

# REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of Belfast

Received at London Office 18

No. 4362 \*  
 Name of Ship S.S. Sultan Built at Belfast When built August 1894  
 Reg. Book. \_\_\_\_\_  
 Electric Light Installation fitted by W.H. Allen & Co London when fitted March 1894

## DESCRIPTION OF DYNAMO AND ENGINE.—

W.H. Allen's compound dynamo coupled direct to three piston twin triple expansion engine.  
 Capacity of Dynamo 170 Amperes at 62 Volts, whether continuous or alternating current continuous  
 Where is Dynamo fixed Port side of engine room on middle platform.

## LAMPS.—

Is vessel wired on single or double wire system double Total number of lights 140 arranged in the following groups:—

|          |           |                      |                     |  |             |         |
|----------|-----------|----------------------|---------------------|--|-------------|---------|
| A        | <u>34</u> | lights each of       | <u>16</u>           | candle power requiring a total current of                            | <u>16</u>   | Amperes |
| B        | <u>33</u> | lights each of       | <u>16</u>           | candle power requiring a total current of                            | <u>33</u>   | Amperes |
| C        | <u>21</u> | lights each of       | <u>8</u>            | candle power requiring a total current of                            | <u>10.5</u> | Amperes |
| D        | <u>14</u> | lights each of       | <u>16</u>           | candle power requiring a total current of                            | <u>16</u>   | Amperes |
| E        | <u>9</u>  | lights each of       | <u>16</u>           | candle power requiring a total current of                            | <u>9</u>    | Amperes |
| —        |           | Mast head light with | —                   | lamps each of  | —           | Amperes |
| —        |           | Side light with      | —                   | lamps each of  | —           | Amperes |
| <u>4</u> |           | } Cargo lights of    | <u>2 of 150 cp.</u> | candle power, whether incandescent or arc lights <u>incandescent</u> |             |         |
|          |           |                      | <u>2 of 250 cp.</u> |  |             |         |

If arc lights, what protection is provided against fire, sparks, &c. \_\_\_\_\_

## SWITCHES AND CUT-OUTS—

Position of Main Switch Board in bulkhead behind dynamo having switches to groups A.B.C.D.E of lights as above  
 Positions of other switch boards and numbers of switches on each \_\_\_\_\_  
 If cut outs are fitted to main circuit yes and to each auxiliary circuit yes  
 and at each position where cable is branched or reduced in size yes  
 If vessel is wired on the double wire system are cut outs fitted on each wire both wires being protected by fuses  
 Are the cut outs of non-oxidizable metal pure tin and constructed to fuse at an excess of 30 per cent over the normal current  
 Are all cut outs fitted in easily accessible positions placed in passages & alcoves.  
 In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas \_\_\_\_\_  
 How are the lamps specially protected in places liable to the accumulation of vapour or gas \_\_\_\_\_  
 Are all switches and cut-outs constructed of unflammable materials and fitted on unflammable bases State of protection used for towers in all cases

## DESCRIPTION OF CABLES.—

|                             |            |                       |            |             |           |                                    |
|-----------------------------|------------|-----------------------|------------|-------------|-----------|------------------------------------|
| Main cable carrying         | <u>140</u> | Amperes, comprised of | <u>37</u>  | wires, each | <u>16</u> | legal standard wire gauge diameter |
| Branch cables carrying      | <u>33</u>  | Amperes, comprised of | <u>19</u>  | wires, each | <u>18</u> | legal standard wire gauge diameter |
| Branch cables carrying      | <u>21</u>  | Amperes, comprised of | <u>7</u>   | wires, each | <u>16</u> | legal standard wire gauge diameter |
| Leads to lamps              | <u>1</u>   | Amperes, comprised of | <u>1</u>   | wires, each | <u>16</u> | legal standard wire gauge diameter |
| Cargo light cables carrying | <u>20</u>  | Amperes, comprised of | <u>115</u> | wires, each | <u>38</u> | legal standard wire gauge diameter |

The copper used has a conductivity of 98 per cent. that of pure copper.  
 Insulation of cables is guaranteed to have a resistance of not less than 2000 megohms per statute mile after 24 hours' immersion in seawater



DESCRIPTION OF INSULATION, PROTECTION, &c.—

2. varnished rather. 3. felt-tape is tinned bump run through insulating solution  
 wood casing used about ducts. Armoured and lead sheathed wire used in engine room  
 Joints in cables, how made, insulated, and protected Being first with cleaned and tightly braided together, are  
 then soldered. Coating of wire then tinned off. It remains mainly, covering of pure rubber. 2  
 felt. 3 pure rubber. is applied finally painted with insulating varnish.  
 Are all the joints of cables thoroughly soldered, resin only having been used as a flux joints well soldered. resin used as flux.  
 How are cables led throughout the ship from switchboard to top of engine room where they are run forward  
 by P & S passages in wood casing. These taken off from engine room on S side  
 on main ducts in wood casing.  
 What special protection has been provided for the cables in open alleyways along wood casing.  
 What special protection has been provided for the cables near galleys or oil lamps or other sources of heat lead sheathed & armoured wire used  
 What special protection has been provided for the cables near boiler casings armoured wire clip to bulkhead out near boiler  
 casing.  
 What special protection has been provided for the cables in engine room lead sheathed & armoured cables used.  
 How are cables carried through decks iron ducts tubes and through bulkheads fibre bushes.  
 Are any cables run through coal bunkers or cargo spaces yes If so, how are they protected along wood casing run  
 at side of ship close to ducts.  
 Are any lamps fitted in coal bunkers or spaces which may be used for cargo in cargo spaces  
 If so, how are they specially protected along with iron ducts fittings  
 Cargo light cables, whether portable or permanently fixed portable How fixed W. H. Allen cargo complex.  
 In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel —  
 How are the returns from the lamps connected to the hull —  
 Are all the joints with the hull in accessible positions —

TESTING, &c.—

Has the installation been thoroughly tested to its full capacity during a trial of 24 hours' duration  
 The insulation resistance of the whole installation was not less than ohms  
 The installation is Cambridge meter supplied with a voltmeter and — an amperemeter, fixed main switchboard

General Remarks.—

The foregoing statements are a correct description of the Electric Light installation fitted by us on this vessel and we declare that it is at this date in good order  
 and safe working condition.

FOR W. H. ALLEN & CO.

C.C.#

Electrical Engineers

Date

April 19th 94.

COMPASSES.—

Distance between dynamo and standard compass 108 ft.  
 Distance between dynamo and steering compass 96 ft.  
 The nearest cables to the compasses are as follows:—  
 A cable carrying 1 Amperes 12 feet from standard compass 2 feet from steering compass  
 A cable carrying 2 Amperes 9 feet from standard compass 4 feet from steering compass  
 A cable carrying Amperes feet from standard compass feet from steering compass  
 Have the compasses been adjusted with and without the electric installation at work at full power  
 The maximum deviation due to electric currents, etc., was found to be — degrees on — course in the case of the standard compass  
 and — degrees on — course in the case of the steering compass.

Builder's Signature

Date

A. L. Jones

Surveyor's Signature

Date

25

April 1894



Lloyd's Register  
 Foundation