

# IRON SHIPS.

Dec 27/1872

No. 2047 Survey held at Wharfedale Date, First Survey July 29 1872 Last Survey Nov 2 1872

On the Iron Steamer "Pamoa" Master J. Gibson

Tonnage under Tonnage Deck <u>958.05</u>	ONE, OR TWO DECKED, SPAR, OR AWNING-DECKED VESSELS.	THREE DECKED VESSELS.	Built at <u>Wharfedale</u>
Ditto of Third Spar, or Awning Deck. <u>425</u>	Half moulded breadth <u>15.5</u>	Half Moulded Breadth <u>15.5</u>	When built <u>1872</u> Launched <u>Sept 1872</u>
Ditto of Poop, or Raised Qr. Dk. <u>16.93</u>	Depth from upper part of Keel to top of Upper Deck Beams <u>16.95</u>	Total Depth if three or more Decks <u>16.95</u>	By whom built <u>James Hall, Russell &amp; Co.</u>
Ditto of Houses on Deck <u>16.93</u>	Girth of Half Midship Frame (as per Rule) <u>30.08</u>	Total Girth of Half Midship Frame <u>30.08</u>	Owners <u>J. Lapraik</u>
Ditto of Forecastle <u>1374.98</u>	1st Number <u>12.53</u>	3rd Number <u>12.53</u>	Port belonging to <u>Wharfedale</u>
Gross Tonnage <u>1374.98</u>	Length <u>35.25</u>	Length <u>35.25</u>	Destined Voyage <u>Hongkong</u>
Crew Space, as per Rule <u>42.26</u>	2nd Number <u>15.20</u>	4th Number <u>15.20</u>	If Surveyed while Building, Afloat, or in Dry Dock. <u>Under special Survey</u>
Net Tonnage <u>439.99</u>	Depths to Length <u>12.6</u>	Breadths to Length <u>2.7</u>	
Engine Room <u>162.33</u>			
Register Tonnage, as a Steamer, cut on Beam <u>162.33</u>			

Length on deck as per Rule 238.45 Moulded Breadth 37 Depths from top of Floors to Upper and Main Deck Beams, as per Rule 18.95 Power of Engines 130 N<sup>o</sup>. of Decks with flat laid 3 N<sup>o</sup>. of Tiers of Beams Three

