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Section	1
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Year 1912

No. 101

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Contents The Temporary Naval Advance Base.

(Lecture delivered at Summer Conference 1912)

ARCHIVES OF U. S. NAVAL WAR COLLEGE
NEWPORT, RHODE ISLAND

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THE TEMPORARY NAVAL ADVANCE BASE.GENERAL CONSIDERATIONS.

Throughout this discussion it will be necessary to keep in mind the distinction between the Permanent Base and the Temporary Naval Advance Base. Even though a country should, in time of peace have completed and equipped all the needful chain of permanent strategic bases yet, should war arise, the Temporary Advance Base would generally be a necessity. For this reason a fleet, lacking the resources for acquiring such a base when needed, must, of necessity, be considered woefully unprepared.

The location of this base can not be determined until hostilities have commenced, and, once decided upon, may be changed as the circumstances of war dictate.

It is recognized that the modern man-of-war demands a most elaborate system of maintenance and supply -- something more is necessary than bases for the mere re-victualling and watering of ships as in former days. Modern ships must be docked, machinery overhauled and otherwise renovated; and the replenishing of such supplies as coal is an absolute essential. These are necessities even in time of peace, and, in the words of Caldwell "war merely increases existing strain and does not create it."

Whereas in time of war the presence of a fleet in a particular locality results in the control of the sea at that point; it is the existence of some base in that area which makes the presence of the Fleet possible.

Now as the situation of a permanent base make possible the operation of a fleet in a particular strategic area -- so will the situation of a temporary base within this area be the means by which the fleet will be enabled to keep in actual touch with the enemy.

Without such a base, the protection of the attendant

coal supply might prevent a commander from taking the offensive, though in command of a superior naval force.

"The strategic conditions of naval warfare (says Caldwell) are often such that one of the belligerents has no suitable base to depend on in the theatre of actual warlike operations, even when having at command the fighting resources necessary for acquiring a harbor adapted to the purpose;" That either of the belligerents would be without the fighting resources necessary for acquiring a base when needed, does not seem to be worthy of consideration. Such lack of forethought expressed in this instance would probably be indicative of a general lack of forethought in other vital matters.

The history of the Russo-Japanese War gives a notable example of the selection and location of an advance base which was within easy steaming radius of a home base, in fact within a few hundred miles, and yet the Japanese considered the Elliott Islands necessary as a base for its fleet operating before Port Arthur. The occupation of this advance base by the Japanese permitted the main fleet to lie in comparative security and rest while the duties of observation and guard were performed by a few, thus protecting the main fleet from exposure to heavy seas and inclement weather which it might otherwise have experienced.

It is obvious that having the coal supply at a base near or within the actual theatre of operations increases the power of the fleet depending upon it.

TACTICAL CONSIDERATIONS AFFECTING THE SELECTION OF THE BASE.

The approximate location of the base will be determined by the circumstances of the War; the exact location, where more than one position is available, must depend upon a comparison of tactical qualities such as;

- (a) Good berthing space for train and one half the fleet.

- (b) Good anchorage protected from the elements.
- (c) Easy of entrance or egress.
- (d) Capable of quick defense by moderate forces from sea and land.
- (e) Approaches such that they can be covered by shore batteries.
- (f) Adaptability of entrance to mining.
- (g) Inadaptability of approaches to mining.
- (h) Impracticability of bombardment from sea.
- (i) Small range of tide and weak tidal currents.
- (j) Healthful climate, good water and abundant resources.

It is not probable that all these qualities will be found in any one place but having a suitable harbor capable of defense by a moderate force it may be possible, by artificial means to improve the others sufficiently for all practical purposes.

A small island with but one harbor will generally present the best conditions for defense by a moderate force but if, from necessity, a position on the mainland is selected it should be so surrounded by natural obstacles as to minimize the disadvantages involved in the location.

