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Naval Bases: Location, Resources, Denial, and Security

U.S. Marine Corps

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FOREWORD

1. PURPOSE

Fleet Marine Force Reference Publication (FMFRP) 12-45, *Naval Bases: Location, Resources, Denial, and Security*, is published to ensure the retention and dissemination of useful information which is not intended to become doctrine or to be published in Fleet Marine Force manuals. FMFRPs in the 12 series are a special category: reprints of historical works which are not available elsewhere.

2. SCOPE

This reference publication is a collection of papers written by Captain E. H. Ellis in 1921. These papers cover, in essence, the probability of war with Japan which Ellis felt was unavoidable. The topics of this fascinating publication are the location, resources and security of naval bases; the denial of bases; the security of advanced bases and advanced base operations; and the advanced base force. For a student of the Pacific campaigns of World War II, this publication is a must to read. The book is an excellent example of forecasting, and it offers lessons which can be used by present-day professional Naval and Marine officers to forecast operations of the future.

3. CERTIFICATION

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

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U. S. Marine Corps

Division of Operations and Training

Captain E. H. Ellis, U. S. M. C.

1. Naval Bases: Their Location, Resources and Security
2. The Denial of Bases
3. The Security of Advanced Bases and Advanced Base Operations
4. The Advanced Base Force

NAVAL BASES

The requisite magnitude of any element of naval power can only be determined accurately after a careful estimate of the nature and extent of the effort which will be demanded of it, as an interdependent part of the whole, in time of war. Therefore in taking up the subject of bases it will be necessary first to make a study of the relation of bases to the naval fabric and of their function in war. Then upon the conclusions derived therefrom as a basis an estimate will be made as to the number of bases required, their location, and the resources and security with which each should be provided.

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All modern authorities agree that the proper conception of naval war is to seek out, overhaul, and destroy the enemy fleet. To effect this there is required adequate naval power so prepared that the active fleet may be free to act offensively with maximum efficiency in any probable theatre of war.

A modern fleet is capable of self-sustained strategical activity only to the extent that it can carry the necessities of that activity in its own bottoms. Within this limit it is bound to certain fixed points or bases where in safety it may be resupplied with fuel, ammunition and food, and be docked, overhauled and refitted. With the increase in the size of fleets and the increased variety and complexity of its units the question of maintenance and supply has become of greater importance and the limit of fleet activity more strictly defined. At the present time a safe, steady flow of supplies and

near facilities for maintenance work are absolutely essential to efficiency; well equipped and secure bases must be provided if the fleet is to wage successful war.

The resources with which a base should be supplied properly depends upon the period for which the fleet will have to be maintained in its area, but there are other factors which must be considered also -- The sources of general supply and the security of communications thereto.

The supply and maintenance of a modern fleet is a task of such magnitude that the reserve fuel and supplies amassed at bases in time of peace, even by a wealthy and militarily prepared nation, will suffice only for a limited period in war. The bases must sooner or later be replenished from general sources, which in this day of strict neutral rights, are usually limited to those in home territory.

This question of replenishment is an easy matter in the case of home bases, but those bases beyond the seas must be replenished by floating transport with all its concomitant dangers. As a result these bases are often charged with a function in addition to that of supporting fleet activity in their own particular areas: they also, when necessary, aid in the maintenance of the fleet in the areas beyond. As supporting points along the lines of communications between the home and salient bases, they, together with the protection afforded by the fleet, ensure the free circulation, to and fro, of the sinews and dross of war.

The absolute dependence of the fleet upon its bases makes their security in war time a matter of extreme importance. As the reason for their existence is the increasing of the radius of the fleet activity, the fleet should not be hampered in its movements by being forced to take measures for base defense. The base must be provided with adequate defense in itself, developed in time of peace in concordance with its other elements.

The establishment and development of these bases is the business of naval policy in time of peace. Their location will primarily depend upon the areas wherein it may be necessary to project and maintain the fleet in time of war, so far as can be determined after a careful study of the national policy and strategy of one's own and foreign states. If the naval policy should work to acquire a port by lease. If this is impossible, preparations should be made to secure it on the outbreak of war.

