

IRON SHIP.

2046

No 3977 Survey held at Stockton
On the Screw Steamer "Ella"

Date, First Survey 28 Nov^r 1877 Last Survey 22nd March 1878

Master Mr George Harrison

TONNAGE under } 362.20
Tonnage Deck }
Ditto of Third, Spar, }
or Awning Deck. }
Ditto of Poop, or } 32.92
Raised Or. Dk. }
Ditto of Houses } 56.25
on Deck }
Ditto of Forecastle } 2.00
Stores }
Gross Tonnage } 444.14
Less Crew Space } 20.07
Less Engine Room } 148.55
Register Tonnage } 295.59
as out on Beam }

ONE, OR TWO DECKED, THREE DECKED VESSEL.
SPAR, OR AWNING DECKED VESSEL.
HALF BREADTH (moulded) 12.0
DEPTH from upper part of Keel to top of Upper Deck Beams 14.2
GIRTH of Half Midship Frame (as per Rule) 23.8
1st NUMBER 49.10
1st NUMBER, if a THREE DECKED VESSEL [deduct 7 feet]
LENGTH 158.92
2nd NUMBER 79.18
PROPORTIONS—Breadths to Length 6.6
Depths to Length—Upper Deck to Keel 11.2
Main Deck ditto

Built at Stockton
When built 1877— Launched 18th Feb^y 78
By whom built Richardson, Duck & Co
Owners J. M. Tennard & Son
Port belonging to Middlesbrough
Destined Voyage
If Surveyed while Building, Afloat, or in Dry Dock. while building

LENGTH on deck as per Rule 158 11 BREADTH—Moulded 24 DEPTH top of Floors to Upper Deck Beams 13 Power of Engines 55 No. of Decks with flat laid one No. of Tiers of Beams one

Dimensions of Ship per Register, length, 160.2 breadth, 24.25 depth, 13.0

KEEL, depth and thickness 7 1/4 x 1 1/8
STEM, moulding and thickness 6 3/4 x 1 7/8
STERN-POST for Rudder do. do. 6 1/2 x 3 3/4
for Propeller 6 1/2 x 3 3/4
Distance of Frames from moulding edge to moulding edge, all fore and aft 21
FRAMES, Angle Iron, for 3/4 length amidships 3 3 6/16
Do. for 1/2 at each end 3 3 5/16
REVERSED FRAMES, Angle Iron 2 1/2 2 1/2 5/16
FLOORS, depth and thickness of Floor Plate at mid line for half length amidships 14 6/16
thickness at the ends of vessel 5/16
depth at 3/4 the half-bdth. as per Rule as per midship section
height extended at the Bilges
BEAMS, Upper, Spar, or Awning Deck Single or d'ble Ang. Iron, Plate or Tee Bulb Iron 4 2 1/2 6/16
Single or double Angle Iron on Upper edge Average space 21
BEAMS, Main, or Middle Deck Single or d'ble Ang. Iron, Plate or Tee Bulb Iron 7 7 7/16
Single or double Angle Iron on Upper Edge Average space as per profile
BEAMS, Lower Deck, Hold, or Orlop Single or d'ble Ang. Iron, Plate or Tee Bulb Iron 3 3 6/16
Single or double Angle Iron on Upper Edge Average space as per profile
KEELSONS Centre line, single or double plate, box, or Intercoastal Plates 11 1/2 9/16
Rider Plate 2 9/16
Bulb Plate to Intercoastal Keelson 3 1/2 3 6/16
Angle Irons 3 1/2 3 6/16
Double Angle Iron Side Keelson
Side Intercoastal Plate do. Angle Irons Attached to outside plating with angle iron
BILGE Angle Irons 3 1/2 3 6/16
do. Bulb Iron 6 6/16
do. Intercoastal plates riveted to plating for length
BILGE STRINGER Angle Irons 3 1/2 3 6/16
Intercoastal plates riveted to plating for length
SIDE STRINGER Angle Irons 3 1/2 3 6/16
Side Stringer plate 12 7/16
Transoms, material. Knight-heads. Hawse Timbers. iron
Windlass Iron Pall Bitt