Had Port Arthur been separated from the mainland by a few miles of water its capture undoubtedly could have been postponed if not averted either of which might have made a wonderful change in the subsequent event of the Russian-Japanese War. To quote from the report of Major Kuhn, U.S.A. "Without General Nogi's Army it would have been impossible to dislodge General Kuropatkin's from his strong position before Mukden and even with the Army it is extremely doubtful whether the Japanese could have won their success at any other time than in winter. In my judgment it is not too much to say that the entire fate of the Mukden campaign was intimately connected with the period of the fall of Port Arthur; Whereas, the ground was frozen and the passages of all rivers practicable at all points at the time of the battle, a few

weeks later the rivers were ice free and the ground to the west of Mukden so boggy that it was difficult to move about on horseback.

The disastrous effect of the fall of Port Arthur is only cited to bring forcibly to mind the equally disastrous result which may attend our fleet should its train, for want of a proper refuge, be destroyed by an enemy.

Since naval bombardment must play the principle part in the reduction of an island position it is interesting to note the effect which such bombardment had on the defenses around Port Arthur. (From Artilleristische Monatshefte) March 10, 1904 the Japanese fleet fired about 155 heavy shell resulting on the Russian side in 9 men killed and 5 wounded. March 22, 100 similar shells killed 5 and wounded 9; 185 shots April 14 wounded 5. Shells that exploded on the ground or against stone work produced but very insignificant craters. Brick walls were not injured even when the shells exploded in the immediate neighborhood. 6 in. shell exploded in the concrete parapet, tore off part of the outer layer and crushed the inner surface but did not perforate the wall. Of interest also is the fact that the Japanese fleet attempted to use high angle fire, but because of the great elevation it badly damaged the gun carriages.

CONSIDERATIONS AFFECTING SIZE AND STRENGTH OF

THE ADVANCE BASE OUTFIT.

The primary object of the base is to secure, when necessary, and then in the shortest possible time, a refuge for the train, thus leaving the fleet unhampered to seek the enemy. Therefore the material of the outfit should be such as can be quickly installed, and such that prior to installation will not unnecessarily enlarge the train. Quick installation prevents the use of guns too heavy to be transported with comparative ease, or which require platforms of a permanent nature or of a type requiring a great length of time to construct.

The query naturally arises, "do these limited sized guns possess sufficient defensive strength to meet the requirements of the base?" Admitting that they are small to repulse armored ships, yet in conjunction with mines, torpedoes and submarines, they should be sufficient in as much as the main fleet can be depended upon for protection against anything larger than a raid, by making disposition to meet and destroy it while at sea.

A force of 15,000 or 20,000 men could hardly be considered a raiding force in such a case, owing to the number of transports and the protection they would require, so that the size would probably be limited to 5,000 or at the utmost 10,000 men.

MATERIAL.

The armament consists (in proper proportion) of rifled guns, howitzers, mortars, mountain and machine guns, mines, torpedoes and submarines, with the necessary searchlights, rangefinders, material for constructing magazines, bomb proof redoubts, etc. The actual amount has been variously estimated and can be found in the Conference Report of 1909 as well as in other official papers relating to the Advance Base. Suffice it for this paper if it but introduce the question of the types of guns with methods of installation and use as developed by modern wars.

The Russian-Japanese War developed the use of high angle and indirect fire to an extent never before properly appreciated.

In the earlier days of the siege of Port Arthur, failure to utilize these methods caused great loss of life on the Russian side. Their guns were mounted with a view to direct fire only and in redoubts filled with men so that not only were the guns easily discovered and silenced but many of the garrisons were killed by the same shots. Much of this loss could have been averted had the important guns been placed outside and in concealed positions, as was done at a later date. Of course positions were prepared inside the redoubts into which guns could be placed to repel assault but they were not so placed

until needed and were withdrawn as soon as practicable.

As the war progressed and the use of cover came into such extensive use it was found that high angle fire was the only kind capable of dislodging the enemy with the result that howitzers, mortars and hand grenades came into most prominent use.

The importance of high angle and indirect fire in the defense of Advance Bases (where time for preparation may be short) lies in the fact that only concealment is necessary for protection, whereas direct fire must be covered by parapets, etc., which requires much labor and time to construct.

Now whereas indirect and high angle fire have become common and necessary practices in land war they can never become so in the Navy because of the difficulty of constructing gun mounts to withstand high elevation of guns and because to be effective ships must anchor in view of some point ashore, the position of which is accurately known with regard to the target. Where it is possible to have observers ashore in view of the target and in communication with the firing ship there would be no reason why indirect fire could not be used provided the angle of elevation was not excessive.