In the selection of a port for a base in any area, the vital factor is <u>usefulness to the fleet in war</u>. In the first place it should be suitable for the use of the fleet in that it should have: - (a) a good anchorage for at least half the force likely to be bases thereon; (b) protection from the elements; (c) an entrance admitting of easy entrance and agress; (d) healthy climate; (e) a small range of tide and weak tidal currents. In the second place it must be capable of being rendered secure during the absence of the fleet by a reasonable force. In the third place it must be in close proximity to the probable scene of operations. In general, the power of a fleet varies inversely as the distance from the base increases. A base located near the

scene of operations permits the exercise of the greatest economy in time and in all the factors of fleet strength.

If there are several points available which fulfill to an equal extent these primary conditions then there are other considerations which influence the selection. The most important of these are natural military strength and local military resources. If one port is as useful to the fleet as another, then that port should be chosen for a base which can be equipped, maintained, and held in security, with the least expenditure of money.

In any case, all requirements will never be found in a single position and the selection must be the result of an adjustment of the factors in accordance with the particular military situation. The essential characteristics, not inherent, must be brought up to the limit required by necessity, by artificial means.

But permanent bases alone cannot supply the wants of the fleet under all conditions. However complete the system may be it will generally be necessary during war to occupy additional points as bases in order to execute the conception of naval war. These points may be those which in peace time were under foreign control, or they may be points either in one's own or foreign territory which it becomes necessary or desirable to occupy by virtue of the unforseen circumstances of war.

It being impossible to develop these points in time of peace, it is therefore essential that when the fleet is pro-

jected out from the permanent bases into new areas it should carry with it the elements of a base. This forms the fleet train of fuel, supply, and repair ships, which carry as far as is possible, those things necessary to fleet mobility and is in reality a floating base. With a secure point of refuge, the train, in an improvised way, executes all the functions of a permanent base, by serving as a fuel, supply and repair depot, a rendezvous for sick and wounded, and a center of intelligence. Such bases are the advanced bases of the fleet and are occupied only in war and then only so long as the particular military situation demands.

As the presence of a train with a fleet at sea imposes a tactical disadvantage, it is very desirable that when a fleet enters a disputed area the train be secured in the slected port as soon as possible. The sooner this is accomplished the sooner the train will be able to exercise its functions of maintenance and supply and the fleet be able to pursue its operations with freedom and efficiency. To effect this there must be carried with the floating base or train a military force adequate to seize and secure the port and so constitutted as to be able to perform its work without delaying fleet operations any more than is absolutely necessary. For this work the Advanced Base Outfit is primarily intended.

The location of an advanced base is governed generally by the same considerations as those which govern the location of a permanent base. However, there are certain considerations

which exercise increased influence in the selection of the former which would be noted. They are as follows: -

A. Proximity to permanent bases. The resources of an advanced base must necessarily be limited and it is desirable that a permanent base be within reach in case of emergency.

B. Security of communications. The efficiency of the advanced base depends entirely upon constant replenishment by floating transport. Its location should therefore be such as to expose lines of communications to permanent bases as little as possible.

C. Security from attack. As the defenders are limited in power by the conditions under which they operate, it is necessary that the fleet, by its operations, cover the base from an attack in force.

As a rule, the fulfillment of the requirements for a base are not so important for advanced bases, but it will depend to a great extent upon its distance from permanent bases. As the distance from the permanent bases increases the more the advanced base will have to be depended upon and, therefore, the more serviceable and secure it should be.

The necessity of advanced bases to a fleet makes their denial to an enemy, especially one operating at a distance from permanent bases, of great importance. The projecting of a fleet into a disuputed area denotes superiority in naval strength, in the mind of its commander at least. If that fleet is operating at a distance from its permanent bases and

cannot seize an advanced base, it must withdraw from that area. As a rule, it will be impracticable to deny those points so situated relative to one's own bases and to probable enemy objectives as to be of greatest value to the enemy. These points should be held if possible. Such a procedure will not only complicate enemy operations, but will lengthen the period in which the inferior force may operate with torpedo and mine craft to reduce enemy superiority, operate against his line of communications, or catch the enemy main body at a tactical disadvantage.

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Thus for only those fundamental principles governing the establishment of naval bases by nations in general have been swelt upon. To arrive at specific conclusions and to the base system required for a particular nation (the United States in this case) it is necessary to examine into the peculiar world position of that nation. For no two nations are situated alike. Each one is confronted by a special situation, this result of geographical situation and consequent international interests and it is these two factors which primarily determine the proper magnitude of a nation's military power and the relative strength of its parts.

The United States is a great continental nation with an extended sea frontier on each of the two great oceans. This siutation, favoring rapid and easy communication with world powers in general, accords to her a position of great relative

importance.

