

IRON SHIP.

11438 Survey held at Sunderland Date, First Survey 28th January 1876 Last Survey 11th July 1876
In the Iron Barge "Armelo." Master Smith
ONNAGE under Tonnage Deck 662.62
Ditto of Third, Spar, or Awning Deck. 35.46
Ditto of Poop, or Raised Qr. Dk. 12.46
Ditto of House on Deck 710.54
Ditto of Forecastle 21.39
Less Tonnage 689.15
Less Crew Space
Less Engine Room
Register Tonnage as out on Beam
ONE OR TWO DECKED, THREE DECKED VESSEL.
SPAR, OR AWNING DECKED VESSEL.
HALF BREADTH (moulded) 15.33
DEPTH from upper part of Keel to top of Upper Deck Beams 20.33
GIRTH of Half Midship Frame (as per Rule) 30.8
1st NUMBER 66.46
1st NUMBER, if a THREE-DECKED VESSEL [deduct 7 feet]
2nd NUMBER 11.7
LENGTH 168.8
PROPORTIONS—Breadths to Length under
Depths to Length—Upper Deck to Keel 9
Main Deck ditto
Built at Sunderland
When built 1876 Launched 13th April 1876
By whom built S. P. Austin and Hunter.
Owners F. J. Gay. Esq. & J. P. Gay.
Port belonging to Sunderland
Destined Voyage Valparaiso.
Surveyed while Building, Afloat, or in Dry Dock.
x Vide Memo. annexed

LENGTH on deck as per Rule 168.9 Feet. Inches. BREADTH Moulded 30.8 Feet. Inches. DEPTH top of Floors to Upper Deck Beams 20.33 Feet. Inches. Do. do. Main Deck Beams 18.8 Feet. Inches. Power of Engines 18 Horse. No. of Decks with flat laid One No. of Tiers of Beams Two

Dimensions of Ship per Register, length, 177.4 breadth, 30.7 depth, 18.5 ft

	Inches in Ship.	Inches per Rule.		Inches in Ship.	Inches per Rule.
KEEL, depth and thickness	7 1/2 x 2 1/4	7 1/2 x 2 1/4	PLATES in Garboard Strakes, breadth and thickness from Garboard to upper part of Bilges	34 1/2 x 7/16	32 x 7/16
STEM, moulding and thickness	7 x 2 1/4	7 x 2 1/4	of doubling at Bilge, or increased thickness, and length applied	8 1/2 x 7/16	8 1/2 x 7/16
STERN-POST for Rudder do. do.	7 x 2 1/4	7 x 2 1/4	fm up. part of Bilge to Ir. edge of Sh'rstrake	8 1/2 x 7/16	8 1/2 x 7/16
for Propeller			Main Sheerstrake, breadth and thickness	34 1/2 x 7/16	32 x 7/16
Distance of Frames from moulding edge to moulding edge, all fore and aft	22	22	of d'bling at Sh'rstrake, & length applied from Mn. to Up. or Spar Dk. Sh'rstrake.		
FRAMES, Angle Iron, for 3/4 length amidships	4 x 3 7/16	4 x 3 7/16	Up. or Spar Dk Sh'rstrake, brdth & thickness	18 1/2 x 9 3/4	18 1/2 x 9 3/4
Do. for 1/2 at each end	4 x 3 7/16	4 x 3 7/16	Butt Straps to outside plating, breadth & thickness	11 1/2 x 7/16	11 1/2 x 7/16
REVERSED FRAMES, Angle Iron	3 x 3 7/16	3 x 3 7/16	Lengths of Plating	11 1/2	11 1/2
FLOORS, depth and thickness of Floor Plate at mid line for half length amidships	20 x 7/16	20 x 7/16	Shifts of Plating, and Stringers	44 1/2	44 1/2
thickness at the ends of vessel	7/16	7/16	Gunwale Plate on ends of Awning, Spar, or Upper Deck Beams, breadth and thickness	34 1/2 x 7/16	34 1/2 x 7/16
depth at 3/4 the half-bdth. as per Rule	9 x 10	9 x 10	Angle Iron on ditto	23 x 7/16	23 x 7/16
height extended at the Bilges	48 x 40	48 x 40	Tie Plates fore and aft, outside Hatchways	10 x 7/16	10 x 7/16
BEAMS, Upper, Spar, or Awning Deck	7 x 7/16	7 x 7/16	Diagonal Tie Plates on Beams No. of Pairs	10	10
or double Ang. Iron, Plate or Tee Bulb Iron	3 x 3 7/16	3 x 3 7/16	Planksheer material and scantling		
double Angle Iron on Upper edge	3 x 3 7/16	3 x 3 7/16	Waterways do. do.		
Average space	44	44	Flat of Upper Deck do. do.	3 1/2	3 1/2
BEAMS, Main, or Middle Deck			How fastened to Beams		
Single or d'ble Ang. Iron, Plate or Tee Bulb Iron	7 1/2 x 7/16	7 1/2 x 7/16	Stringer Plate on ends of Main or Middle Deck		
Angle, or double Angle Iron, on Upper Edge	3 x 3 7/16	3 x 3 7/16	Beams, breadth and thickness		
Average space	44	44	Is the Stringer Plate attached to the outside plating?		
BEAMS, Lower Deck, Hold, or Orlop			Angle Irons on ditto, No.		
Single or d'ble Ang. Iron, Plate or Tee Bulb Iron	7 1/2 x 7/16	7 1/2 x 7/16	Tie Plates, outside Hatchways		
Single or double Angle Iron on Upper Edge	3 x 3 7/16	3 x 3 7/16	Diagonal Tie Plates on Beams, No. of pairs		
Average space	44	44	Waterways materials and scantlings		
KEELSONS, Centre line, single or double plate, box, or Intercoastal, Plates	13 x 10 1/16	12 x 10 1/16	Flat of Middle Deck do. do.		
Rider Plate	10 x 10 1/16	10 x 10 1/16	How fastened to Beams		
Bulb Plate to Intercoastal Keelson	14 1/2 x 3 7/16	14 1/2 x 3 7/16	Stringer Plates on ends of Lower Deck, Hold or Orlop Beams	25 x 7/16	25 x 7/16
Angle Irons	14 1/2 x 3 7/16	14 1/2 x 3 7/16	Is the Stringer Plate attached to the outside plating?		
Double Angle Iron Side Keelson			Angle Irons on ditto, No.		
Side Intercoastal Plate			Stringer or Tie Plates, outside Hatchways		
do. Angle Irons			Flat of Lower Deck		
Attached to outside plating with angle iron			Ceiling betwixt Decks, thickness and material		
BILGE Angle Irons	4 1/2 x 3 7/16	4 1/2 x 3 7/16	in hold do. do.		
do. Bulb Iron	6 x 7/16	6 x 7/16	Main piece of Rudder, diameter at head	4 1/2	4 1/2
do. Intercoastal plates riveted to plating for length			do. at heel	23 1/4	23 1/4
BILGE STRINGER Angle Irons	4 1/2 x 3 7/16	4 1/2 x 3 7/16	Can the Rudder be unshipped afloat?	Yes	
Intercoastal plates riveted to plating for length			Bulkheads No. One Thickness of		
SIDE STRINGER Angle Irons			Height up to Main Deck		