Anchored ships, however, afford the best target for high angle fire, a form of attack, they are least suited to resist whereas the batteries delivering this fire have nothing to fear.

Sir George Sydenham Clarke remarks that: "The accuracy of this fire (high angle) will however depend entirely upon accurate observation, but inasmuch as all the high angle guns of the defense can generally be so concealed as to be secure against everything except chance shots, their accuracy of fire should approach more nearly to the standard of peace practice than is possible in the case of guns using direct fire."

Moreover, the defender is in full possession of his position, knows all the surrounding ground and has his guns ready for action with a perfectly organized system for the control and

direction of fire, when the besieging force arrives. Finally, overhead cover from high angle fire is the kind that besiegers find hardest to provide whether they be on the sea or on the land.

To enumerate some advantages and disadvantages claimed for high angle fire we have for the affirmative:-

1. A ship is peculiarly susceptible to the attack of projectiles falling on her deck.
2. The accuracy of high angle fire is sufficient to prevent ships anchoring in its area and unless anchored their bombardment can not be effective where the target is, as should be, concealed from direct fire from the sea.
3. A gun of the same calibre as those proposed for direct fire can be used, which is of much less weight.
4. The striking energy is not lessened by increase of range as the velocity on arrival is practically that due to gravity.
5. The guns can be mounted where they cannot be hit by the fire of ships.
6. There may exist areas of water from which the object defended can be bombarded by ships, which area cannot be brought under the fire of direct fire guns without special works, extension of fortifications, expense, etc., but which can be covered by high angle fire.
7. High angle guns have an all around arc of fire and therefore can participate in the sea or land defense.

For the negative:-

A harbor filled with dockyards and large shipping must be protected by long range direct firing guns in order to keep the enemy's ships outside of bombarding range, as a target of such great dimensions might suffer severely from the indirect fire of such ships even though they were under way firing on compass bearings.

It is this disadvantage which makes it necessary to include a certain proportion of guns (five or six inch) in the outfit.

These guns are not sufficiently large to prevent bombardment from the extreme range of a big gun ship but this would require a great expenditure of ammunition to accomplish any result which result whether injurious or otherwise would be unknown to the bombarders. It is certainly reasonable to state that no navy, with the possibility of a serious engagement ahead, would be guilty of such a waste of ammunition.

The experience of the 28 centimeter battery in its attack on the Russian ships at Port Arthur has been cited by some authorities to disprove the efficiency of mortar batteries in general, and therefore it may be of interest to note some facts brought out in a lecture delivered before the Artillery School in 1906 by Lt. Col. C.F.E.Harrison, Art. Corps. He stated that the carriages of the mortars were practically those of the old smooth bore gun, which the United States abandoned with the advent of the breach loader. The shells were uncapped, made of cast iron and weighed only 448 lbs., the bursting charge of 20 lb. black powder, making in all a far inferior gun to the United States gun of approximately the same calibre.

As regards the power of these inferior mortars, Col. Harrison quotes from a report of one of the observers as follows: "The Pallado was struck by a shell which passed diagonally down through the smoke pipe casing, main deck, bulkhead, lower deck, then glanced from the side and buried itself in a coal bunker along the protective deck where it went to sleep, having passed through 5 or 6 plates of 1/4 to 5.8 inch steel."

"On the Bayan one passed through the upper deck, main deck, and protective deck, over the starboard engine room, falling apparently almost vertical, then through the top and bottom of the intermediate cylinder and there exploded, doing further damage to the machinery."

After recounting several more such examples Col. Harrison concludes by saying that: "This it seems to me, is a pretty good showing in favor of the mortar."

As the restriction limiting the size of guns of the outfit is most important, a table of comparative data of guns, howitzers and mortars in use in our service is here appended.

ORDNANCE.