To advantage of position there must also be added advantage of territory; for whithin her home borders there are comprehended all those resources essential to the making of a self-contained nation. While sea and land borne commerce and supplies form a great factor in her peace time development, its discontinuance in time of war would not have a decisive effect.

Besides the foregoing characteristics, the United States, by reason of the weakness of adjacent American states, has at present an important characteristic of an insular nation in that she is isolated from all other great powers by the sea. While this isolation, in the present day of fast, far-steaming fleets of men-of-war and merchant marine, does not carry with it the same measure of security that it did in the past, it does, as formerly, necessitate an enemy's gaining the command of the sea in order to attack. Moreover with the United States, a self-contained nation, as an opponent the gaining of this command would be only a preliminary operation, for land forces would have to be transported overseas to carry the war to its ultimate conclusion.

As a corrollary, the U$_n$ited States, in the case of national wars, cannot impose <u>her</u> will upon any nation outside of the Americas without the control of the sea. In all cases it is essential that her sea power be free to act. If her opponent is an insular power like Japan, whose very life depends upon sea borne commerce and supplies, sea power alone may suffice.

If her opponent is a continental nation like Germany, which has recourse to land borne commerce in time of national stress, sea power plus land forces will be required.

Such is the special geographic position of the United States home territory. There are, however, foreign possessions to be considered. The United States has besides Alaska and Panama, on the mainland of North America, island possessions or territorial obligations, in both the eastern and western Pacific and in the Caribbean Sea. These territories, while not self-contained are situated like the mother country in the respect that no serious attack may be made against them except by way of the sea. It may be seen then that by reason of geographical location the territorial defense of the United States, in any serious war, rests primarily upon the free exercise of adequate sea power in the adjacent waters. In every case, the war will be a naval war and will be decided on the day that the two great concentrated fleets engage in battle.

As a consequence of her favorable geographical location, together with her vast natural resources and energetic population, the political and commercial activities of the United States are necessarily world wide. Also, her interests necessarily conflict with those of the other nations because the world is small and today all sections are being exploited to a more or less extent. As a result of this conflict of interests, which has grown more frequent with the increase of populations and the development of local natural resources, the United States

has developed certain well defined policies designed to protect the interest of her people. Some of these policies are relatively unimportant, others are considered vital to the safety of the nation and its free development. As a conflict of vital interests generally results in war, or in the abandonment of these interests by one of the parties interested, it is with those that we are concerned. At the present time the United States may be said to have two vital policies, as follows: -

1. The Monroe Doctrine.
2. The Open Door.

The first, the Monroe Doctrine, is a defensive policy, having as its object (at the present) the preservation of territorial integrity against all nations. The second, the O en Door policy, is both offensive and defensive in character, having as its object the conservation and furtherance of the world commerce of the nation, particularly in the western Pacific.

Policies designed to preserve territorial integrity are now and always have been vital to a nation. They are fundemental to its existence as a nation. Policies designed to conserve and further international commerce have only become of commanding importance in recent years. In the past the efforts of peoples have been concentrated on the development of local natural resources; but as populations increased and local resources were exploited to the utmost nations were forced to seek outside activities. Today foreign trade is of vital importance to most nations and will in the near future become of vital importance

to all. It is of special importance to the United States at this time on account of the natural shifting of the center of world commerce to the Pacific (over which she, with her island possessions holds such a dominant position) and the construction of the Panama canal, which will tend to bring other great powers in closer touch with that center. It is believed to be absolutely necessary that the United States should provide for the strict maintainance of both policies - the Monroe Doctrine and the Open Door.

The next question is: - Against whom, where and to what extent? No nation is rich or powerful enough to be equally strong in all directions. Modern war is a gigantic and expensive affair. It is often begun before it is declared and is brought to a conclusion, or at least a decision, with great rapdiity. It is essential for any nation that when a conflict of vital interests is seen approaching the preparation of military strength be specific for that event. From the causes leading up to the war and the strength of the state can be deduced his intentions and the probable theatre of war, those things necessary for specific preparation.

England and Germany are at present the greatest rivals of the United States in the Atlantic. But England, satiated with colonies and buoyed up with their commerce, has found that her interests in general coincide with those of the United States and has officially acknowledged the Monroe Doctrine. It is not likely that the interests of these two countries will conflict to

any serious extent in the near future. Germany, on the other hand, has through necessity adopted policies directly counter to those of the United States. Her home territory has become overpopulated and overdeveloped and she has been forced to seek outside activities for her people by territorial and commercial expansion. This expansion, despite abortive attempts in other directions, naturally trends to the westward and today her most vital interests, other than those directly affecting the integrity of home territory, are centered in the Caribbean region and South America.