Flat Keel Plates, breadth and thickness
PLATES in Garboard Strakes, breadth and thickness from Garboard to upper part of Bilges of doubling at Bilge, or increased thickness, and length applied 1/2 length fm up. part of Bilge to Ir. edge of Sh'rstrake
Main Sheerstrake, breadth and thickness of d'bling at Sh'rstrake, & length applied from Mn. to Up. or Spar Dk. Sh'rstrake. Up. or Spar Dk Sh'rstrake, brdth & thickness
Butt Straps to outside plating, breadth & thickness 14 1/4 9 3/4
Lengths of Plating 105
Shifts of Plating, and Stringers 42
Gunwale Plate on ends of Awning, Spar, or Upper Deck Beams, breadth and thickness 23 7/16
Angle Iron on ditto 3 1/2 x 3 x 6/16
Tie Plates fore and aft, outside Hatchways
Diagonal Tie Plates on Beams No. of Pairs, Planksheer material and scantling
Waterways do. do.
Flat of Upper Deck do. do.
How fastened to Beams
Stringer Plate on ends of Main or Middle Deck Beams, breadth and thickness
Is the Stringer Plate attached to the outside plating?
Angle Irons on ditto, No.
Tie Plates, outside Hatchways
Diagonal Tie Plates on Beams, No. of pairs
Waterways materials and scantlings
Flat of Middle Deck do. do.
How fastened to Beams After
Stringer Plates on ends of Lower Deck, Hold or Orlop Beams
Is the Stringer Plate attached to the outside plating? yes
Angle Irons on ditto, No. 2 3 x 3 x 6/16
Stringer or Tie Plates, outside Hatchways
Flat of Lower Deck
Ceiling betwixt Decks, thickness and material in hold do. do.
Main piece of Rudder, diameter at head do. at heel
Can the Rudder be unshipped afloat? yes
Bulkheads No. 4 Thickness of 4/16
Height up to upper deck—aftermost to Lower Deck.
How secured to sides of ship between double frames.
Size of Vertical Angle Irons 2 1/2 x 2 1/2 x 7/16 and distance apart 30 ins.
Are the outside Plates doubled two spaces of Frames in length? yes

The FRAMES extend in one length from tank side to tank side—thence to gunwale Riveted through plates with 3/4 in. Rivets, about 5 1/2 apart.

The REVERSED ANGLE IRONS on floors and frames extend across middle line to side stringer plate and to upper deck 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 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 ins. from centre to centre.

Butts from Keel to turn of Bilge, worked carvel, double riveted; with rivets 3/4 in. diameter averaging 3 ins. from centre to centre.

Butts of 4 Strakes at Bilge for 1/2 length, treble riveted with Butt Straps 1/16 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 ins. from cr. to cr.

Butts from Bilge to Main Sheerstrake, worked carvel, double riveted; with rivets 3/4 in. diameter, averaging 3 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 1/2 length amidships. Butts of Upper or Spar Sheerstrake, treble riveted length amidships.

Butts of Main Stringer Plate, treble riveted for 1/2 length amidships. Butts of Upper or Spar Stringer Plate, treble riveted for length.

Breadth of laps of plating in double riveting 4 1/2 Breadth of laps of plating in single riveting 2 5/8

Butt Straps of Keelsons, Stringer and Tie Plates, treble, double or single Riveted? Treble & double

Waterway, how secured to Beams (Explain by Sketch, if necessary.)

Beams of the various Decks, how secured to the sides? by bracket knees No. of Breasthooks, 3 Crutches, 3

What description of Iron is used for Frames, Beams, Keelsons, Tie, and Stringer Plates, Outside Plating, &c.? good

Manufacturer's name or trade mark, Stockton M. & Co., F. H. & Co.

The above is a correct description.

Builder's Signature, Richardson, Duck & Co.

Surveyor's Signature, M. Davidson

Surveyor to Lloyd's Register of British and Foreign Shipping.

IRON 476 - 0533

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 butts.* 20467 *Iron*

Masts, Bowsprit, Yards, &c., are *wood* 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

NUMBER for EQUIPMENT <i>8709</i>		Fathoms.	Inches.	Test per Certificate.	Length & Size req'd pr Rule.	Test req'd per Rule.	ANCHORS.	No.	Weight. Ex. Stock.	Test per Certificate.	Wt req'd per Rule.	Test req'd per Rule.
No. <i>Complete</i>	SAILS.	CABLES, &c.					Bowers	3	<i>10.3.22 12.4.14 2.3.120 2.3.120 2.3.120</i>	<i>12.4.14 10.3.22 2.3.120</i>	<i>8.4 8.4</i>	<i>10.7.20 10.7.20 9.5.20</i>
	Fore Sails,	Chain <i>195 1/2</i>		<i>34.2.2.0 22.15.0.9</i>	<i>1 1/2 165 ft</i>	<i>30 1/2 20 3/10</i>	<i>(State Machine where Tested, Date, & name of Superintendent.)</i> <i>Reithum near Dudley 15th Feb'y 2nd March 1878 signed B.G. Lewis</i>					
	Fore Top Sails,	<i>15 1/2 x 2 1/4 Feb'y 1878 signed B.G. Lewis</i>										
	Fore Topmast Stay Sails	Hmpn Strm Cbl <i>992 ft 1/4</i>			<i>60 1/2</i>							
	Main Sails,	Hawser ... <i>80</i>			<i>75 1/2</i>		Stream	...	<i>10 1/2 x 1.0.3 3.2.13 6.0.3 22</i>		<i>3</i>	
	Main Top Sails,	Towlines ... <i>80</i>			<i>75 1/2</i>		Kedges	...	<i>1.2.12 2.5.4.1.14 2.12</i>		<i>1 1/2</i>	
and <i>new</i>		Warp ... <i>240</i>			<i>75 1/2</i>							
		quality <i>good</i>			<i>120 3/2</i>							