Types.	<u>NAVY.</u>				<u>ARMY.</u>		
		Field			Howtz.	Howtz.	Motor.
Calibre inch	3	3	5	6	3.8	6	3.6
Length of bore calibre.		25	50	50	11.6	13.6	5.25
Date Model	Mark II	Field	---	---	1908	1908	1890
Charge	---	---	---	---	16 oz	64 oz	6 oz
Projectiles lbs.	13	13.2	60	105	30	120	20
Bursting, charge lbs.	---	---	---	---	12.1 E	13.76	9.6 oz
					S.S.	S.S.	C.T.I.
						21 oz	4 oz
						Shrap	Shrap.
Cartridge complete lbs.	---	---	---	---	---	---	---
Shrapnel balls number	---	---	---	---	340	871	208
Muzzle velocity-f.s.	2800	1100	2700	2600	900	900	690
Weight gun lbs.	1950	400	9856	18748	391	1925	245
	C						
Weight carriages	6050	---	---	---	C 3509	4975	300
	C						
Weight gun & carriage lbs	8000	1830	---	---	C 3900	6900	545
At maximum elevations							
Elevation in degrees	15°34.8'	15°10.7'	15	15°38'	45°	40	45°
Time of flight - sec.	23.73	16.27	27.54	29.16	---	33.37	---
Remaining velocity f-s	754	712	889	936	707	742	515
Penetration in inches	1.1						
	5000						
Range in yards		.7	2.9	4.2	---	2.5E	---
		4500	5000	5000		5000	
Extreme range - yards	8500	4500	11000	12000	6300	6704	3360
Harvey							
Harveyized Armor with capped proj.							

C - Carriage and Limber.
E - Estimated.

Note : In letter Chief Bureau of Ordnance to Secretary of Navy the statement is found that the installation of 16-5" 50 cal. guns instead of the same number of 6"-50 cal. guns meant a saving in weight in guns and mounts of nearly 100 tons. (sec. 6. En. 9-1908-72)

That is $6\frac{1}{4}$ tons per gun and mount.

Regarding the accuracy of fire of the howitzers and mortars the following data taken from a publication by Clarke, Fortification 1907, is included.

	Shell	M. V.	Range	Rectangle	Angle of descent
8" Hwtz.	276 lb.	781 fs.	3000:	21'by 2.4'	17°52'
			4000:	27'by 3.1'	25°30'
			5000:	35'by 3.8'	37°30'
6" hwtz.	100 lb.	931 fs.	3000:	19.4'by 5.2'	12° 3'
			4000:	26.6'by 7.6'	17°25'
			5000:	34.6'by 10.5'	23°30'

The rectangle indicates the area in yards in which 50% of the shots may be expected to fall.

At the target practice held at Fort McKinley in connection with the Army and Navy Maneuvers, 1903, out of 29 consecutive shots fired by 12" mortars at a target moving at the rate of 7 miles an hour, at ranges varying from 8,200 to 9,600 yards, 9 hits were made on a target, the superficial area of which was that of an ordinary battleship. The actual target was, of course, much smaller. An average of 31% of hits. This was record firing and hardly a criterion of what might be expected under ordinary conditions. At a later practice the Artillery Inspector of the Atlantic Division stated that the mortar fire was as accurate as that of the 12" gun and infinitely more effective.

Before the number and types of guns and the strength of the personnel of the outfit can be determined careful tactical studies should be made of all harbors which will probably be available as bases in time of war. The organization and outfit should then be such as will best suit the average condition likely to be encountered.

The following estimate, it may be said, is not based upon such exact data. It is as follows:-

4-50 calibre 5", 6-50 calibre 3", 12-6" Army Siege Howitzers, 12-3.6" Army Field Mortars, 4-3" field or mountain guns, 40-30 calibre Bennet Mercie machine guns, 1 submarine, 200 naval defense mines together with ammunition, range finders, searchlights, and material for transporting and construction purposes.

The present naval defense mine if used must be converted so that it can be made inoperative when our own ships are passing through the field.

In connection with the proportion of guns and howitzers here recommended I wish to say that I am entirely responsible for the estimate and that it is not based upon sufficient data nor practical experience to make it authoritative.