In the Pacific the United States has many rivals, but of them all, Japan, by reason of position and power, is the greatest. She is the only purely Pacific world power, and her very existence depends upon the place which she makes for herself there. Within late years she, like Germany, has had to expand territorily and commercially for economic reasons. Twice she has staked all to accomplish her purpose and there is no reason to believe that she will not do so again when it becomes necessary.

We may conclude then that the powers with whom the vital policies of the United States are most likely to conflict are Germany, in the Atlantic, and Japan, in the Pacific.

In the consideration of these two countries with regard to possible future warfare with the United States one is at once confronted with two entirely different situations. It is necessary to take these situations up separately in order to arrive at conclusions of value.

THE SITUATION IN THE ATLANTIC

In the event of war between the United States and Germany the United States will be on the strategic defensive. To attain her object Germany must project her fleet into the Western Atlantic, and it is not likely that she will initiate a war until she considers that she has sufficient naval superiority to cross the sea and fight a decisive action with the concentrated fleet of the United States in its home waters.

The real objective of the German fleet can only be approximated but studies of the situation all point to the Caribbean as being the most probable one. It is there that the United States will be weakest in naval strength and it is there that the greatest of her foreign interests lie - the activity of which will probably be the direct cause of the war. But whatever the real objective of Germany will be it is certain that her strategical dispositions will be those calculated to keep the United States in the dark until the last moment.

Having no base in the Western Atlantic, it will be necessary for the German fleet to carry with it a large train and to seize and secure a refuge for it upon arrival in the Caribbean. Although the German fleet will undoubltedly be superior to that of the United States, the train will be a source of tactical weakness, and until it is secured all fleet dispositions must be made with its safety in view. The German fleet cannot concentrate its efforts on the attainment of its mission - the destruction of the United States fleet - until the train is secure.

In this case the advanced base will be of particular value

to Germany. It will not be merely a base in the vicinity of a permanent base, occupied for better convenience of maintenance and supply on the scene of operations, but it will be her only base on this side of the Atlantic, at least 3500 miles from her nearest permanent base. Her failure to seize and secure a proper base will at least result in a setback in her attempt to secure command of the sea in the West Atlantic if it does not result in the entire abandonment of the attempt, a retreat to home territory and the initiation of a new expedition (if by good fortune she is not so damaged in the meanwhile that she is forced to abandon her object altogether).

In this campaign the mission of the United States fleet will be to prevent the German fleet from establishing itself in the Western Atlantic and ultimately gaining the command of the sea. Being inferior, it must endeavor to seek battle with the enemy fleet while the latter is tactically encumbered with its train. If this cannot be risked owing to inferiority, then the only recourse is to delay and harass the enemy as long as possible and in the meantime operate with torpedo and mine craft to lessen enemy superiority in capital ships.

To engage the enemy while he is encumbered with his train and defeat him requires that the fleet know his whereabouts and be in poisition to meet him in maximum strength. But scouts are lacking with which to clear up the situation and what scouts there are are of short steaming radius - moreover, it is likely that the United States never will have sufficient scouts; for

what appropriations are made must be generally put into capital ships, the element that sooner or later decides the command of the sea.

The only practicable solution seems to be to secure a salient base in the Caribbean; from where the scouts may operate over the maximum area; from where torpedo and mine craft may operate at the earliest moment; from where the main fleet may issue forth in maximum strength and efficiency to engage the enemy while he is at a disadvantage; and, in case of failure in the first phase, from where the fleet can operate to best advantage on the enemy line of communications.

Of the harbors in the Caribbean, which are under the control of the United States or which might be obtained by lease, only the following are suitable for the use of the fleet: -

Culebra.

Farjardo-Vieques Sound.

Samana Bay.

Fort Liberty-Manzanillo Bay.

Nipe Bay.

Guantianamo Bay.

Margarita Id.-Carisco waters.

Cartegena.

