

REPORT of SURVEY for REPAIRS, &c.

No. 20216 Port of *Newcastle* Received in London Office, SAT 10 APR 1887
 No. in Survey held at *Newcastle* Date, First Survey *28 Oct/86* Last Survey *31 March 1887*
 Reg. Book. *546* on the *S.S. Charles Howard* Master *S. Davies*
 TONNAGE: NET *849* GROSS *1304* UNDER DECK *876*

Built at *Sunderland* By whom *W. Pile* When *1866* 11
 Owners *A. Stuart* Port belonging to *Sunderland*

Owner's Address *(if not already recorded in Appendix to Register Book.)*
 If Surveyed Afloat or in Dry Dock *Afloat* Name of Dock *Walland & Co.* Destined Voyage *Patruia*
 Length of Poop *2* ft. of Forecastle *5* ft. of Raised Or. Deck *5* ft. Moulded Depth *6* ft. ins.

Last Survey, No. *6012* Port *NR* Classed *S.S. No. 3-87*
 (State clearly the cause of Repairs if any, and, in detail, the nature and extent of Examinations and subsequent Repairs. Repairs on account of Damage should be separated from Repairs due to other causes. State also the dates and initials of any letters respecting this case. *Letters dated 28.29 Oct/86. 2 Nov/86. 15 Feb/87*
 1. 5. 11. 18. 21 March/87 also 19 March/87
 REPAIRS, OR EXAMINATION AS PER RULE

This vessel has now been altered for carrying petroleum oil in bulk in accordance with the sketch of midship section and profile.
 The main and after hold is set apart for carrying oil in permanent tanks, and the space so occupied extends in the main hold from 8 inches before the boiler room bulkhead to 10 inches abaft the collision bulkhead, and in the after hold from 2 inches abaft the engine room bulkhead to about 9 inches before the after peak.

The tanks are built so as to form an inner shell 18 inches clear of the original shell of the ship, and extends from the ballast tank top to within a few feet of the upper deck; there is thus a vacant space round the sides, top and ends of the tanks, which can be entered when the tanks are filled with oil. A separate casing is also fitted round the masts.

The inner shell is formed of plating 6/16 of an inch in thickness, supported on the outside by angle iron frames running round the sides and tops and spaced 23 inches apart, the same being bracketed to the sides of the ship, and to

PRESENT CONDITION OF THE		Plating		Boats	
Decks	<i>Good</i>	Plank (Bottom) & Counter	<i>Good</i>	Ceiling	<i>None</i>
W	—	Treenails or Rivets	—	Rudder	<i>Good</i>
C	—	Breasthooks and Stems	—	Windlass & Capstan	—
J	—	Transoms, Pointers, & Crutches	—	Pumps	—
L	—	Timbers of Frame at the openings	—	Cement (if from ship)	—
W	—	Ditto ditto at other places	—	Caulking of Bot'm, D's, & Wat'rways	—
	—	Keelsons	—	Copper, or V.M. (State if on both)	<i>None</i>
	—	Clamps & Shells	—	When put on	<i>None</i>
Engine Room Skylights	<i>Good</i>	Coal Bunker, Openings, Lids, &c.	<i>Good</i>	Scuppers	<i>Good</i>
General Observations, Opinion as to Class, &c.:					
	<i>Good</i>		<i>Good</i>	Cargo & Main Hatchways	<i>Good</i>
				Hatches	—

This vessel is now in good and efficient condition and in my opinion eligible to remain as classed, and in consideration of the extensive overhaul eligible also to have the S.S. No. 3-87 recorded in the Register Book.

Entry Fee (if chargeable) per Scale I., Sec. 27. *4*
 Office Fee (if chargeable) per Scale II., Sec. 27. *—*
 Survey Fee (per Section 28) *40*
 Special Damage Fee (if any) (per Sec. 29) *—*
 Certificate (if required) to be sent to per margin *—*
 Travelling Expenses (if chargeable) *—*
 Second Surveyor's Fee (if any) *—*
 Committee's Minute *21 April 1887*
 Character assigned *Expensive class*
 S.S. No. *3-87*
 Confirmed *28 April 1887*
 R. Williams
 Surveyor to Lloyd's Register of British & Foreign Shipping

General Committee
9th June 1884
Class to be reconstituted

90 A 1 *[Signature]*

[Signature]
Missivey Committee
Secretary 14 Queen St

90 A 1
S. S. No. 3. 86
(L. M. 6-3. 86)

[Signature]
15/6/84

S/s. "Charles Howard"

and to the upper deck beams as per sketch. The bulks and edges of plating are lapped jointed and single riveted with $3/4$ rivets spaced about $2\frac{1}{4}$ inches from centre to centre, and the same carefully chipped and caulked.