Briefly stated my idea is that 4-5" guns will be sufficient to prevent cruisers from bombarding at ranges of 10,000 yards or over unless they do so as the opening of a determined attack. That is they will prevent the harassment which cruisers might otherwise indulge in as a pastime. Should the attack be a determined one I believe attacking ships will necessarily have to close to within 7,000 yards of the train (should it unfortunately be exposed to view) to do any really effecting fire in which case I am of the opinion that howitzers would add greater strength to the defense than if it depended entirely upon direct fire guns which if attacked at close range might be completely silenced with no reserve power to check further bombardment or the close approach of ships to cover landings.

Further than this the all around fire of the howitzers, permitting them to operate against both sea and land attack, together with their great mobility are other deciding factors in my choice.

The 6" howitzer is so light that I would gladly accept a 7" with corresponding increase of range and weight of projectile if it can be built.

I have selected the 5"-50 cal. as opposed to the 6"-50 cal. believing as I do that this type will do the work and

save in mobility from its smaller size.

As opposed to these views an officer who has had considerable practical experience in the handling of the 6 " gun believes this to be the type which should be used; that its increased size and weight makes little difference in handling and installing in that no more men and little increase of time would be necessary, and that the gain in range and size of shell makes it advisable.

He is further of the opinion that the howitzer can in no way be depended upon to prevent bombardment of the train, from sea and that just so much of its defence, which under my scheme rests with the howitzers should be replaced by direct fire guns. Roughly for instance that I replace 8 of any 12 howitzers with 4 additional 6". A good deal of the argument on both sides is necessarily based on conjecture - for example:-

Would cruisers under the fire of 4-5" be any more likely to bombard at extreme ranges, 10,000 to 12,000 yards than if there were 8-5" directed at them. This I contend would depend upon the effectiveness of such bombardment, that is the damage they would suffer and inflict in so doing. I do not believe that the return would be sufficient to warrant the expenditure in either case. If not they must close to shorter ranges where I believe the possibility of silencing the direct fire guns make advisable the substitution of howitzers for a certain proportion of them.

Last of all I hope to get a harbor entirely or in part concealed from the direct fire of ships (the other position may be selected from necessity but not from choice) in which case I can see no arguments which oppose these views.

(PERSONNEL.)

There should be sufficient personnel:-

- (1) To man the fortifications and accessories intended to resist attack from sea.

(2) To form a mobile force sufficient for protection from attack by land.

To meet these requirements it is estimated that the personnel of the outfit should consist of 2,093 officers and men divided as follows:-

1st 1 Bn. of 600 to the 50 cal. 5" guns and the 86" howitzers; 2nd 1 Bn. of 600 to the 50 cal. 3", the mortars, the mines and torpedoes; 3rd 1 Bn. of 600 to the mobile forces which includes details for the machine, field guns, and mortars, 4th 1 company of 150 to searchlights, signals, communications, etc; and 5th staff, medical department etc.

The organization proposed is practically that of a regiment.

The Colonel as Advance Base Commander, Commanding the whole.

The Lieut. Colonel commanding the sea defence - i. e. two battalions and such signal troops and infantry as attached.

The Major of the mobile battalion, commanding the land defense.

The personnel of howitzers, mortars and for all guns utilizing indirect fire require a high standard of training; however most of this firing will be in daylight, directed at ships and under the personal supervision of officers.

That of the 50 cal. 3" will ordinarily be operated at night, aided by searchlights and with the object of preventing the enemy from landing, sweeping for mine fields, or of entering the harbors with destroyers. Their fire may have to be directed at several targets simultaneously. It may have to be delivered with great rapidity and possibly with several changes of target; therefore the responsibility of accurate shooting must rest entirely upon the gun pointers who will have accurate knowledge of surrounding ranges and will be charged with the protection of certain arcs. For these reasons the gun pointers of this type of gun require

most careful training and constant practice.

That of the mobile guns, field and machine, must have in addition a thorough knowledge of the surrounding country to enable them to make the best tactical use of the terrain and to insure ease of transfer when shifting from one position to another.

The outfit must be trained in each others duties to enable it to meet the tactical requirements of any of the various positions which may be selected.

Every officer and man should be assigned a distinct duty suited to his capacity and with a view to undivided responsibility.

ON PREPARING DEFENCE OF A BASE.

In outlining this scheme of defence two assumptions are accepted as correct - viz:-

1. That a base properly defended cannot successfully be attacked from the sea alone.
2. That the attack in order to be successful must be in the nature of a raid and that a raid will limit the number of troops available for land attack to between five and ten thousand.