Culebra, being the most salient to a German approach, would be the most suitable, provided that the harbors in the island itself can be so improved as to fulfill fleet requirements. It is considered that eight square miles of anchorage room are

desirable and Culebra affords less than five square miles at present. If the Culebra project is not feasible then the base should be at Samana Bay. It is a peculiar statement, but I believe it to be absolutely true, that of all the harbors named only Culebra and Samana can be made secure with any defense that we can hope to provide. In all other cases the security of the station and fleet anchorage would require an impossible land force for its protection or could not be made secure from sea attacks, by any reasonable fixed defense.

As the ports mentioned are suitable for the use of the United States fleet they will also be suitable for the use of the German fleet. The necessity of a good advanced base for Germany and the value of delaying operations to the United States renders the denial of these points to the former of great importance.

It is presumed that bases on the home coast, the Canal Zone, and at least one permanent base in the Caribbean Region will be adequately defended by the Coast Artillary and the mobile army. But the West Indies and South American regions will be practically undefended except by the active (probably inferior) fleet. Even if there were forces from the mobile army which might be spared for this duty it is likely that public clamor, in the face of uncertainty of the result of a German divided approach (made probable by our lack of scouts to clear up the situation) would force the authorities to hold them on the Atlantic seaboard. This same public clamor might also draw the <u>fleet</u> there as it did once in the past.

The denial of the undefended ports will undoubltedly, and should, fall to the Marines with the fleet. Of course it is not to be expected that the number will be adequate to defend more than a few points but it will suffice to deny those mentioned, which by their relative position to our own bases and territory make their denial to Germany of the utmost importance.

THE SITUATION IN THE PACIFIC

The international position of the United States in the Orient necessitates her Navy assuming the strategical offensive in the event of war with Japan.

Compared with the United States, Japan has an inferior navy and a vastly superior army. Her first mission will therefore be to reduce the naval superiority of the United States and thereby secure for herself as favorable conditions as possible for the decisive fleet action. Being initially inferior in naval strength, she will endeavor to carry out her mission with her land forces and lesser naval craft (those of doubtful value in a fleet action) only hazarding unreplaceable capital ships when she is in a position to engage enemy capital ships with a reasonable chance of victory.

In the beginning the United States fleet will without doubt be in home waters. Japan will therefore have command of the sea for a short time. It may be expected then that she will immediately occupy the Eastern possessions of the United States in great strength and endeavor to capture and deny all points which might

aid enemy naval operations.

In general, Japan will pursue a course similar to tht which the United States must pursue in event of a war with Germany.

In this campaign the mission of the United States fleet will be to proceed to the Far East and gain command of the sea. It is believed that with sea power alone the United States can isolate Japan from the world (thus preventing her field armies from acting) and reduce her to a state of helplessness.

The main difficulty which this advance would entail is the logistics. The distance to be traversed renders necessary the refueling of the fleet at least once enroute. To encumber the fleet with a train and make it entirely dependent on the train would be hazardous and troublesome. Moreover, we would not have sufficient U. S. Naval and Merchant colliers to form the supply train necessary and would have to purchase foreign shipping, with a total cargo carrying capacity of about 100,000 tons; more, if the Army required extra shipping.

The only practicable solution to those logistic problems is the securing of points along the line of approach where the fleet may refuel with certainty and security, and where reserve fuel and supplies may be collected for use until such time as our supply trains can be put in war operation.

After an exhaustive study of the various available lines of approach to the Far East it is agreed that the line via Hawaii and Guam is by far the most practicable one, if not the only practicable one. In this line there are only two harbors available for the

use of the fleet - Pearl Harbor and the Harbor of Apra. Extended studies have shown that both of these points can be made to serve the purpose of the fleet and can be made secure with a reasonable outlay of men and money.

Besides secure points along the line of cummuncations there should also be a terminal base in the Philippines: a base so located as to be easily accessible to the fleet in its advance, best cover the line of cummunications to Guam and Hawaii, and be favorable situated for offensive action against Japan. These requirements practically limit the location of the base to the east and north coast of Luzon and vicinity. Of the harbors in this region only Pelillo and Camaguin seem at all suitable for use as bases. Camaguin has the better position. Neither harbor has the necessary anchorage room, but Po;lillo, improved, would come nearer to fulfilling fleet requirements. Both points could be defended by a reasonable land force, but Camaguin, being a salient open harbor, could not be made secure from sea attacks by any reasonable means. Taking everything into consideration Polillo seems to be the best site for a terminal base.

With Guam secure it <u>would</u> be possible for the United States to prosecute a campaign against Japan from that point; but it would require much greater naval superiority. It would be much more economical to have a fully equipped base located nearer the battle area from which the naval strength necessary could be maintained in its maximum state.

