron</u> or, if none, in what manner compensated for.					Plates, Garboard, <u>double</u> <u>or</u> <u>reel</u> rivetted to keel (double <u>Chain</u> at upper edge) with rivets (<u>1</u> <u>in.</u>) diameter, averaging (<u>5</u> <u>in.</u>) apart. <u>C&C</u>				<u>double</u> <u>Chain</u> <u>1</u> <u>in.</u> <u>5</u> <u>in.</u>
Knight-heads, and Hawse Timbers <u>Iron</u> <u>plating</u> <u>&</u> <u>AE</u> <u>frames</u>					,, Edges from Garboards to upper part of bilge, worked clencher, <u>double</u> <u>Chain</u> rivetted; with rivets (<u>3/4</u> <u>in.</u>) diameter, averaging (<u>3 1/4</u> <u>ins.</u>) apart. <u>C&C</u>				<u>double</u> <u>Chain</u> <u>3/4</u> <u>in.</u> <u>3 1/4</u> <u>ins.</u>
The Frames extend in one length from <u>Center line</u> to <u>Stringer Plate</u>					,, Butts from Keel to turn of bilge, worked carvel with butt straps (<u>equal</u> <u>to</u>) thick, <u>double</u> <u>Chain</u> rivetted; with rivets (<u>3/4</u> <u>in.</u>) diameter, averaging (<u>3 1/4</u> <u>ins.</u>) apart. <u>C&C</u>				<u>equal</u> <u>to</u> <u>double</u> <u>Chain</u> <u>3/4</u> <u>in.</u> <u>3 1/4</u> <u>ins.</u>
The reverse angle irons on the floors extend in one length <u>across the middle line</u> from <u>Center line</u> to <u>6 inches above Stringer at 1/2 depth</u>					Do the butt straps lap over and rivet through the lands of the strake below? <u>in inside</u> <u>strakes</u>				<u>in inside</u> <u>strakes</u>
,, on the frames <u>19</u> <u>inches</u> <u>from</u> <u>alternating frames</u> <u>before</u> <u>a</u> <u>raft</u> <u>that</u> <u>space</u>					,, Edges from bilge to sheerstrake, worked carvel with a lining piece (<u>equal</u> <u>to</u>) thick, or clencher, <u>double</u> <u>or</u> <u>single</u> rivetted; with rivets (<u>3/4</u> <u>in.</u>) diameter, averaging (<u>3 1/4</u> <u>in.</u>) apart. <u>C&C</u>				<u>equal</u> <u>to</u> <u>double</u> <u>or</u> <u>single</u> <u>3/4</u> <u>in.</u>
Keelson, how are the various lengths of plates or angle irons connected? <u>double</u> <u>butt straps</u> <u>equal to</u> <u>plates</u> <u>over</u> <u>Bulbs</u> <u>of</u> <u>plates</u> <u>x</u> <u>2 1/2</u> <u>bottom</u> <u>pieces</u>					Do the butt straps lap over and rivet through the lands of the strake below? <u>in inside</u> <u>strakes</u>				<u>in inside</u> <u>strakes</u>
Plates, Garboard, <u>double</u> <u>or</u> <u>reel</u> rivetted to keel (double <u>Chain</u> at upper edge) with rivets (<u>1</u> <u>in.</u>) diameter, averaging (<u>5</u> <u>in.</u>) apart. <u>C&C</u>					,, Edges of Sheerstrake, <u>double</u> <u>or</u> <u>single</u> rivetted? At upper edge <u>equal to double</u> <u>Chain</u> <u>to</u> <u>single</u> <u>Chain</u> At lower edge <u>double</u> <u>Chain</u>				<u>equal to double</u> <u>Chain</u> <u>to</u> <u>single</u> <u>Chain</u> <u>double</u> <u>Chain</u>
,, Edges from Garboards to upper part of bilge, worked clencher, <u>double</u> <u>Chain</u> rivetted; with rivets (<u>3/4</u> <u>in.</u>) diameter, averaging (<u>3 1/4</u> <u>ins.</u>) apart. <u>C&C</u>					,, Butts from bilge to planksheers, worked carvel with butt straps (<u>equal to</u>) thick, <u>double</u> <u>or</u> <u>single</u> rivetted; with rivets (<u>3/4</u> <u>in.</u>) diameter, averaging (<u>3 1/4</u> <u>ins.</u>) apart. Breadth of laps in double rivetting (<u>4 1/2</u>) Breadth of laps in single rivetting (<u>3</u>)				<u>equal to</u> <u>double</u> <u>or</u> <u>single</u> <u>3/4</u> <u>in.</u> <u>3 1/4</u> <u>ins.</u> <u>4 1/2</u> <u>3</u>
,, Butts from Keel to turn of bilge, worked carvel with butt straps (<u>equal</u> <u>to</u>) thick, <u>double</u> <u>Chain</u> rivetted; with rivets (<u>3/4</u> <u>in.</u>) diameter, averaging (<u>3 1/4</u> <u>ins.</u>) apart. <u>C&C</u>					Butt Straps of Keelsons, Stringer and Tie Plates, <u>double</u> <u>or</u> <u>single</u> rivetted? <u>double</u> <u>Chain</u>				<u>double</u> <u>Chain</u>
Planksheer, how secured to the plating of the sides					Planksheer, how secured to the plating of the sides				
,, waterway,,,, planksheer and to the Beams					,, waterway,,,, planksheer and to the Beams				
Deck Beams, how secured to the side? <u>Bracket ends on Beams</u>					Deck Beams, how secured to the side? <u>Bracket ends on Beams</u>				
,, or Lower Deck ditto <u>Bulb Beams</u> <u>5</u> <u>in</u> <u>same as</u> <u>deck Beams</u>					,, or Lower Deck ditto <u>Bulb Beams</u> <u>5</u> <u>in</u> <u>same as</u> <u>deck Beams</u>				
Paddle,,,,					Paddle,,,,				
No. of breasthooks <u>4</u> crutches <u>2</u>					No. of breasthooks <u>4</u> crutches <u>2</u>				
What description of Iron is used for the Frames, Beams, Keelsons, Tie and Stringer Plates, Outside Plating, &c.?									
Manufacturer's name or trade mark <u>Angels & Bulb</u> <u>Palmer's best</u> <u>iron</u> <u>&</u> <u>Monong</u> <u>Iron</u> <u>C</u>									
We certify that the above is a correct description of the several particulars therein given.									
Builder's Signature <u>Gowlay Brothers & Co</u> Surveyor's Signature <u>Thomas A. Alexander</u>									

