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REPORT

OF

COMMITTEE

ON

ARMAMENTS OF HOME PORTS

1905

Appointed on 266/851

Reported on 266/892

Report of Committee on Armaments of Home Ports

1. At the first meeting on 23rd June, 1905, the terms of reference to the Committee were read, as under –

- (1.) To report what additions or alterations, if any, to the existing authorized fixed defences will be necessary at those ports at home from which it has been decided that the present submarine mining defences shall be removed.
- (2.) To report what alterations, if any, should be made in existing authorized anti torpedo-boat fixed defences of commercial ports at home.

The terms were subsequently altered to read as follows:-

2. The Committee were made acquainted with the following resolution of the Committee of Imperial Defence, passed at their 60th Meeting, viz:-

The Admiralty must be the sole authority for advising as to what class of hostile ships may reasonably be expected to attempt to enter certain waters and whether the attempt to enter such waters would ever be made.

3. In accordance with this resolution the naval members communicated to the Committee the following memorandum expressing the official views of the Admiralty:-

In connection with the work of the Conference on the fixed defences at ports in the United Kingdom the following fundamental principles represent those upon which, in the opinion of the Admiralty the whole question must be based:-

- (a.) It should be assumed throughout that the maritime supremacy rests with us, and that we are in a position to effectively frustrate any movements of the enemy's ships on a large scale with a brief period of their commencement.
- (b.) In view of (a.), the object of fixed defences at any point where there might exist some inducement to attack, is not to provide a permanent protection against prolonged operations, but to threaten the enemy with the infliction of sufficient damage to make him fight our fleet at a disadvantage when it arrives on the scene, and thus probably deter him from attacking altogether. The operation of this principle has been clearly exemplified in the two most recent maritime wars, on both sides.
- (c.) Where the prompt arrival of a force of our own is not a reasonable certainty, as might, for instance, be the case when a single cruiser attempted a rapid raid on a relatively remote commercial port, the defences should be regarded as a sufficient deterrent to make the enemy turn his attention to less hazardous undertakings. A very moderate scale of defence will answer their purpose, as a raiding cruiser has always the commerce at sea for an alternative objective, and when a choice of defended and undefended objectives is before her she is generally likely to select the latter, however slight the defence of the former may be. This principle also has received practical illustration in the recent war.

4. The Secretary laid before the Committee lists of the ports included in their terms of reference.

All these ports with the exception of Sunderland and Barrow for which the provision of fixed defences has been temporarily postponed have been or are being defended, in accordance with the recommendations of the Joint Naval and Military Committee, against scales of attack laid down by them and shown in "Instructions on Defence Matters, 1904." (The Committee mentioned ceased to exist in 1904.)

Owing to some years having elapsed since these scales of attack were formulated, and it being understood that the Admiralty views as to naval attack of ports have been modified, on the experiences of recent wars, the Committee were of opinion that a complete revision of the scales of attack was necessary before they could properly consider the matter submitted to them.

The Admiralty being now the sole judges as to the nature of naval attack reasonably to be expected, the naval members were requested to obtain from the Admiralty an officially revised list of "Scales of Attack" to take place of those existing, for the use of the Committee.

The actual questions put to the Admiralty and their replies were as under –

(1.) Question –

The Committee on Armaments of Home Ports desire the following information to enable them to report fully in accordance with their terms of reference:-

A definite statement of the scales of attack which the fixed defences of home ports should be designed to meet. (The scale of attack as laid down in the "Instructions on Defence Matters 1904." Seems to require revision and alteration in terms, to act as a basis of computation.)

Answer:-

As a general rule it may be accepted that the only targets against which a battleship would expend her heavy ammunition are a hostile warship or a hostile naval base at which there was such a collection of stores and repairing facilities that their destruction would cause appreciable embarrassment to the enemy. This form of attack – which for convenience might be designated as class "A" – might therefore be expected at Portsmouth, Plymouth, and the Medway, and Pembroke, if any of these ports were left undefended.