Dimensions of Ship per Register, length 359 breadth 37.15 depth 12.6

	Inches in Ship.	Inches required per Rule.		Inches in Ship.	Inches required per Rule.
Keel, if bar iron, depth and thickness <u>2 1/2</u>	<u>2 1/2</u>	<u>2 1/2</u>	Plates in Garboard Strakes, breadth and thickness <u>30 1/2</u>	<u>30</u>	<u>30</u>
Do. if centre through plate, depth and thickness <u>2 1/2</u>	<u>2 1/2</u>	<u>2 1/2</u>	Do. from Garboard to upper part of Bilges <u>9 1/2</u>	<u>9 1/2</u>	<u>9 1/2</u>
Stem, if bar iron, moulding and thickness <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>	Do. of doubling at Bilge, or increased thickness, and length applied <u>12</u>	<u>12</u>	<u>12</u>
Stern-post for Rudder do. do. <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>	Do. fm up. part of Bilge to Ir. edge of Sh'rstrake <u>10 1/2</u>	<u>10 1/2</u>	<u>10 1/2</u>
Stern-post for Propeller <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>	Do. Main Sheerstrake, breadth and thickness <u>32 1/2</u>	<u>30</u>	<u>32 1/2</u>
Distance of Frames from moulding edge to moulding edge, all fore and aft <u>23</u>	<u>23</u>	<u>23</u>	Do. of doubling at Sh'rstrake, & length applied <u>13 1/2</u>	<u>13 1/2</u>	<u>13 1/2</u>
Frames, size of Angle Iron, for 1/3 length amidships <u>4</u>	<u>4</u>	<u>4</u>	Do. from Mn. to Up. or Spar Dk. Sh'rstrake <u>13 1/2</u>	<u>13 1/2</u>	<u>13 1/2</u>
Do. for 1/2 at each end <u>4</u>	<u>4</u>	<u>4</u>	Do. Up. or Spar Dk. Sh'rstrake, breadth & thickness <u>14 1/2</u>	<u>14 1/2</u>	<u>14 1/2</u>
Reversed Frames, size of Angle Iron <u>3</u>	<u>3</u>	<u>3</u>	Butt Straps to outside plating, breadth & thickness <u>2 1/2</u>	<u>2 1/2</u>	<u>2 1/2</u>
Floors, depth and thickness of Floor Plate at mid line for half the length amidships <u>18 1/2</u>	<u>18</u>	<u>18</u>	Lengths of Plating <u>2</u>	<u>2</u>	<u>2</u>
Do. at the ends <u>3 1/2</u>	<u>3 1/2</u>	<u>3 1/2</u>	Shifts of Plating, and Stringers <u>2</u>	<u>2</u>	<u>2</u>
Do. do. do. at Bilge Keelson <u>2 1/2</u>	<u>2 1/2</u>	<u>2 1/2</u>	Gunwale Plate on ends of Awning, Spar, or Upper Deck Beams, breadth and thickness <u>3 1/2</u>	<u>3 1/2</u>	<u>3 1/2</u>
Do. height extended at the Bilges <u>3 1/2</u>	<u>3 1/2</u>	<u>3 1/2</u>	Angle Iron on ditto <u>3 1/2</u>	<u>3 1/2</u>	<u>3 1/2</u>
Beams, Upper, Spar, or Awning Deck (No. ) single or double Angle Iron, Plate or Tee Bulb Iron <u>5</u>	<u>5</u>	<u>5</u>	Tie Plates (fore and aft), outside Hatchways <u>9 1/2</u>	<u>9 1/2</u>	<u>9 1/2</u>
Single or double Angle Iron on Upper edge <u>3</u>	<u>3</u>	<u>3</u>	Diagonal Tie Plates on Beams (No. of Pairs) <u>11</u>	<u>11</u>	<u>11</u>
Average space <u>3.70</u>	<u>3.70</u>	<u>3.70</u>	Planksheer material and scantling <u>4 1/2 x 1 1/2</u>	<u>4 1/2 x 1 1/2</u>	<u>4 1/2 x 1 1/2</u>
Beams, Main or Middle Deck (No. ) single or double Angle Iron, Plate or Tee Bulb Iron <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>	Waterways do. do. <u>2 1/4</u>	<u>2 1/4</u>	<u>2 1/4</u>
Single or double Angle Iron, on Upper Edge <u>3</u>	<u>3</u>	<u>3</u>	Flat of Upper Deck do. do. <u>2 1/4</u>	<u>2 1/4</u>	<u>2 1/4</u>
Average space <u>3.10</u>	<u>3.10</u>	<u>3.10</u>	How fastened to Beams <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>
Beams, Lower Deck, Hold or Orlop (No. ) single or double Ang. Iron, Plate or Tee Bulb Iron <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>	Stringer Plate on ends of Main or Middle Deck Beams, breadth and thickness <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>
Single or double Angle Iron on Upper Edge <u>3</u>	<u>3</u>	<u>3</u>	(Is the Stringer Plate attached to the outside plating?) <u>Yes</u>	<u>Yes</u>	<u>Yes</u>
Average space <u>3.10</u>	<u>3.10</u>	<u>3.10</u>	Angle Irons on ditto (No. ) <u>5</u>	<u>5</u>	<u>5</u>
Keelson Centre line, single or double plate, box, or intercostal, size of Plates <u>1 1/4</u>	<u>1 1/4</u>	<u>1 1/4</u>	Tie Plates, outside Hatchways <u>11</u>	<u>11</u>	<u>11</u>
Do. Bulb Plate to Intercostal Keelson <u>5</u>	<u>5</u>	<u>5</u>	Diagonal Tie Plates on Beams (No. of pairs) <u>11</u>	<u>11</u>	<u>11</u>
Do. Size of Angle Irons <u>5</u>	<u>5</u>	<u>5</u>	Waterways materials and scantlings <u>2 1/4</u>	<u>2 1/4</u>	<u>2 1/4</u>
Do. Side Intercostal Keelson, size of Plates <u>1 1/4</u>	<u>1 1/4</u>	<u>1 1/4</u>	Flat of Middle Deck do. do. <u>2 1/4</u>	<u>2 1/4</u>	<u>2 1/4</u>
Do. Angle Irons on tops of Floors <u>5</u>	<u>5</u>	<u>5</u>	How fastened to Beams <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>
