

deficiencies? *yes*

REPORT ON MACHINERY.

21562

Port of *Newcastle*
 No. *21562* Survey held at *Newcastle* Date, first Survey *25 Jan'y* Last Survey *9th June 1888*
 Reg. Book. *S.S. Bellwara* (Number of Visits *19*) Tons
 on the
 Master *Shompson* Built at *Newcastle* By whom built *C. S. Swan & Hunter* When built *1888*
 Engines made at *Newcastle* By whom made *Waltham Shipway & Co Ltd* when made *1888*
 Boilers made at *"* By whom made *"* when made *1888*
 Registered Horse Power *300* Owners *Anglo Scandinavian Steam Ship Co Ltd* Port belonging to *London*

ENGINES, &c.—

Description of Engines *Two screw - Triple expansion in three cranks*
 Diameter of Cylinders *18. 28 1/2. 46* Length of Stroke *33* No. of Rev. per minute *110* Point of Cut off, High Pressure *24"* Low Pressure *25 1/2"*
 Diameter of Screw shaft *9* Diam. of Tunnel shaft *8 1/2* Diam. of Crank shaft journals *9* Diam. of Crank pin *9* size of Crank webs *5 1/2 x 10 3/4*
 Diameter of screw *12.0* Pitch of screw *12.6 at 4 1/4" 6 at 4 1/2"* No. of blades *4* state whether moreable *yes* total surface *40 sq ft in each*
 No. of Feed pumps *1* diameter of ditto *3 3/4* Stroke *18"* Can one be overhauled while the other is at work *yes*
 No. of Bilge pumps *1* diameter of ditto *4 1/2* Stroke *18"* Can one be overhauled while the other is at work *yes*
 Where do they pump from *Both from engine helix (3) holds, tunnel, wing tank suction*
 No. of Donkey Engines *Two* Size of Pumps *Ballast 10 x 10 x 10 x 10* Where do they pump from *Ballast from all tank*
suction, holds, helix tunnel, feed from sea & firewater
 Are all the bilge suction pipes fitted with roses *yes* Are the roses always accessible *yes* Are the sluices on Engine room bulkheads always accessible *yes*
 No. of bilge injections *2* and sizes *4* Are they connected to condenser or to circulating pump *yes*
 How are the pumps worked *by levers over condenser from wind engine*
 Are all connections with the sea direct on the skin of the ship *yes* Are they Valves or Cocks *both*
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates *yes* Are the discharge pipes above or below the deep water line *above*
 Are they each fitted with a discharge valve always accessible on the plating of the vessel *yes* Are the blow off cocks fitted with a spigot and brass covering plate *yes*
 What pipes are carried through the bunkers *none* How are they protected *yes*
 Are all pipes, cocks, valves, and pumps in connection with the machinery accessible at all times *yes*
 Are the pipes, cocks, and valves arranged so as to prevent an unintentional connection between the sea and the bilges *yes*
 When were stern tube, propeller, screw shaft, and all connections examined in dry dock *new vessel*
 Is the screw shaft tunnel watertight *yes* and fitted with a sluice door *yes* worked from *top platform*
common to both tunnels