8153Ln

Workmanship. Are the lands or laps of the clenchwork in all cases in breadth at least five and a half times the diameter of the rivets where single rivetting is admitted? Do the edges of the carvel work and of the butts lay close together throughout their length without requiring any making good of deficiencies.
Do the fillings between the ribs and plates fill in solid with single pieces? or are they in short lengths of various thicknesses? Solid pieces
Do the holes for rivetting plate to frames, butt straps, or plate to plate, &c., conform well to each other? Conform fairly and are the rivet holes well and sufficiently countersunk in the outer plate? well Countersunk
Are there any rivets which either break into or have been put through the seams or butts of the plating? in a few instances at Butts

Her Masts, Bowsprit, Yards, &c., are in Good condition, and sufficient in size and length. (If they are of Iron or Steel give the scantlings of Plating, Angle Irons, &c., and further explain by a Sketch showing how the lower Masts and Bowsprit are constructed, showing the number of Plates and Angle Irons, mode of rivetting, quality of Materials, and if stamped with Maker's name.)

Main Mast is of Pitch Pine 58 1/2 x 18 Diam 18 3/4 12 at Head
Fore Mast of Ash 59 1/2 x 15 12 at Head 18 1/2 at Cap 13 1/2 in 2 segs 3/8 x 5/16 plates double riveted
Laps & Butts a few of latter triple