With these two assumptions clear in his mind, the Commander of the outfit must, in general terms, -- prepare the position so that with the available force he can repulse the most powerful raid that need be apprehended, and at the same time prepare the camp with a view to health, instruction and most efficient concentration.

DEFENSE AGAINST SEA ATTACK.

As stated before this consists of guns, torpedoes, mines and submarines. The 50 cal. 5" guns and 6" howitzers are to prevent ships of the enemy from entering zones within bombarding range of the harbor protected; there is little danger under modern conditions of ships attempting to run past the

batteries as they must have room to maneuver once inside the harbor, but should this be attempted it becomes the duty of this battery to frustrate it if possible. Whereas, under such circumstances they might not be able to sink a heavily armored ship they could destroy all the funnels, etc., and with the mines and torpedoes probably repulse the attempt.

A base with its harbor exposed to direct fire from sea is an unfortunate selection, for the range of the guns of the defence being much less than those of the big gun ship would permit the latter to lie out of range and bombard at will. This may be offset in part where the harbor is deep and the guns of the defence can be placed well in advance of the anchorage they hope to protect.

It is unnecessary to provide against bombardment by indirect fire from ships (i. e., where they can not see the target) due to the difficulties already mentioned.

Effective bombarding range varies with the size of the target and with the size of the gun used.

The most vulnerable and extensive target at an Advance Base will probably be the train which it shelters.

The guns used in the bombardment most probably will be those of cruisers and unarmored ships.

Now when it is remembered that the howitzers well placed can not be silenced by ships' fire, and that it will be difficult to silence the direct fire guns if they are properly concealed, it does not seem possible that even heavily armored ships would remain under a fire which if it did not actually disable them would certainly do much damage to upper works, funnels, etc., and possibly result in the loss of the ship should it encounter an enemy ship before repairs could be effected.

In order to obtain the greatest advantage from the 5" guns, and in a measure what follows applies equally to the

6" howitzers: they should be emplaced, 1st, to support each other and prevent individual guns from being attacked and silenced, singly and in succession, 2nd, to take advantage of good sites which could not be utilized because of accompanying dead zones, unless covered by supporting guns, 3rd, in concealed positions, to lessen the liability to injury, lessen the cost and time of construction, 4th, at height above sea level to aid in concealment; in fire control, and accuracy of gunnery. Contrary to the belief of many this elevation gives little protection from ship fire at battle ranges nor does it increase the angle of descent of projectiles sufficiently to enable ships decks to be attacked. 5th, with guns dispersed to prevent concentration on the part of the ships and to gain it for the batteries, 6th, in positions unfavorable to attack by small landing parties, otherwise large infantry guards would be necessary, 7th, in position affording facilities for the construction of emplacements, magazines, communications, barracks, etc.

The 3" 50 cal. quick-fire guns are charged with the duty of repelling torpedo craft and the protection of the mine fields. As they will be used principally at night the selection of the emplacements may be materially affected by considerations governing the location of the searchlights.

Such lights must be mounted to effectually sweep the whole area through which the destroyers in making an attack must pass and in positions low enough to prevent them from creeping under the beams. Low positions for the lights are also a necessity as the torpedo defence guns, which likewise require low positions, should be mounted above them.

In order to determine the amount of illumination necessary to prevent a night attack by torpedo craft, Captain A.E.C. Myers, R.G.A. (Duncan Gold Medal Essay, 1905)

examined the results of peace practice, considered the effect of war conditions on the same and came to the conclusion that a 12^{pd}r. could make 4 hits on a boat in 1,000 yards of illuminated area, and that 2 hits would be sufficient to knock out any one boat. But for a single gun to take care of two boats would require a shift of target, and since a destroyer could cover the 1,000 yards in 75 seconds, General Johnson estimated that an allowance of one gun for one boat in an illuminated area of 600 yards would be a safer plan to work upon. Therefore the number of guns necessary would depend upon the width of the approach to the channel, the width of the channel, and upon the number of torpedo craft likely to participate in an attack.