OILERS, &c.—

Number of Boilers *Two* Description *Cyl. double ended* Whether Steel or Iron *Steel*
 Working Pressure *160 lbs* Tested by hydraulic pressure to *320 lbs* Date of test *April 20th 1888* No *2469*
 Description of superheating apparatus or steam chest *none*
 Can each boiler be worked separately *yes* Can the superheater be shut off and the boiler worked separately *yes*
 No. of square feet of fire grate surface in each boiler *92* Description of safety valves *spring* No. to each boiler *two*
 Area of each valve *11* Are they fitted with easing gear *yes* No. of safety valves to superheater *yes* area of each valve *yes*
 Are they fitted with easing gear *yes* Smallest distance between boilers and bunkers or woodwork *9* Diameter of boilers *12.9*
 Length of boilers *16.5* description of riveting of shell long. seams *double butt* Circum. seams *double thick lap* Thickness of shell plates *1 1/8*
 Diameter of rivet holes *1 1/8* whether punched or drilled *drilled* pitch of rivets *4 1/2* Lap of plating *16 1/2*
 Per centage of strength of longitudinal joint *85* working pressure of shell by rules *161* size of manholes in shell *16 x 12*
 Size of compensating rings *6 x 1 1/8* No. of Furnaces in each boiler *two*
 Outside diameter *36* length, top *70* bottom *flues* thickness of plates *1/2* description of joint *yes* if rings are fitted *yes*
 Greatest length between rings *yes* working pressure of furnace by the rules *166* combustion chamber plating, thickness, sides *3/8* back *yes* top *3/8*
 Pitch of stays to ditto, sides *8 3/8* back *yes* top *8 3/8* If stays are fitted with nuts or riveted heads *none* working pressure of plating by rules *161* Diameter of stays at smallest part *1 3/8* working pressure of ditto by rules *159* end plates in steam space, thickness *1 1/8*
 Pitch of stays to ditto *14* how stays are secured *As per* working pressure by rules *160* diameter of stays at smallest part *2 1/4* working pressure by rules *183* Front plates at bottom, thickness *1 3/16* Back plates, thickness *yes*
 Greatest pitch of stays *yes* working pressure by rules *yes* Diameter of tubes *3 1/8* pitch of tubes *4 1/2* thickness of tube plates, front *1 1/8* back *1 3/8* how stayed *tube* pitch of stays *9* width of water spaces *5 1/2*
 Diameter of Superheater or Steam chest *yes* length *yes* thickness of plates *yes* description of longitudinal joint *yes* diam. of rivet holes *yes*
 Pitch of rivets *yes* working pressure of shell by rules *yes* diameter of flue *yes* thickness of plates *yes* If stiffened with rings *yes*
 Distance between rings *yes* working pressure by rules *yes* end plates of superheater, or steam chest; thickness *yes* how stayed *yes*
 Superheater or steam chest; how connected to boiler *yes*

DONKEY BOILER— Description *Cyl. multitubular*
 Made at *Stockton* by whom made *Riley Bros* when made *9.5.88* where fixed *in deck*
 Working pressure *150 lb* tested by hydraulic pressure to *300* No. of Certificate *1874* fire grate area *22.5 sq* description of safety
 valves *sprung* No. of safety valves *two* area of each *6.30* if fitted with easing gear *yes* if steam from main boilers can
 enter the donkey boiler *no* diameter of donkey boiler *8.0* length *8.6* description of riveting *double butt straps*
 Thickness of shell plates *23/32* diameter of rivet holes *15/16* whether punched or drilled *d* pitch of rivets *7 1/4* lap of plating *7 1/4*
 per centage of strength of joint *85.3* thickness of *end* plates *25/32* stayed by *brass straps 12 1/4 x 12 rivets washers*
 Diameter of furnace, top *2.3* bottom *1* length of furnace *5.7* thickness of plates *17/32 x 3/16* description of joint *or 2 butt*
 Thickness of *end* furnace crown plates *1/2* stayed by *brass 6 3/4 pitch* working pressure of shell by rules *160*
 Working pressure of furnace by rules *157* diameter of uptake *1* thickness of plates *1* thickness of water tubes *1*

SPARE GEAR. State the articles supplied:— *Three eccentric straps, 2 packing rings for piston*
valves, 3 crank shafts, propeller trees, 4 blades. 2 Slide valve rods 11 in. of top and
and bottom end connecting rods. 2 Set corrugated valves for circulating pumps 1 2 Sets of corrugated
valves for Air Pumps *Lloyd's Spare Gear* *18 Coupling bolts, 4 top*
4 bottom & 4 main bearing bolts, 1/2 in. of top & bottom
for air, 1/2 in. nuts & ordinary engine room outfit.
 The foregoing is a correct description,
 L. Rusden Manufacturer.

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been constructed under Special Survey, the materials and workmanship are sound and good and eligible in my opinion to be classed + L.M.C 6.88 in the Society's Register Book.*

It is submitted that this vessel is eligible to have the notification + L.M.C 6.88 recorded

The amount of Entry Fee *3* : - : - received by me,
 Special *35* : - : -
 Donkey Boiler *1* : - : -
 Certificate (if required) *Gratis* : *13/6* 1888
 To be sent as per margin.

(Travelling Expenses, if any, £)

FRIDAY 15 JUNE 1888

Committee's Minute

+ L.M.C 6/88

John F. Wallis
 Engineer Surveyor to Lloyd's Register of British & Foreign Shipping.