Lloyd's Type Public Test R Bunnell sup

N ^o .	She has SAILS.	CABLES, &c.	Fathoms.	Inches.	Test as per Certificate.	In. req'd per Rule.	Test req'd per Rule.	ANCHORS, &c.	N ^o .	Weight. Ex. Stock.	Test as per Certificate.	Wt req'd per Rule.	Test req'd per Rule.
1	Fore Sails,	Chain <u>Lloyd's Type</u>	210	1 3/16 stud	25.10.0.0	210 x 1 3/16	25.10.0.0	8579 Lloyd's Type 17A	12	1.20	14.6.1.0	2.7	
2	Fore Top Sails,	<u>no 3801 I 30-3-70</u>						Bowers 30-3-70	12	1.20	14.6.1.0	2.7	
2	Fore Topmast Stay Sails	<u>no 3801 I 30-3-70</u>	70	5/8 stud		90 x 8 1/2		8514 30 170 7-4-70	12	1.3	14.4.0.7	12.0.0	13.18.9.0
1	Main Sails, fore & aft	Hempen Stream Cable	90	8 1/2				8578 30 170 30-3-70	12	1.3	14.4.0.7	12.0.0	13.18.9.0
1	Main Top Sails,	Hawser	90	6 1/2		90 x 6 1/2		Stream with Stock	5	0.17	5.0.0		
	and others in all 16 pieces	Towlines	90	5 1/2				Kedges	2	2.15	2.2.9		
		Warp	180	4						1.1.7	1.1.0		
		All of <u>Good</u> quality.											

Her Standing and Running Riggings Wire & Hemp sufficient in size and Good in quality.
She has Four Boats Long Boat and Two of 22 ft one 23 & one 18 ft
The present state of the Windlass is Good Capstan one and Rudder Good Pumps 3 deck
Harfield's patent & 2 Steam Winches

Order for Special Survey DATES of 1st. On the several parts of the frame, when in place, and before the plating was wrought February & March
No. 256 Surveys held 2nd. On the plating during the progress of rivetting April & May
Date 25-12-69 while building 3rd. When the beams were in and fastened, and before the decks were laid Beams put up with fore
Order for Ordinary Survey as per 4th. When the ship was complete, and before the plating was finally coated May
No. 45 in Builders Yard Section 18. 5th. After the ship was launched 3. 4. 9. 13. 17 20. 23. 25 June 4. 8. 13. 15. 20 July
Date 25-12-69 State if she has a Spar Deck 2nd Deck 39 feet 3 1/2 Forecastle 29 ft
Break 1/2 after p'sp

General Remarks,

This vessel No 45 in Builders Yard has been built with a view to Class A. Complete plans being submitted by Builders & proposals dated 13/1/70 for approval with alterations they wished.
By Secretary's letter of 17/1/70 enclosing Surveyors remarks and stating Committee's approval thereof the following alterations in the plans were suggested & have now been carried out.
"Kelson way of Ballast Tank 8/16 and 9/16 before & abaft.
Floor plates allowed to be made 3/8" on Act of Depth & 3/8" (wash plates fitted as proper)
Over stake increased to 30" deep
Frames doubled in bottom for 1/2 length as per rule
In addition to the above the following alterations have been since made & applied in the part of the Owners & Builders
the 3/8" strakes of shell plating under sheer stake have been made 7/16 and a stringer of double A.F. 4 1/2 x 3 x 3/8 rivetted to a 12 x 3/8 Clump plate between Reverse A.F. has been continued forward to stem in line & connected to Cabin sole beam stringer - Garboard strakes have been made 5/8 instead of 9/16
Has Belge fins or Balling plates applied for 69 ft along each Belge form of double A.F. 3 1/2 x 3 x 3/8 rivetted thro shell plating & with 8 1/2 x 5/16 plate better than A.F.

In what manner are the surfaces preserved from oxidation? Inside in bottom oil to Balg Portland Cement and 3 Coats Oxide
Ditto ditto Outside in bottom 4 Coats Oxide paint 2 of Oxide 1 Red & White Lead mixed
aloft 4 in all inside 2 of Grey & 1 of Black & one of Yellow

I am of opinion this Vessel should be Classed A1 or 100 A1
The amount of the Fee £ 5 : 0 : 0 is received by me, Thomas Alexander
for 500 Tons Special £ 25 : 0 : 0
Certificate (if required) £ 30 : 0 : 0

Committee's Minute 22nd July 1870

Character assigned A1

Engine & Boiler spaces with Cook House - included in range of deck House shown in plan at 5/16. Deck plating above Iron plate Embury which are checked all round the whole range about 5/16 in length of which about 35 ft is Burney checked