The next most serious form of attack is that by armoured cruisers which may be referred to as class "B". As a rule this type of vessel will be reserved for use in conjunction with the battleships against the enemy's main fleets. It might occur, however, that the enemy's main fleets were not in sufficient strength to offer battle, in which case it is understood to be the intention of one foreign Power at least to carry on the war by using their armoured cruisers to raid our mercantile shipping. The actual points of their attack would usually be on the trade routes on the high seas as giving to best chances of evading observation. It might happen, however, that at certain points relatively remote from our naval centres and easy of approach, collections of shipping would be found offering an inducement to attack, and in certain other localities port of refuge for chased ships might be found desirable. Such points, therefore, should receive a measure of protection. Under no circumstances is it considered probable that attack would be made where intricate pilotage is required, or

where the shipping was beyond easy and direct range. Rivers, therefore, do not come under the category, and the ports at which it would appear reasonable to prepare to deter armoured cruiser (or class "B") attack are Cork, Berehaven, Lough Swilly, and the Forth. All of these are relatively remote from our chief naval centres, close to important trade routes, easy of approach, and facing open water.

Lastly, there is a form of attack less formidable than either of the above such as would be carried out by light unarmoured vessels of small value for other duties, which may be designated as class "C." These vessels, like the armoured cruiser, would usually confine their attentions to the trade routes, but undefended shipping anchored in smaller quantities than would be worth the attention of armoured cruisers might suffer at their hands, and, moreover, the relative unimportance and greater number of the vessels themselves would tend to help them to evade more frequently our own cruisers. The small measure of defence necessary to deter their form of attack is therefore advisable at the principal commercial ports not provided with defence against class "B."

Certain other ports require special consideration. Portland and Dover are enclosed war anchorages constructed to protect fleets against torpedo-craft attack. To what extent they would actually be put to use must depend on the nature of the work our fleets happen to have in hand, and is difficult to foretell, but, as in any case they might be resorted to by auxiliaries and colliers in the absence of the main body, it is advisable to protect them against the possibilities of armoured cruiser or class "B." attack.

Under past policy the Thames has been provided with strong defences at points 15 miles above the Nore, and, therefore, far up the estuary. In view of the facts, however, that attacking ships would have to navigate pilotage waters for many miles before approaching commercial shipping, and would necessarily first pass within good effective range of the formidable armaments in position at Sheerness, the likelihood of attack on the commercial port is practically non-existent under modern conditions.

(2.) Question.-

With reference to the fixed defences of the Scilly Island and Braye Harbour, Alderney –

It is understood that the Scilly Islands are no longer to be used by the Navy for other than signalling purposes in war.

The Committee therefore, presume that no scale of sea attack need be guarded against.

On the other hand, it is understood that Braye Harbour, Alderney, will continue to be used as a torpedo-boat base in time of war.

The Committee, therefore, would be glad to know what scale of sea attack should be guarded against.

Answer –

“SCILLY”

From neither a naval or commercial point of view are there sufficient inducements to an attack on the scale which would require to be met by fixed defences. No such defences are therefore considered necessary.

“ALDERNEY”

Braye Harbour, Alderney, may be used in war as a torpedo-craft anchorage. The scale of probable attack from the sea would not be likely to exceed that by an unarmoured cruiser. The scale of probable attack from the sea would not be likely to exceed that by an unarmoured cruiser.

5. The Committee have based their deliberations on the scales of attack revised in accordance with the foregoing principles.

A list comprising all ports for which fixed defences are considered necessary and showing the scale of attack to which each is considered liable is given in Appendix I. This list has received the concurrence of the Admiralty.

6. As regards the anti-torpedo craft defences, the ports to be defended against seagoing torpedo craft are laid down in the list given in Appendix I.

The Committee observed that only certain naval ports were included in this category. As, however, it had been the policy hitherto that all principal ports – commercial as well as naval – situated within 300 miles of a possible base for hostile torpedo craft should be defended against this form of attack, a definite expression of Admiralty opinion was asked for with regard to commercial ports – whether such were to be considered as completely guaranteed by the Admiralty from torpedo-boat attack?