Standing and Running Rigging *Wire Hemp & Manila* sufficient in size and *good* in quality. She has *one* Long Boat and *another*
The Windlass is *Iron* Capstan *Iron* and Rudder *Iron* Pumps *Iron*
Engine Room Skylights.—How constructed? *Iron* How secured in ordinary weather? *Bulls Eyes*
What arrangements for deadlights in bad weather? *Tarpaning*
Coal Bunker Openings.—How constructed? *Iron* How are lids secured? *battens & tarpauling* Height above deck? *12"*
Scuppers, &c.—What arrangements for clearing upper deck of water, in case of shipping a sea? *Four ports on each side Gangways*
Mooring pipes and scuppers
Cargo Hatchways.—How formed? *6 1/16 plates*
State size Main Hatch *19' 3" x 11' x 6"* — 2' above deck Forehatch *7' x 7' x 2' 3"* above deck Quarterhatch *19' 3" x 11' x 2' 3"* above deck
If of extraordinary size, state how framed and secured? *Step Iron plate and two fore & aft as main & quarter hatch*
What arrangement for shifting beams? *—*
Hatches, If strong and efficient? *Yes*

Order for Special Survey No. <i>665</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>Nov^r 28; Dec^r 4, 6, 10, 12, 13, 17; Jan^r 7, 9, 14, 17,</i>
✓ Date <i>3rd Dec^r 1877</i>		2nd. On the plating during the process of riveting	<i>23, 24, 28, 31; Feb'y 4, 11, 14, 16, 18, 26 March 5, 7.</i>
Order for Ordinary Survey No.		3rd. When the beams were in and fastened, and before the decks were laid...	<i>11, 12, 14, 15, 18, 22,</i>
Date		4th. When the ship was complete, and before the plating was finally coated or cemented..	
No. <i>244</i> in builder's yard.		5th. After the ship was launched and equipped	

General Remarks (State quality of workmanship, &c.) *General quality of workmanship &c. — good.*
Raised Quarter Deck — all frames extend to top height — beams of angle iron *4 x 2 1/2 x 6 1/16* spaced at every frame — stringer plates on ends of beams *23 x 7 1/16* — angles on d^c *3 1/2 x 3 x 6 1/16* — plating outside *6 1/16* — decks iron *5 1/16*.
Forecastle — all frames extend to top height — beams of angle iron *5 x 3 x 7 1/16* — spaced at alternate frames — stringer plates on beams *15 x 5 1/16* — angles on d^c *2 1/2 x 2 1/2 x 5 1/16* — tie plates on beams *6 x 5 1/16* — plating outside *5 1/16*.
Ballast Tanks — frames cut — connection formed by knee plates — side plates *6 1/16* — angles on d^c *3 x 3 x 6 1/16* — web plates *5 1/16* — angles on d^c *2 1/2 x 2 1/2 x 5 1/16* — top plating *5 1/16*.

Additional strengthening at break of Raised Quarter Deck — Sheerstrake is doubled the whole of its depth — doubling *7/16* thick & 17 feet long — butts of sheerstrake well riveted in way of break — strake above sheerstrake is *7/16* thick and its butts together with butts of strake below sheerstrake are well riveted in way of break — The Raised Quarter Deck stringer plate extends 4 frame spaces fore side of break — the main deck stringer extends 7 frame spaces aft of break — and the lower Deck stringer & after hold works into the side stringer fore hold 9 feet fore side of break.

State if one, two, or three, decked vessel, or if spar, or awning decked; and the lengths of poop, forecabin, or raised quarter deck, and the length of double, or part double bottom. *114 ft 3 58 ft {30 feet in Engine Room 37 feet in After Hold}*
How are the surfaces preserved from oxidation? Inside *Portland cement & paint* Outside *paint*
I am of opinion this Vessel should be Classed *100 A 1*

The amount of the Entry Fee ... £ *5* : - : - is received by me, *100*
Special ... £ *22* : 4 : - *29th March 1878*
Certificate ... : : :
(Travelling Expenses, if any, £).
Committee's Minute *9th April, 1878.*
Character assigned *100 A 1* *Crown* *Double Bottom 67 feet 11 1/2*
Lloyd's Register
Davidson *It is submitted that this vessel is eligible to be classed 100 A. as recommended*
94/78

See Secretary's letter dated 19 Nov^r