Transoms, material. Knight-heads. Hawse Timbers. Iron.
Windlass. Harfield and Co. Pall Bitt None required.

The FRAMES extend in one length from the middle line to Gunwale Riveted through plates with 3/4 in. Rivets, about 5/2 apart.
The REVERSED ANGLE IRONS on floors and frames extend from near middle line to Lower Deck and Cabin Sole-plates, and to Gunwale alternately
KEELSONS. Are the various lengths of Plates and Angle Irons properly connected? Yes And butts properly shifted? Yes.

PLATING. Garboard, double riveted to Keel, with rivets 1/8 in. diameter, averaging 5 ins. from centre to centre.
Edges of Garboards and to upper part of Bilge, worked clencher, double riveted; with rivets 3/4 in. diameter, averaging 3 1/4 ins. from centre to centre.
Butts from Keel to turn of Bilge, worked carvel, double riveted; with rivets 3/4 in. diameter averaging 3 1/2 ins. from centre to centre.
Butts of two Strakes at Bilge for half length, treble riveted with Butt Straps 1/8 thicker than the plates they connect.
Edges from bilge to Main Sheerstrake, worked clencher, double or single riveted; with rivets 3/4 in. diameter, averaging 3 1/4 ins. from cr. to cr.
Butts from Bilge to Main Sheerstrake, worked carvel, double riveted; with rivets 3/4 in. diameter, averaging 3 1/2 ins. from cr. to cr.
Edges of Main Sheerstrake, double or single riveted. Upper Sheerstrake, double or single riveted.
Butts of Main Sheerstrake, treble riveted for half length amidships. Butts of Upper or Spar Sheerstrake, treble riveted length amidships.
Butts of Main Stringer Plate, treble riveted for half length amidships. Butts of Upper or Spar Stringer Plate, treble riveted for length.
Breadth of laps of plating in double riveting 4 1/2 ins Breadth of laps of plating in single riveting 2 1/2 ins at Bulwarks.

Butt Straps of Keelsons, Stringer and Tie Plates, treble, double or single Riveted? Treble and Double riveted.
Waterway, how secured to Beams (Explain by Sketch, if necessary) Soldered
Beams of the various Decks, how secured to the sides? Nuts turned down and riveted No. of Breasthooks, Four Crutches, Four.
What description of Iron is used for Frames, Beams, Keelsons, Tie, and Stringer Plates, Outside Plating, &c.? Angle Irons, Steel, and Cast Iron.
Manufacturer's name or trade mark, Iron Co. Plates & Harfield & Co. Malleable Iron (as per Book of Vaughan & Co.)
The above is a correct description.
Builder's Signature, J. P. Austin & Hunter Surveyor's Signature, William Lloyd
Surveyor to Lloyd's Register of British and Foreign Shipping.