The answer received was –

The Admiralty do not consider that absolute certainty in warfare of any kind can be predicted, and no department can therefore be expected to accept the responsibility of “completely guaranteeing” that a particular form of hostile operations will not take place. The most that can be reasonably asked is that the chances of success shall be reduced to a minimum, which in the case under consideration is already provided for by the maintenance of so large a force of torpedo-boat destroyers that no hostile torpedo-boat would be able to put to sea except at great risks. As they would be urgently required by the enemy in connection with the major operations or war as long as even a few British battleships remained afloat, they are extremely unlikely to be thrown away in facing the above risks for the sake of attempting subsidiary operations. That being so, attacks by torpedo craft on commercial ports are regarded

as too improbable to justify special expenditure, and we should bet better value for our money by diverting such outlay to other and more effective forms of defence.

7. As the Committee proceeded with their enquiries several other points arose as to which it seemed necessary to obtain the formal opinion of the Admiralty. The actual questions forwarded and the replies of the Admiralty are as below –

(a.) Question –

With regard to the scale of attack in any particular case what amount of injury to the attacking force would be considered sufficient to attain the object mentioned in subparagraph (b) of the memorandum quoted in paragraph 3 above, I.e., to threaten the enemy with the infliction of sufficient damage to make him fight our fleet at a disadvantage when it arrives on the scene, and thus, probably, deter him from attacking altogether.

Answer – In view of the supreme value of armoured vessels in war and their great cost and consequent small numbers, it is very improbable that a squadron would undertake a subsidiary operation such as the attack on a port, if the defences were of such a nature that the attackers would run the risk of losing even one of their number.

(b.) Question –

Is the probability of armoured ships running past forts, which do not fire over illuminated waters, by night, with a view to bombardment by daylight, so remote as to render the defence of inner waters by heavy guns unnecessary?

Answer – The probability of armoured ships running past forts which do not fire over illuminated areas by night, with the intention of bombarding inside positions by daylight is too remote to justify a special heavy gun defence of the inner waters at places where the vessels so engaged would run a risk of having their retreat on open water cut off by a superior force, or of encountering within those waters torpedo craft or vessels extemporized as such. This would be the case at all the defended ports in the United Kingdom.

(c.) Question –

Is the form of attack by “blockers,” i.e., vessels sent in to ports by night to be sunk in the fairway, one which should be prepared for and guarded against?

Answer – Attack by “blockers” is an operation which may take place at the ports where, by the conformation of the approaches, its execution is facilitated, and at which the results of a successful attempt would be sufficiently important to compensate the enemy for the certain sacrifice of the ships employed.

Where the advantages offered are great, such as the closing of a naval base, with its possible effect upon the movements of large forces and consequent frustration or delay of important strategic plans, the sacrifices accepted may be considerable. For example, the Japanese expended altogether about 18 steamers in their various efforts to close Port Arthur. At such of the naval bases as lend themselves to blocking a relatively considerable measure of protection against this form of attack is therefore necessary.

It may be anticipated that it will be the object of the blockers to reach the narrowest part of the channel. At ports where they can be kept under fire for a considerable period before doing so the number of guns required to stop them is comparatively small. At ports on the other hand at which they have only a short distance to traverse under fire the number of defending guns should be proportionately large, as they must be stopped very quickly. Port Arthur is again an example of the latter, When the Japanese blocking ships entered the illuminated area outside the entrance and became visible to the batteries they were already within a mile of the objective, and required to be disabled in something under 5 minutes

Where the inducement to block is of a comparatively unimportant nature, as for example a stoppage of commercial traffic at some point, the enemy is less likely to face considerable losses, and a minor degree of defence should consequently suffice.

Six-inch ordnance is preferable to other calibres, on the whole, for dealing with blocking ships, as they are not likely to be armoured, and high rate for fire rather than a high power of penetration is what is required. Where the range is very short, 4.7.inch ordnance would probably answer.