If the channel defended were narrow, fewer guns would be necessary. This in itself would indicate that the proper fire tactics would be concentration on the leader to impede and throw into confusion the followers and give greater time to complete the destruction of; ^{all} if on the other hand the channel is of such width as to permit the attack being made in line formation guns must be available to stop all within illuminated area.

As three, four, or five seem to be the number of destroyers which usually act together offensively and as ease of defense is one of the desired qualities of a position selected as an Advance Base it is thought that 6-50 cal. 3" guns will be sufficient for torpedo boat defense and for the covering of the mine fields.

Sites for these guns should be selected:-

1st To obtain the best results at short range, this, because they will be used principally at night or in misty weather when 1600 to 1000 yards will be the maximum firing range.

2nd At a height of at least 40 feet to permit the searchlights being mounted lower down without interference from the spray.

3rd In positions not visible to the attackers to whom the fire will come as a surprise and further because if visible they might act as land marks and aid in navigation.

4th Close to the shore to prevent dead angles.

5th Concentrated to aid in their superintendence and management.

In general the two most important requirements are a clear field of fire and facilities for unlimited supply of ammunition.

SEARCHLIGHTS.

The searchlights for use with these guns should be mounted:-

1st To make certain the early discovery and identification of an enemy.

2nd To illuminate a number of targets simultaneously and in different parts of the field of fire.

3rd To illuminate adjacent beaches or other favorable landing places for an enemy.

4th To cover mine fields and channels leading to harbor.

5th To the right or left, above or below (preferably below) the guns which they serve as both gun and projector at certain angles of train are in the same vertical plane.

Searchlights intended for long range must be mounted at least 40 feet above high water to allow for the curvature of the earth.

DEFENSE AGAINST LAND ATTACK.

The most successful and therefore most frequently used mode of attack is to mislead by a series of feints and at the proper moment strike home at some weakened point with

all available force. This mode is particularly easy where the attackers are on ships and can move rapidly from one point to another forcing the defenders to transfer troops and guns to meet each expected landing only to find it a feint.

If the harbor defended is on the mainland it would be impossible of course to deny a landing some where to the attackers and the effort would in this case be only to prevent a landing within the radius of action of the mobile defense which ultimately must depend upon a previously prepared and fortified line to keep the attackers outside bombarding range of the harbor. Island position capable of being held by an Advance Base Outfit so as to deny any landing to the enemy would of course be the best and are likewise the hardest to obtain.

Under no circumstances should the main line of defense include positions which can not be held, for undue extension might result in the entire loss of the harbor, which otherwise would only suffer bombardment. Given a certain force the line of resistance selected must depend very materially on the tactical features of the ground; if, for instance, the terrain is such that the attackers must approach along a certain defined route -- a defile for instance, then of course the line can be extended much farther than if the country were open and an attack possible from all directions. Again, if the principal points of defence in the line are separated by creeks, rivers, etc., making communication difficult the line must be less extended.

The most, and perhaps only efficient protection of a position against the high explosive shells which are now in general use in modern armies, is the almost solid concrete fort which was used during the siege of Port Arthur

but this type is of too permanent a nature and too costly in time and money for use with the outfit. Improvised redoubts however should be prepared in important exposed positions as rallying points in the line of defense; from which well protected guns and lights can sweep the fronts and intervals, which intervals will be well intrenched and ready to be occupied if necessary.

All intrenchments should be prepared with material close at hand for head protection, though this need not be used until it is certain to be necessary. Gun emplacements should be selected with a view to obtaining the greatest arc of fire, they should be concealed by trees, hedges, etc., and depend upon indirect fire at all times except when repulsing assaults at which time they must run into previously prepared positions and use direct fire.

All guns of position used in the land defense should be in concealed positions and use indirect fire. Additional emplacements should be constructed for these guns at points of particular advantage as it may become either desirable or necessary to shift their positions. Above all, a complete system of communications must be pushed with all rapidity. This system should be carefully planned and provide for good roads, screened by trees, etc., to conceal all movements in rear of the line of defence from the attackers. On one occasion in the late Russo-Japanese War, the Japanese moved artillery and infantry parallel to and within easy range of some Russian guns across a river, by the simple device of planting at night a matted screen, resembling natural growth, along the exposed portion of the road.