Do. Bilge Keelson, Bulb Iron <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>	Stringer Plates on ends of Lower Deck, Hold or Orlop Beams <u>2 1/2</u>	<u>2 1/2</u>	<u>2 1/2</u>
Do. do. Intercostal plates riveted to plating for length <u>5</u>	<u>5</u>	<u>5</u>	(Is the Stringer Plate attached to the outside plating?) <u>Yes</u>	<u>Yes</u>	<u>Yes</u>
Do. do. Angle Irons <u>5</u>	<u>5</u>	<u>5</u>	Angle Irons on ditto (No. ) <u>5</u>	<u>5</u>	<u>5</u>
Side Stringers (No. ) size of Angle Irons <u>5</u>	<u>5</u>	<u>5</u>	Stringer or Tie Plates, outside Hatchways <u>3 1/2</u>	<u>3 1/2</u>	<u>3 1/2</u>
Do. Intercostal plates riveted to plating for length <u>5</u>	<u>5</u>	<u>5</u>	Flat of Lower Deck <u>2 1/4</u>	<u>2 1/4</u>	<u>2 1/4</u>
Transoms, material <u>Iron plates</u> , if none, in what manner compensated for. <u>None</u>			Ceiling betwixt Decks, thickness and material <u>2 1/2</u>	<u>2 1/2</u>	<u>2 1/2</u>
Knight-heads <u>Plates</u> Hawse Timbers <u>and frames</u>			Do. in hold do. do. <u>2 1/2</u>	<u>2 1/2</u>	<u>2 1/2</u>
Windlass <u>Barfield's Patent</u> Pall Bitt <u>None</u>			Main piece of Rudder, diameter at head <u>5 1/2</u>	<u>5 1/2</u>	<u>5 1/2</u>
The Frames extend in one length from <u>Keel</u> to <u>Gunnwales</u>			Do. do. at heel <u>3</u>	<u>3</u>	<u>3</u>
The Reverse Angle Irons on the floors and frames extend <u>across</u> the middle line <u>from Keel to Gunnwales</u> and to <u>Gunnwales</u> alternately			(Can the Rudder be unshipped afloat?) <u>Yes</u>	<u>Yes</u>	<u>Yes</u>
Keelsons. Are the various lengths of Plates and Angle Irons properly connected? <u>Yes</u> And are their butts properly shifted? <u>Yes</u>			Bulkheads No. <u>4</u> Thickness of <u>4 1/2</u>	<u>4 1/2</u>	<u>4 1/2</u>
Plates, Garboard, double or <u>single</u> Riveted to Keel, double or <u>single</u> at upper edge, with Rivets <u>3/4</u> in. diameter, averaging <u>2 1/2</u> ins. from centre to centre.			Do. Height up <u>to Main Deck</u>	<u>to Main Deck</u>	<u>to Main Deck</u>
Do. Edges from Garboards to upper part of Bilge, worked Clencher, double or single Riveted; with Rivets <u>3/4</u> in. diameter, averaging <u>2 1/2</u> ins. from centre to centre.			Do. How secured to the sides of the ship <u>between beam frames</u>	<u>between beam frames</u>	<u>between beam frames</u>
Do. Butts from Keel to turn of Bilge, worked carvel with butt straps to strakes <u>3/4</u> thick, double or single Riveted; with Rivets <u>3/4</u> in. diameter averaging <u>2 1/2</u> ins. from centre to centre. Do the Butt Straps lay over and Rivet through the lands of the strakes above or below? <u>No</u>			Do. Size of Vertical Angle Irons <u>3 1/2</u> and their distance apart, <u>3 1/2</u>	<u>3 1/2</u>	<u>3 1/2</u>
Do. of <u>Sheer</u> Strakes at Bilge for <u>half</u> length, treble riveted with Butt Straps <u>1/2</u> thicker than their plates.			Do. Are the outside Plates doubled two spaces of Frames in length? <u>Yes</u>	<u>Yes</u>	<u>Yes</u>
Do. Edges from bilge to Main Sheerstrake, worked carvel with a lining piece ( <u>1/2</u> ) thick, or clencher, double or single riveted; with rivets <u>3/4</u> in. diameter, averaging <u>2 1/2</u> ins. from centre to centre.					
Do. Edges of Sheerstrake, Main, double or single Riveted. Upper, double or single Riveted. At upper edge <u>single</u> At lower edge <u>double</u>					
Do. Butts from Bilge to Main Sheerstrake, worked Carvel with Butt Straps <u>3/4</u> thick, double or single Riveted; with Rivets <u>3/4</u> in. diameter, averaging <u>2 1/2</u> ins. from centre to centre.					
Do. Butts of Main Sheerstrake, double or treble Riveted. Butts of Upper or Spar Sheerstrake, and Upper Deck Stringer Plate, double or treble Riveted <u>for</u> length amidships. Breadth of laps of plating in double Riveting ( <u>4 1/2</u> ) Breadth of laps of plating in single Riveting ( <u>2 1/4</u> )					
Butt Straps of Keelsons, Stringer and Tie Plates, treble, double or single Riveted? <u>Double and treble riveted</u>					
Planksheer, how secured to the plating of the sides. Waterway, how secured to the planksheer and to the Beams. (Explain by Sketch, if necessary.) <u>Double and treble riveted</u>					
Beams of the various Decks, how secured to the sides <u>Double and treble riveted</u> No. of Breasthooks, <u>four</u> Crutches, <u>four</u>					
What description of Iron is used for the Frames, Beams, Keelsons, Tie, and Stringer Plates, Outside Plating, &c. <u>Best quality Bessemer</u>					
Manufacturer's name or trade mark, <u>Hopkins &amp; Richardson's Patent</u>					