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From the foregoing review of the special situation of the United States we can now come to definite conclusions in regard to the base system required. Considerations directly affecting home bases have not been particularly dwelt upon for it is axiomatic that when a nation contemplates the exercise of sea power in waters other than those adjacent to home territory it should first establish proper home bases. These bases, completely equipped, should be so located as to command the resources of the entire country, be backed by the entire military strength of the nation, and be in a position to best project the fleet overseas and maintain it there. The United States now has a system of home bases, but unfortunately it is the result of legislation controlled by local interests and not the result of a sound, clear legislative policy based on military needs. It is believed that efforts should be concentrated on the development of the following home bases: -

On the East Coast: - A Main base in the Chesapeake region and secondary bases at Narragansett Bay and Key West.

On the West Coast: - A Main base in San Francisco Bay and secondary bases at Puget Sound and San Diego.

Panama: - A Main base. (Panama is included in the home base system as its position and importance render it practically a home port on a sourth coast).

As for oversea bases, we conclude that the following are required:

In the Atlantic: - Culebra (or Samana Bay)

In the Pacific: - Pearl Harbor

Harbor of Apra

Polillo

RESOURCES OF BASES

The general considerations affecting the resources of bases have already been states, but as the peculiar position of the nation, as modified by the special situations in the Atlantic and Pacific, determines the location of its bases, so does it also determine the resources with which they should be provided.

In the Atlantic: -

The United States being inferior in the Atlantic, her mission can only be executed provided that she is able to concentrate at the proper point every element of Naval strength possible and maintain it there in freedom and efficiency. As her hope of victory in the Atlantic lies in the success of operations conducted in the vicinity of the base in the Caribbean or to the eastward, it is then necessary that this base be provided with docks and repair facilities concordant with the magnitude of the concentrated fleet.

Concentration of effort on the part of the fleet also requires that it be care free as to its communications with home bases. This can only be obviated by the collecting at the Caribbean base of such reserve fuel and supplies as will suffice to sustain the fleet during the critical period of the campaign. But that is not the only reason for holding a good reserve of fuel

and supplies at the Caribbean base; another is that the United States will lack the necessary merchant marine to supply the fleet even if the communications are secure. The reasons for the latter are threefold: (1) The time in which to collect the merchant marine will be limited and probably not even all that on the Atlantic coast can be assembled, converted, etc. before the arrival of the German fleet. (2) The United States, being inferior in actual naval strength, must use every available merchant ship, at all suitable, for strictly military uses, - as scouts, tenders, transports, etc. (3) A large number of merchant ships will be needed (or must be held in readiness) for use as first line transport - that is, the service of supply between the terminal base (or other bases) and the war craft engaged in various parts of the theatre of war, which in this case will probably include the entire North Atlantic.

It is probably that the transports available for use in supplying the Caribbean base from the beginning of hostilities until the entrance of the German fleet in the disputed area would not suffice to transport more than 100,000 tons for reserve use. The balance of the fuel and supplies necessary to supply the fleet during the critical period of operations - from the arrival of the German fleet until the sea contest is decided or until the United States gains the advantage - must be held in reserve at the base.

In the Pacific: -

In the event of war in the Pacific, the United States fleet

must proceed to the Orient.

It is a principle that when a nation establishes a system of bases for the projecting of a fleet over seas to wage war in a certain area, the nearer a base is to that area (the battle area) the more complete should be its docking, repair and supply facilities.

The terminal base, Polillo, being the pivot of actual operations and the sole instrument of maintenance in that area (6,446 miles from the nearest home base), should be provided with the most complete docking and repair facilities.

Pearl Harbor and the Harbor of Apra, secure way-points on the line of communications, need not have these facilities to the same extent.

When the fleet arrives at Guam, it will have just completed a 3500 mile journey and will have entered the danger area where some war damage may be sustained. (Japan has a salient base at Port Loyd in the Bonin Islands only 800 miles from the Harbor of Apra.) The facilities at Guam should be such as to launch the fleet to the westward, and to possible battle, in the very best condition.

Pearl Harbor, outside of probable battle areas and backed by a home base (San Francisco) only 2,646 miles distant, need only be provided with that equipment necessary to maintain the fleet during a passage from San Francisco to Guam under ordinary conditions. In a proper system of secure bases Pearl Harbor is no longer a salient base protecting the western frontier of the of the United States but merely a secure way-point on the line

of communications and the least important one at that.