The entrances to Portsmouth, Plymouth, Portland, Dover Naval Harbour, the Tyne and the Tees are all sufficiently contracted at some point to making blocking feasible, and require the necessary measure fo protection according to their importance as naval or commercial ports.

(d.) Question –

It has been suggested to the Committee that in connection with torpedo craft attack, vessels, say, or the type of “blockers” as above, might be employed in the attack, for the purpose of breaking through the boom and opening the way for torpedo craft.

Answer – Where booms are placed in line with the advanced defences, as at Portland and Dover, they may possibly be exposed to the risk of being broken through by vessels clearing a way for torpedo craft, and defensive precautions should be taken. The type of vessel most likely to be employed and the scale of protection required is very much as in the case of blocking ships dealt with above. Portland and Dover are the only harbours in the United Kingdom reasonably subject to this risk, to which Sheerness will have to be added if the Medway boom is moved further down according to recommendations now before the Admiralty.

(e.) Question –

Supposing the target to be a naval dockyard, up to what ranges is the possible effect of 12-inch shell fire from a ship, observed and unobserved respectively, sufficiently serious to require to be guarded against by fixed armament?

Answer – The target offered by a dockyard as a whole is so large that it should be possible to place the great majority of shots fired within its total area up to extreme ranges if the firing is carried out by a ship in smooth water.

At the same time considerable spaces within this total area are either vacant or occupied in such a way that the explosion of a shell therein would not effect damage of importance, and it is only when such objects as a dock gate, a ship on the slips or in a basin, an important workshop, or a large store of inflammable materials are hit, that the results may prove serious.

Where the fire can be directed, therefore, by an observer near the target, so placed as to be able to watch the actual fall of the projectiles, it should be provided against up to extreme ranges, that is to say, about 18,000 yards.

Actual experience on this point is practically confined to the two cases in which the Japanese ships fired into Port Arthur from positions in which they were not exposed to a return fire. In the first of these cases a short bombardment was carried out from behind the Liau Tung Promontory at a range of 13,000 to 14,000 yards. The ships were under weigh, steaming slowly, and the fire was watched but not controlled from another ship about 15,000 yards from the target at right angles to the line of fire.

This was too distant for accurate observation, but it was reported that the majority of shots fell within the target.

In the second case, which was really an experiment rather than an actual attack, the Japanese cruisers "Nisshin" and "Kasuga" fired a few rounds from a range of 19,000 to 20,000 yards, with what actual effect is not known.

It is noteworthy in connection with this question that in several foreign navies new gun mountings are designed with a view of permitting the use of extreme elevation as regards the ballistic powers of the guns. This points to the conclusion that very long range bombardments are considered worthy of attention.

- 8. It is solely upon the above quoted resolutions of the Committee of Imperial Defence, the memorandum and replies of the Admiralty to questions formulated, and the list of ports with scales of attack supplied to them (Appendix I.), that this Committee now base their recommendations, with regard to the armaments of Home Ports. In making them they have taken naval attack only into consideration, and have regarded attacks of the nature of landings as outside their terms of reference.**
- 9. The following remarks are submitted by the Committee to explain generally the reasons for their recommendations regarding the fixed armaments of various ports.**

(i.) Defence against Armoured Ships

The Admiralty have expressed their opinion, in the official communications, previously quoted, and also through their representatives on the Committee, that armoured vessels will not attempt to close with forts, but will confine their attack to bombardment of their objectives at long range; and further, that unless observation of the effects of bombardment can be made, by the enemy, from a point near the target, it is not reasonably to be supposed that such bombardment will take place at a range exceeding 10,000 yards.

With regard to the heavy and medium armament, the Committee had to consider what amount and nature of gun fire might reasonably be taken as sufficient to inflict on a ship, at such maximum range from her target, the amount of damage they were informed would be deterrent, i.e., the amount which would so effect the fighting value of a ship as to put her at a serious disadvantage in a subsequent naval action.

Taking into consideration armour of the present day and its application to ships or war, and also bearing in mind the vulnerability of a large portion of the vessel to lyddite common shell

of 380lbs., the Committee are of opinion that 9/2-inch guns, MarkIX and X., have sufficient power against all armoured ships under existing conditions.

