CORRESPONDENCE

SIR,

Steaming on a Limited Number of Shafts

Commander Goodwin in his letter in Vol. 7, No. 1, invites figures from ships to check his arguments. Whilst serving in H.M.S. *Indefatigable*, I have obtained some data on steaming with two shafts driving and two shafts trailing.

Relationship of R.P.M.

Commander Goodwin's equation :—

$$\frac{\text{R.P.M. 2 Shaft}}{\text{R.P.M. 4 Shaft}} = 2{\cdot}2 - \frac{1{\cdot}2\ \text{R.P.M. 4 Shaft}}{\text{R.P.M.}}$$

From the ship's speed/r.p.m. curves for 4 shafts and the propeller pitch, the calculated value for the right-hand side of the equation = 1·20 over the range 10 to 25 knots.

From observations taken when trailing 2 shafts for periods long enough to obtain steady conditions, the following values were obtained for the left-hand side :—

at 12 knots :—1·195
at 15·9 knots :—1·203
at 20 knots :—1·216

Thus remarkably good agreement is obtained.

Speed of Trailing Shafts

For this ship, the normal slip is calculated to be 18 per cent (from speed r.p.m. curve and propeller pitch).

Hence, according to Commander Goodwin's approximate expression, the trailing r.p.m. should be about 68·5 per cent of the working shafts.

Various observed values were :—

at 10 knots :—55·7 per cent
at 15·9 knots :—59 per cent
at 20 knots :—62·8 per cent

The low value for the trailing shaft speed and its increase with speed is probably explained by the friction produced by a heavy coating of scale on the shaft liners in way of the ' A ' bracket bushes. It may be of interest to note that when getting under way on two shafts, the trailing shafts do not ' kick off ' until the working shafts reach about 60 to 70 r.p.m., equivalent to a ship speed of about 8 knots through the water.

I am pleased to be able to give this support to Commander Goodwin's calculations.

(*Sgd.*) R. A. CLUETT,
Commander (E) R.N.

SIR,

Some Desirable Warship Hull Characteristics

As a former Damage Control Officer of H.M.S. *Anson* during the last war I was delighted to read Captain Lefroy's article in Vol. 7, No. 3, together with D.N.C.'s comments.

Asymmetric flooding was a real bogey in the *K.G.V.* Class battleships, with their large empty side protection compartments, numerous longitudinal bulkheads low down, and difficult counter-flooding arrangements. The latter were not of a quality commensurate with the vital task of restoring the damaged ship to a reasonably upright condition, containing as they did a system of inefficient rod-gearing with the numerous operating handwheels scattered over the middle deck.

It is reassuring to learn from D.N.C. that the desirability of arranging subdivision to minimize asymmetrical flooding has now been recognized for many years. Engineer officers, in particular, are always keenly interested in such matters, and hear all too little of such important changes of design policy by D.N.C.

Perhaps an occasional inspired article in our *Journal* could be arranged, within the appropriate security limitations, to give the ' users ' some idea of the latest thoughts of the ' designers '.

(*Sgd.*) A. S. C. SANDERSON,
Commander (E) R.N.