The supply difficulties attendant upon a compaign in the Pacific have been generally discussed. From what has been stated, it may be taken as truth that economy and efficiency demand that a certain reserve of fuel and supplies be collected and held in readiness at the Pacific Bases.

The difficulty of rapidly collecting merchant shipping and the demand therefore for purely military uses and for first line transport will be as great as in an Atlantic campaign. Although the United States need not inititate a naval advance to the Far East until she desires, or until she can charter and purchase the great floating trains necessary for the complete supply of the fleet, yet it must be remembered that the longer she delays that advance the more secure will be the Japanese position. A rapid advance is very desirable. It will become a necessity if the present margin of naval superiority held by the United States is much lessened.

To sum up, every consideration seems to point toward the necessity of collecting at the Pacific bases a reserve of fuel and stores sufficient (with the aid of the transport immediately available) to project the fleet to the terminal base and support its operations there for a period of at least two months, or until such time as the floating supply trains may be expected to be able to take care of the fleet supply. Of this reserve, the major part should, of course, be at the terminal base. The reserve at the way-points need be only that necessary for the use of the

fleet en route, plus that likely to be required for the support of minor operations in the vicinity of those bases during the period stated.

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In view of the conditions herein outlined we conclude that the oversea bases of the United States should be provided with the following resources: -

	Docks	Repair Facilities	Fuel
Samana (or Culebra)	2 large docks 1 small dock	For major repairs " "	300,000 Tons
Pearl Harbor	1 large dock	" "	200,000 "
Harbor of Apra	1 large dock 1 small dock	" " " "	300,000 "
Pollilo	3 large docks	" "	500,000 "

SECURITY OF BASES

A secure base is one which has adequate defense in itself to successfully resist any attack from land or sea during the absence of the fleet. An insecure base is simply an element of enemy naval power.

In late years the factors governing the defense of naval bases have changed considerable, principally owing to the following causes: -

1. The increased costliness and vulnerability of ships.
2. The development of the torpedo and its carrier.
3. The development of the battle cruiser.
4. The increased size and comparative cheapness of modern armies.

1. The Increased Costliness and Vulnerability of Ships: -

Naval materiel, in the main, is unreplaceable in war. It is the only military element that can destroy naval materiel properly used. Naval materiel is also particularly costly and vulnerable. While it takes an army to destroy an army, one man and one mine may destroy a battleship. When a battleship makes a hit on a million dollar shore battery, except in rare cases, it destroys only what it hits; when a shore battery makes a hit on a fifteen million dollar battleship it destroys what it hits plus anything up to fifteen million dollars worth, and the chances are not bad for the limit. To make matters worse, the shore battery (gun for gun) can make more hits.

For these reasons it is extremely wasteful to hazard modern

ships in a contest with coast fortifications unless the chances are good that such action will result indirectly in a corresponding reduction of enemy floating naval strength.

In the present day it is not likely that serious attempt would be made to force an entrance into or closely attack a well defended port, although feints may be made by second class ships in the execution of a demonstration intended to keep the sea defense occupied while a landing is attempted. In general, even when a nation has considerable naval superiority, until the sea contest is decided, naval power must be husbanded for its legitimate use - the destruction of floating sea power.

We may conclude then that large number of heavy guns is no longer necessary to protect harbors against the attacks of capital ships, but only that number sufficient to render the approach of capital ships dangerous.

2. The Development of the Torpedo and Its Carrier: -

The submarine is now so seaworthy and efficient that is may be expected to act with considerable success in any future theatre of operations. Its entrance into harbors cannot be prevented by mines alone, nor by gunfire. A boom and net defense is necessary for complete security. If a boom and net defense is impracticable, torpedo nets for ships is the only answer.

When equipped with a long range torpedo (a 10,000 yard torpedo will be developed within the next few years), torpedo craft may not find it necessary to enter a harbor in order to attach shipping therein, but simply attain a position outside

from which they can fire through the entrance. Unless a harbor is well retired inland or has a masked entrance, complete security from this form of attack only can be obtained by adopting the measures outlined above for submarines.