It has been brought to the notice of the Committee that 12-inch guns have been proposed for certain coast defences. The angle of elevation and descent at long ranges of the 9.2-inch gun do not differ to such a degree as materially to affect long range shooting. In life and rapidity of fire on the other hand the 9/2-inch gun is greatly superior to the 12-inch gun. In these circumstances the Committee do not recommend the mounting of any larger nature of gun than the 9.2-inch gun.

As regards the equipment of the 9.2-inch gun, its armour-piercing shell appears to be competent to deal with K.C. armour of about 6-inch thickness, up to a range of 6,000 yards.

The Admiralty hold that it is not reasonably probable that armoured ships will expose themselves to the fire of shore batteries within that range, the Committee, therefore, suggest that, for the 9.2-inch guns, the present percentage of 60 armour-piercing shell should be reduced to 30 per cent, where the defence is calculated as against "A" scale of attack, and to 10 per cent, when it is against "B" scale.

With regard to the 6-inch guns – as it is now considered most improbable that armoured ships will close within effective range of these guns – their removal has been recommended at ports liable to Class "A" or "B" attack, unless they are required for other purposes.

Generally speaking, it may be well to point out, as has already been indicated, that the object of the enemy's ships, so long as we hold command of the sea, will be to injure what the shore batteries defend. They will not be able to spare the necessary ammunition, and the Admiralty consider that they cannot hope to have the time. To mount guns of greater power would be extravagance, while guns of lesser power would be useless.

(ii) Defence against Unarmoured Ships.

Regarding "C" scale of attack by unarmoured ships, armour piercing does not come into the question, but it is important to have rapidity of fire, combined with as great shell power as possible. The Committee have, therefore, recommended 6-inch guns, MarkVII. * for defence against such attack.

As the Admiralty are of opinion that the objective at some ports may be sufficient to induce unarmoured ships to attempt raids at night, including running past batteries, the Committee consider that certain batteries armed with 6-inch guns should be provided with electric beams, for "fighting" lights, and that they should be manned by night, as well as by day.

Regarding the equipment of these guns, it is recommended that there should be 10 per cent of A.P. shell, but the remaining 90 per cent should be lyddite, common.

(iii) Defence against ships attempting to block channels by sinking in them- referred to as “blockers” – and against ships trying to break through booms, which may be called “boom smashers”

It is understood that mercantile steamers would be utilized for these purposes. They would always attack by night, and it is important to stop them in a short space of time. Great rapidity of fire is therefore essential, and as these vessels may be of considerable size, the shell should be powerful.

The Committee have recommended 6-inch B.L. Mark VII guns for this purpose and have endeavoured, by their proposals as to electric light, to secure the best possible illuminations to serve these guns.

Where 9.2-inch guns fire over water illuminated as above, they recommend that these guns should be manned by night and take part in the defence; this is especially important where booms have to be placed in forward or exposed positions. All the projectiles for 6-inch guns mounted for the above purpose should be lyddite common shell.

(iv.) Anti-torpedo-craft Defence

While recognizing the great value in rapidity of fire and economy in space and in personnel possessed by the 12-pr. Q.F. gun, the Committee, in view of the increase in size, &c., of the destroyer, are of opinion that the 4.7-inch gun has so much more shell power as to give it advantages in spite of much loss in rapidity of fire. Consequently in cases where the range is considerable and also where the space only admits of a small number of guns being mounted, the Committee in certain cases have recommended the retention of 4.7-inch guns. Their fire is more likely to disable quickly and so to admit of change of target without delay.

The Committee are of opinion that 6-inch guns firing over illuminated areas or provided with fighting lights, in accordance with their recommendations, can be used with great effect against torpedo craft, and in their proposed alterations they have taken the support to the lighter guns into consideration.

The Committee observe that at certain ports heavy R.M.L. guns are used with case shot. Naval experiments have proved that such a form of defence is extravagant and useless; the Committee, therefore, recommend that such gun should in all cases be removed.

