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SECRET.

REPLY TO SIR NORMAN HILL'S MEMORANDUM OF JUNE 21,  
1917, ABOUT SUBMARINE LOSSES.

SIR NORMAN HILL'S appreciation of the submarine situation in the Atlantic during the months of April and May is in accordance with fact, but the conclusions at which he arrives cannot be accepted as a fair and well-informed criticism of Admiralty policy in dealing with this most difficult problem.

Whether the policy of concentration in waters near the coast and wide dispersion on the ocean is correct or not can only be judged with a full knowledge not only of the submarine problem in all its details, but also of the naval situation generally, together with the resources at our disposal to meet this and various other essential services.

Ever since the commencement of the submarine campaign the Admiralty has been faced with the problem of how mercantile shipping could best be protected with the forces available for the purpose. The protection of trade entering the United Kingdom from the Atlantic is but one of the many duties our patrol forces are called on to perform. Adequate provision has to be made for the protection of the continual stream of troop transports and supply ships crossing to France, and for oversea troop transports and munition ships. Of the auxiliary patrol vessels a large number are continually and necessarily employed on coastal escort duties, and over 500 are daily engaged in mine-sweeping work round our coasts.

After these services have been provided for, the number of vessels available for patrol work on the approach routes is entirely inadequate to provide effective protection to the oversea trade; and even these inadequate forces have to be depleted from time to time in order to provide for unexpected services which cannot be foreseen and over which the Admiralty has no control.

This lack of patrol vessels which has been pointed out on frequent occasions to the War Cabinet has immensely complicated the problem of providing protection for oversea traffic into this country, and since the beginning of the war various systems have been in operation to meet changing methods of attack and at the same time enable the most effective use to be made of the forces available for patrol duties.

When war broke out no special orders were in force as to vessels approaching our coasts, but the general principle of dispersal on the trade routes was instituted and has been maintained ever since.

In February 1915, when the Germans announced their intention of carrying out submarine warfare against merchant vessels, orders were issued for vessels when approaching or leaving the United Kingdom to keep a mid-channel course. This was merely following on the principle of dispersal on the trade routes, and worked fairly well while there were only a few submarines operating, and these only of comparatively low power. As time went on, however, the submarines increased in number, size, and power, and the experience of August 1915 (when a large number of submarines

operating off the south coast of Ireland, the entrance to the Bristol and English Channels, and in the Irish Sea sank a number of vessels well out in mid-channel) made it evident that some other system must be adopted.

The method of concentration was therefore brought into force along the south coast of Ireland, and all available patrols were concentrated there. Good results followed, and the system was gradually extended.

The result of this concentration led to the submarines operating further from the coast, and it consequently became necessary to bring vessels in on various approach routes. These approach routes were made as broad as possible, but were necessarily inadequately patrolled.

This system was put into operation in July 1916, and has been gradually developed since. Thus the general principle has been dispersion as far as possible up to certain points of concentration on the coast and thereafter a coastal route to destination, hugging the coast the whole way.

The same system was adopted for vessels leaving the United Kingdom, except that it is possible to hold these vessels up, or alter their routes to avoid areas in which submarines are known to be operating. This is not possible in the case of incoming ships, and, consequently, a larger proportion of losses have occurred in the case of the latter than of the former.

The increasing number of submarines operating off our west coasts has naturally led to increased losses of shipping, and the route which has suffered most severely is that off the south-west coast of Ireland, although it is on this route that our patrol force has mainly been concentrated.

No further alterations in the position or extent of the routes being possible, a new system of approach to the coast was recently introduced.

Briefly, the system is the establishment of a number of fixed lanes, the inner ends of which necessarily converge as they approach the coast, the outer ends being widely dispersed. The change from one lane to another is automatic by prearranged plan, an interval of one day being allowed between a change of lanes in order to give the patrol vessels time to take up their new positions.

This system, it is hoped, may for a time result in decreased losses, and it will gradually become inoperative as the convoy system extends. It has, however, the disadvantage inherent to any "lane" of traffic.

The problem of protection of the coastal routes, in spite of the additional danger from mines, is less difficult than that of the approach routes.

By making the shipping follow the coast-line closely submarine attack is limited to one direction, and a fairly effective patrol can be maintained by means of yachts, trawlers, drifters, and motor launches, some of which vessels, either on account of their sea-keeping qualities or want of speed, are not suitable for patrol in the open sea.

Sir Norman Hill not only condemns the Admiralty policy, but he plainly infers that it is in their power to give effective protection to merchant vessels if they choose to do so, and that the reason that such protection is not given is failure to realise the gravity of the submarine menace.

A grave charge such as this should be supported by the facts on which it is based, but Sir N. Hill confines himself to a loose expression of opinion that a sufficient force of destroyers and patrol vessels can be provided to guarantee against submarines the reasonable safety of an area of 10,000 or 20,000 square miles within from 200 to 300 miles of convenient ports. To limit the protection to 300 miles would, of course, be entirely futile; but accepting Sir N. Hill's figures, and taking into account only one such area as

he proposes, it may be as well to consider what force is required to establish and maintain such a patrol.

For deep-sea work destroyers or sloops are necessary. Smaller and slower vessels are unsuitable and ineffective, and experience has shown that one patrol vessel to every 15 square miles is the absolute minimum required to provide reasonable safety.

It follows that to establish and maintain a patrol over *one* area of 15,000 square miles a force of at least 150 vessels would be required, or approximately double the number estimated as necessary for a system of Atlantic convoy.

As at present the complete system of convoy cannot be established owing to insufficiency of patrol vessels, it is evident that a scheme involving the employment of double the force is quite impracticable.

But even were the force available, the method would be ineffectual. All the submarine has to do is to move further out and attack the shipping as it approaches or leaves the protected zone.

The whole of our war experience has shown that a fair measure of protection to shipping can only be guaranteed by a system of individual escort consisting of at least two fast patrol craft, or by arranging for ships to sail in groups with an escort on practically the same basis.

There is, unfortunately, no possibility of the number of fast patrol craft ever reaching the required figure, and palliative means must continue, combined with a vigorous offensive against any submarine that gives us a chance of attacking her.

J. R. J.

NAVAL STAFF,  
*July 1, 1917.*