Having prepared a line of defence only enough of the mobile forces should be employed in its protection to insure holding out until reinforcements could arrive. The remainder should be held as a reserve for the purpose of reinforcing threatened parts of the line, for counter assault, and for offensive operations.

If necessity or haste compelled the attackers to advance along the coast line in such a manner as to expose his flank, an energetic attack on the part of the mobile force of the Base would net greater gain then to keep the same force couped up anxiously awaiting to be assaulted.

Whether this force is employed offensively or defensively, to be properly handled, its commander should have a thorough understanding of the influence of terrain upon the tactics of field and machine guns and infantry.

Finally the defence must provide a series of positions to which the garrison can retire step by step if forced back, for it must be borne in mind that until the attackers are in undisputed control of the harbor defended they have not accomplished their object. By retaining one small part of the original defensive position the problem of retaking the whole when reinforcements arrive is simplified a hundredfold.

Imagine for a moment that a force defending Guam has been surrounded and driven in until they are entrenched across the neck of the Orote Peninsular. From the charts available of that region it would appear that this force would be able to make a most stubborn resistance, and if supplies of ammunition and food were sufficient might hold out for several months until reinforcements for them could arrive. In the meanwhile the harbor of San Luis d'Apra could not be used as a refuge for the enemy's ships. Should reinforcements for the defenders finally arrive, how much easier would be the recapture than if there were no foothold on shore.

TRAINING OF PERSONNEL.

A brief outline of the course of instruction which should be pursued by the personnel of the Outfit follows.

It has been fortunate for the Marine Corps that in the past decade it has participated in so many oversea expeditions, for the training thus received is the most valuable along certain lines than can possibly be obtained. It developes mobility and resouce-

fulness, promotes discipline, and gives experience to the officers and men, the lack of which is so apparent in troops which for the first time are confronted with the difficulties of such expeditions.

This, heretofore, compulsory system of training, enlarged and systematized, should be adopted for the Personnel of the Advance Base Outfit. The greatest efficiency can only be obtained by keeping the entire force intact and training them as a whole. Without this the higher ranking officers and their staffs receive none of the training and experience essential to them until called to command on active service, at which time they should be prepared and not just starting to prepare for their positions.

When it is realized that an Advance Base Outfit includes in its organization the elements of field and coast artillery, signal and mine companies, and infantry, the necessity for the above will not be questioned.

In general terms officers should be trained to make the most valuable use of terrain, that is, to be capable of determining the most advantageous positions for guns, magazines, entrenchments, etc., they should accustom themselves to the difficulties of transporting the heavier material to almost inaccessible positions, and in so doing develop easier and simpler methods than exist today.

This study must be developed both in theory and in practice, while at the home station of the Advance Base Outfit, and, at regular intervals, be supplemented by embarking on transports for some suitable locality there to land and prepare a base.

Thus the training for the outfit, like that of the fleet, would in times of peace simulate conditions of war.

Colonel G.F.R.Henderson in his "Science of War" says, "That few Anglo-Saxons are not secretly convinced that with some knowledge of drill they would be most formidable rivals to the officers of the German General Staff. They believe that they possess the military virtues, that they are fearless, cool and

resolute, and they flattered themselves that they are fitted with sufficient common sense to enable them to decide wisely and promptly in critical moments. They forget, however, that common sense to be a really useful guide to the judgment, must be trained common sense, fortified by knowledge and increased by practice."

The following remarks are perhaps unnecessary but may be excused as an additional endeavor to impress all in authority with the necessity for prompt and energetic measures to fit the Corps for the duty it will have to perform:-

Remember that in war an Advance Base may be necessary to our fleet at any moment.

That a hastily improvised force suddenly confronted with its defence would be a poor substitute for a well trained one.

That if well trained it can, with a small force accomplish more than if not and that the smaller the force, the smaller the train.

That the small^{est} the train, provided it contains all necessities, the greater the freedom of the fleet. And finally, that should the train be lost for want of proper foresight the effect, under certain conditions might be as far reaching as the loss of the fleet itself.

With these few points in mind, no one will doubt the necessity for some form of the training here advocated.

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June 13, 1912.