We certify that the above is a correct description of the several particulars therein given.

Builder's Signature, James Hall, Russell & Co. Surveyor's Signature, J. W. Riddle

IRON 452-0349



**Workmanship.** Are the butts of plating planed or otherwise fitted? All planed  
 Do the edges of the carvel work and of the butts lay close together throughout their length without requiring any making good of deficiencies? Yes  
 Do the fillings between the ribs and plates fill in solid with single pieces? or are they in short lengths of various thicknesses? Yes  
 Do the holes for riveting plate to frames, butt straps, or plate to plate, &c., conform well to each other? Yes and are the rivet holes well and sufficiently countersunk in the plate and punched from the faying surfaces? Yes  
 Are there any rivets which either break into or have been put through the seams or butts of the plating? None in case of 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 riveting, quality of Materials, and if stamped with Maker's name.

State also Length and Diameter of Lower Masts and Bowsprit Masts being Main are formed of two plates 9 1/2" thick and lands single clincher. Butts double carvel riveted. Fore Mast 59.5' Diameter 13 1/2" at Head 13 1/2" at Deck 20"  
Main Mast 70.5' Diameter 13 1/2" at Head 13 1/2" at Deck 20"

Tested by Robert Bruce at Low Walker August 13<sup>th</sup> 1872 10729  
 Tested by Robert Bruce at Low Walker Aug 15<sup>th</sup> 1872