The main hold is divided by a middle line longitudinal bulkhead, and also further sub-divided by 5 transverse bulkheads, the after hold is also divided by a middle line, and a separate casing is built round the original shaft tunnel eighteen inches clear of the same. The transverse bulkheads are formed of plating $5/16$ of an inch in thickness, and are connected to the sides, bottom, and tops of the tanks by a single angle iron frame, and stiffened on one side by vertical angle irons and bulk plates spaced about 6 inches apart and knees at the bottom, and also on the opposite side by horizontal angle irons spaced about 4 feet apart, and on the second angle iron from the bottom, a bulk plate is fitted and knee at each end.

The middle line bulkhead is formed of plating $5/16$ of an inch in thickness, and stiffened with vertical angle irons spaced about 2 feet apart, and also strengthened with diagonal angle iron stays on each side of the bulkhead. The bulks and edges are lapped jointed and single riveted with $3/4$ rivets spaced $2\frac{1}{4}$ inches from centre to centre.

Several defective plates on top of ballast tank removed, and an additional rivet put in between the original rivets in the lapped edges and bulks of plating, and the same carefully re-chipped and recaulked.

The water ballast tanks, and oil tanks have been tested separately by a pressure of water, the former to the height of the upper deck, and the latter to about 10 feet 6 inches above the crown of the oil tanks, and found tight and satisfactory.

Each oil compartment is fitted with a trunkway extending above the upper deck to allow for contraction and expansion a watertight plate cover is fitted to the top of the same, in which two (2) air pipes are fitted; these can be closed with a brass screw cover, so as to control escaping gases; they are also intended to be used as sounding pipes for ascertaining the height of oil in the tanks. Inside of the trunkway, a perforated plate cover is fitted level with the crown of the oil tank, so as to prevent the oil washing from side to side.

A steam pumping engine is fitted on the starboard side of lower deck, said to be capable of discharging 50 tons of oil per hour, a suction pipe is lead from the same to each oil compartment into a well sunk in the top of water ballast tank, and in addition to the above, there is also fire hand pumps fitted on the port side and ship's, said to be capable of discharging 54 tons of oil per hour. In the event of the oil getting down below the crown of the tank, provision is made to fill up the same by pumping in sea water - see sketch of pumping arrangements.

Seven ventilators (Messrs. Sharp's) are fitted on the upper deck, and

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and provision is made for removing any small quantity of gas that may be generated in the empty spaces in the neighborhood of the oil tanks by getting three steam jets by Messrs. Worthing & Co.

The electric light is fitted to the Cabins, Crew space, after hold, Main and fore hold, engine and boiler space, shaft tunnel, and bow lights, and in addition to the above the vessel is supplied with ten portable electric lamps, and six Davy patent lamps.

Bunkers for carrying 120 tons of liquid fuel are built on each side of the vessel in the fore hold and fore deck as per accompanying sketch. They have been tested by a pressure of water to a height of 8 feet above the crown of the same and found tight. The owners state that it is not their intention now to carry liquid fuel in these bunkers, but to carry it in the Main and after ballast tank instead. With view of isolating the fuel from the engine and boiler room bulkhead, the space inside of ballast ^{bulk} immediately before and abaft the engine and boiler room bulkhead is partitioned off from the other part of the tank with fire brick and portland cement, and the vacant space is filled with water so as to prevent the liquid fuel from coming in contact with the above named bulkheads. The supply of oil is drawn from the inside upper surface of the ballast tanks into two daily supply tanks (each containing 6 tons of oil), and as the oil is drawn off, the ballast tanks are kept full by admitting water from the sea. For position of these tanks see sketch.

All oxidation beaten off the inside and outside of vessel, and the surface cleaned and recoated with paint. The windlass, masts, yards, and general equipment examined and found good.

R Williams