In certain exceptional cases, 6-inch Q.F. guns already mounted may be retained for the present.

(v.) Brennan Torpedo

The Committee have fully considered the possibilities for use of the Brennan torpedo for defence at the various ports. These torpedoes appear in most cases to have been installed as an adjunct to other fixed defences, particularly with a view to frustrate a close attack of warships. The comparatively short range of these weapons, limited as it is to about 2,000 yards, and the somewhat retired positions in which the shore installations must necessarily be

sited, render them useless against any form of attack which may be expected by day. As compared with guns against any form of attack which have been considered possible by night, difficulties in estimating the correct time for launching a torpedo, due to the invisibility of the target until it is comparatively close and the slow rate of fire, militate against their efficiency.

The Committee have therefore, recommended the removal of all Breenan installations from fixed defences.

(vi.) Electric lights

It has been hitherto been laid down that electric lights should as a rule be fixed divergent beams and should be used almost exclusively for the illumination of definite areas of water in connection with the defence against raiding attack, and also that their employment with heavy armament need not be considered.

The Committee in previous paragraphs have, however, recommended the use of medium and even heavy armament by night, and in order that the fire of such armament may be developed at the greatest possible range, they recommend in many cases the installation or conversion of existing lights into "fighting lights."

The Committee recommendations as regards lights are summarised in Appendix II

(vii.) General Remarks

The number of guns required depends much upon local conditions, which have been carefully considered by the Committee, in consultation with the local Commanders.

In every instance the Committee have limited the number of guns of each nature, recommended by them, to the minimum required, in accordance with local conditions, to meet the scale of attack to be provided against, laid down by the Admiralty. It has been assumed that the material, both gun, mounting and adjuncts, as recommended, will be of the most modern and efficient type, and that it will be manned by efficient troops trained on the guns they will have to fight.

The Committee are of opinion that, in many cases, where the coast line admits, the guns of fixed defences can be given greater advantages by the installation of posts on the flank in electric communication with the batteries for the observation of fire.

10. In accordance with the forgoing considerations, the Committee make the following detailed recommendations. These recommendations are summarised in Appendix III., IV., And V.:-

Ports liable to Class "A" Attack

Portsmouth

The Portsmouth defences, as in the case of nearly all our defended harbours, have been designed and sited with a view to meeting the close –range attack of vessels trying to force an entrance, rather than the very long-range bombardment rendered possible by modern ordnance. As it is the latter description of attack rather than the former which must now be anticipated, it may be said that the existing disposition of the guns give an excessive volume of fire over some areas and insufficient over others.

Eastern Entrance – Heavy Armament.

The Committee are of opinion that the possibility of bombardment of the dockyard by a battleship from any water, up to a range of 10,000 yards (coloured red on Chart No.1) is sufficiently provided against by the existing guns.

Belfast

Armament

The armament at present approved, viz., 2 – 6-inch B.L. Mark VII., guns at Grey Point Fort Battery and 2 – 6-inch B.L. Mark VII., guns at Kilroot Battery, is considered necessary, and adequate against class "C" attack.

Electric lights

No lights considered necessary.

The Channel Islands

The Committee consider that the approved armaments of Jersey, Guernsey, and Alderney are somewhat in excess of that required to resist the raids of an unarmoured cruiser on St. Helier's St. Peter's Port, and Braye Harbour, respectively, They, however, have taken into consideration that the conditions regarding the defence of the Channel Islands are different from those which obtain with regard to home ports, and are of opinion that the present approved armaments in each case should be retained.

PORTS HITHERTO DEFENDED AT WHICH NO FIXED DEFENCE ARE NOW CONSIDERED
NECESSARY

The Scillies.

The present approved armament of the Scillies is for the protection of St. Mary's Port, as an advanced signal station and base of operations for the fleet covering the Channel, against attack by a cruiser as

well as by torpedo craft. In view, however, of the Admiralty opinion expressed in paragraph 4, page 7, that no fixed defences are necessary, the fixed defences now provided are superfluous.