No.	Number for equipment	Fathoms.	Inches.	Test as per Certificate.	In. req'd per Rule.	Test req'd per Rule.	ANCHORS, &c.	No.	Weight. Ex. Stock.	Test as per Certificate.	W'ght req'd per Rule.	Test req'd per Rule.
	<b>SAILS.</b>											
	<b>CABLES, &amp;c.</b>											
	Chain .....	300	1 9/16	4 1/4	1 9/16	4 1/4	Bowers ....	3	24.0.76	28.19.2.21	23.2.0	28 1/2
	Fore Sails, (State Machine where Tested, and name of Superintendent).						(State Machine where Tested, and name of Superintendent).					
	Fore Top Sails, Hempen Stream						Stream ....	7	10.0.7		10.0.0	
	Fore Topmast Stay Sails, Cable	50	1 1/16				Kedges ....	2	5.0.21		5.0.0	
	Main Sails, Hawser .....	90	10		10							
	Main Top Sails, Towlines ....	90	8		9 1/2							
	Main Top Sails, Warp .....	90	4		6							
	All of quality.	90	4		6							

Her Standing and Running Riggings all being Hempen sufficient in size and good in quality. She has 20' Long Boat and three other boats  
 The present state of the Windlass is Good Capstan Good and Rudder Good Pumps 5<sup>th</sup> efficient

**Engine Room Skylights.**—How constructed? Strong wood frame How secured in ordinary weather? Locked to in Chambers  
 What arrangements are there for deadlights in such for bad weather? Glass Balls were fitted in top of skylight.

**Coal Bunker Openings.**—How constructed? Cast iron How are lids secured? By iron pins How high above deck? Just above Deck

**Scuppers, &c.**—What arrangements are there beyond the scuppers on deck, for clearing upper deck of water, in case of a sea coming on board? Two Discharge ports and three scuppers on each side.

**Cargo Hatchways.**—How formed? Iron Chambers riveted beams State size Fore Hatch 5' 6" x 12'  
 If of extraordinary size, state how framed and secured? Medium size Aft Hatch 11' 6" x 9'

What arrangement for shifting beams? None  
**Hatches, themselves, whether strong and efficient?** Yes **Main Hatchways.**—State size 15' 6" x 5' 0"

Order for Special Survey No. 336 DATES of 1st. On the several parts of the frame, when in place, and before the plating was wrought Quite under  
 Date 30<sup>th</sup> Jan 1872 Surveys held 2nd. On the plating during the progress of riveting Special survey from the  
 Order for Ordinary Survey No. 1 while building 3rd. When the beams were in and fastened, and before the decks were laid 29<sup>th</sup> Dec 1871 2<sup>nd</sup> Dec 1871  
 Date 1<sup>st</sup> Jan 1872 as per 4th. When the ship was complete, and before the plating was finally coated or cemented 1<sup>st</sup> Jan 1872  
 No. 284 in builder's yard. Section 18. 5th. After the ship was launched and equipped



**General Remarks,** As Compensation for the proportions of the one cost will be  
Main Sheer stake is increased 3/16 for 3/4. The  
stern plate is increased in thickness 1/16 for 1/8.  
Bar 4 1/2 x 1/16 is placed between and riveted to dou-  
Bilge Nelson for 3/8, and two stakes of plating at 1/8  
thick thicker than prescribed in table of 1/8 for  
ships; and the butt straps of gunwale plates  
of three stakes of plating round the Bilges are 1/8  
than the plates they connect, and are treble riv-  
Every frame is extended to height of Coving Deck at  
and aft.  
Length of Water Ballast Tanks 11' 6"

State if one, two or three decked vessel, or if spar or awning decked, and lengths of poop, forecabin or raised quarter deck, or of double or part double bottom

In what manner are the surfaces preserved from oxidation? Inside Painted Outside Painted

I am of opinion this Vessel should be Classed 90-A-1

The amount of the Entry Fee .....£ 5 : 0 : 0 is received by me,  
 Special .....£ 4 : 11 : 0  
 Certificate .... Grates

(Travelling Expenses) (if any) £ None  
 Committee's Minute 12<sup>th</sup> Nov 1872

Character assigned 90-A-1  
A & I  
M. B.  
awning decked  
12<sup>th</sup> Nov 1872