Workmanship. Are the butts of plating planed or otherwise fitted? *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.*
Are the fillings between the ribs and plates solid single pieces? *Yes.*
Do the holes for riveting plate to frames, butt straps, or plate to plate, &c., conform well to each other? *Yes.*
Are the rivet holes well and sufficiently countersunk in the plate and punched from the faying surfaces? *Yes.*
Do any rivets break into or through the seams or butts of the plating? *a few in the butts only.*

Masts, Bowsprit, Yards, &c., are of *Iron* in *Good* condition, and sufficient in size and length. If of Iron or Steel give
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 *Please see sketch hereto annexed.*

16480 Iron

NUMBER for EQUIPMENT		Fathoms.	Inches.	Test per Certificate.	Length & Size req'd per Rule.	Test req'd per Rule.	ANCHORS.	N ^o .	Weight. Ex. Stock.	Test per Certificate.	W'ght req'd per Rule.	Test req'd per Rule.
N ^o .	SAILS.	CABLES, &c.										
	Fore Sails,	Chain	240	18 1/8	40 p/ton	240	Bowers	2687	21.0.14	21.14.1.14	21.0.0	21 3/8 tons
	Fore Top Sails,	Swivel Chain	180	18 1/8	58 1/2 p/ton	180	Kedges	2705	21.0.14	21.13.1.21	21.0.0	21 3/8 tons
	Fore Topmast Stay Sails,	Swivel Chain	180	18 1/8	58 1/2 p/ton	180		2781	18.2.23	19.13.0.14	18.0.0	18 7/10 tons
	Main Sails,	Swivel Chain	180	18 1/8	58 1/2 p/ton	180						
	Main Top Sails,	Swivel Chain	180	18 1/8	58 1/2 p/ton	180						
	Warp	Swivel Chain	180	18 1/8	58 1/2 p/ton	180						

Standing and Running Rigging *are* sufficient in size and *good* in quality. She has *one* Long Boat and *three* others.
The Windlass is *Harfield and Co's Patent* Capstan *and* Rudder *Efficient* Pumps *are* *Good*.
Engine Room Skylights. How constructed? *are* How secured in ordinary weather? *are*
What arrangements for deadlights in bad weather? *are*
Coal Bunker Openings. How constructed? *are* How are lids secured? *are* Height above deck? *are*
Scuppers, &c. What arrangements for clearing upper deck of water, in case of shipping a sea? *Efficient ports. Mooring pipes*
Cargo Hatchways. How formed? *are*
State size Main Hatch *14 ft 6 ins by 9 ft 7 ins* Fore hatch *5 ft 3 ins by 4 ft 9 ins* Quarter hatch *5 ft 2 ins by 11 ft 7 ins*.
If of extraordinary size, state how framed and secured? *one portable iron shifting beam on chain hatch.*
What arrangement for shifting beams? *are*
Hatches, If strong and efficient? *Yes.*

Order for Special Survey No. <i>2610</i>	DATES of Surveys held while building as per Section 18.	1st. On the several parts of the frame, when in place, and before the plating was wrought	<i>Built under S. and surveyed 18 7/8 Jan. 23 Feb. 7 8 14 16 17 18 21 22 24 28 March 7 9 11 15</i>
Date <i>29 December 1875</i>		2nd. On the plating during the process of riveting	<i>16 20 22 25 27 28 30 31 April 3 4 6 10 12 18 26 28 29 29 May 2 5 8 11 15 16 18 19 22 23 24 25 26 27 30 31 June</i>
Order for Ordinary Survey No. <i>---</i>		3rd. When the beams were in and fastened, and before the decks were laid....	<i>12 10 12 14</i>
Date <i>---</i>		4th. When the ship was complete, and before the plating was finally coated or cemented..	
No. <i>114</i> in builder's yard.		5th. After the ship was launched and equipped	

General Remarks (State quality of workmanship, &c.) *The general quality of the workmanship, and the material used in the construction of this vessel are very good. The iron used in the construction of the masts and yards was subjected to special hot and cold Smithy tests and proved of very good quality. The 3/8" plates bent to an angle of 50° with the grain and about 16° across the grain, and the 5/8" plates to an angle of 60° with the grain and 20° across the grain (cold tests) before showing any fracture.*

She is Barque rigged has a raised quarter deck 39 feet long, a house on deck amidships built of iron 22 feet long by 11 ft 6 ins wide and a monkey forecastle 17 feet 6 ins long.

She has been built under Special Survey in accordance with the scantlings and arrangements shown on the accompanying approved tracing of Midship Section, with the requirements of the Secretary's letter dated the 16th December 1875 and in other respects with the rules, excepting

State if one, two, or three, decked vessel, or if spar, or awning decked; and the lengths of poop, forecastle, or raised quarter deck, and the length of double, or part double bottom.
How are the surfaces preserved from oxidation? Inside *Cement and Paint* Outside *Painted.*
I am of opinion this Vessel should be Classed *100 A.I. "Two decks" and C.P.*

The amount of the Entry Fee ... £ 5 : 0 : 0 is received by me, *W.H.*
Special ... £ 34 : 9 : 0 *14 June 1876*
Certificate ... *Grates*
(Travelling Expenses, if any, £ *---*).

Committee's Minute *16th June 1876*
Character assigned *100A*
W.H.

Lillian
1876
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