It is believed that in future harbor warfare, mine and boom defenses will be attacked by old merchant ships in a manner similar to the blocking attacks at Port Arthur. These attacks will be made not only for the purpose of destroying the defenses but with the object of opening the way for torpedo craft to enter. As this form of attack succeeds at the moment the ships reach their objective, it is essential that the ships be stopped or sunk before they arrive at that point. This may be accomplished by mines, placed well in advance of the booms, and by gunfire. If mine protection is not practicable then gun fire alone must be depended on. All these conditions point to the necessity of installing at least 5-inch guns in ample numbers to protect mine and boom defense.

It may be seen that the narrower the entrance to a harbor is, the more easily it may be secured against torpedo operations. It is peculiar that the very weapon which has made a narrow entrance very desirable for defensive reasons has also rendered a wide entrance, or more than one entrance, no longer necessary for the safe exit of a fleet. The submarines of the defense will ensure a clear area outside the harbor entrance when the fleet desires to issue forth.

3. The Development of the Battleship Cruiser: -

This, in general, affects only those bases which for defense rely partially upon the strategic disposition of the fleet - advanced bases for instance.

Where formerly, bases, covered by the strategical disposition of the fleet, were liable to bombardment by protected cruisers only, they are now liable to attack by battleship cruisers. The battleship cruiser, if it can observe the effects of its fire, can bombard large targets effectively up to a range of 18,000 yards, and may be expected to do so if it can without danger to itself. Therefore, for the protection of <u>any</u> base against bombardment by capital ships, it is necessary to install either large caliber guns of long range or lesser calibre guns well advanced from the object protected, in order to render these bombardments dangerous. Of course, submarines will assist in frustrating these attacks, but they cannot be absolutely depended upon and will not only as an auxiliary defense.

<u>4. The Increased Size and Comparative Cheapness of Modern Armies.</u>

Land forces always have been employed to capture naval bases; in fact, no naval base has ever been captured without them. But they have not, until modern times, been used so extensively to destroy naval materiel and shipping in harbors. To effect this, it is not essential that the harbor be captured, but only that a position be secured and maintained from which siege guns can be brought to bear on the objective and the results of the fire observed. It may be expected that when a nation is "long" on land forces it will use them freely for this purpose if its

opponent makes the mistake of allowing such operations possible. Modern men are cheap and are replaceable in war; modern battleships are expensive and are not replaceable in war. In a naval war, when land forces can effect the attainment of a naval object, it is right and proper that they be used for that purpose; and to the extreme if naval strength is weak. As an instance there is the siege of Port Arthur where the Japanese lost 60,000 men in killed, wounded, and missing to effect the destruction of the Russian Port Arthur naval detachment. And the Japanese were right.

We may conclude that the energy and efficiency of future land attacks on bases render necessary the most complete land protection possible.

From the foregoing considerations affecting the defense of naval bases, we may conclude as follows: -

1. That until the sea contest is decided, naval bases will be liable to land attacks in great force and to every form of naval attack applicable except close bombardment by capital ships.
2. That, by reason of the land and torpedo attacks to which bases will be subjected, the only type of position which can be made secure with a reasonable outlay (which is the extreme limit for the United States) is a small island in which there is a retired harbor with a narrow entrance.

All of the oversea bases proposed for the United States

are situated in small islands. All the harbors, however, are not retired harbors, nor have all of them narrow entrances. But, as stated before, all requirements will never be found in a single position. The sites proposed are the best in the areas in which the bases must be located. They approximate closely the type of position desired, can be made to serve the purposes of the fleet, and can be made secure by reasonable means.

Of the positions proposed, Pearl Harbor is now being fortified and the defenses necessary for the Harbor of Apra have been outlined recently by a Joint Board composed of officers from the Army and Navy War Colleges. So far as is known nothing has been done in regard to the securing of Samana Bay and Pollilo Harbor. It is hterefore with the security of the last named points that we will concern ourselves in the following pages.

Before making a detailed estimate of the defenses required for these positions, we will elaborate further upon the questions relating to the defense of harbors, situated as they are, with special reference to probable enemies. This study will complete the foundation on which to base a sound solution.

SEA DEFENSE

Fixed Defense: -

German naval power is of recent date and has never been tested in war. Therefore little is known as to German tactics in naval warfare. Japanese naval power, on the other hand, while also of recent date, has been tested in war. During the last eighteen years, it has furnished the world with its only lessons

in naval warfare. In the conduct of war in the future, Germany, as all other nations, will probably be guided by the lessons derived from the study of past Japanese operations. In taking up the sea defense of bases, it will, therefore, be of value to examine into past Japanese sea attacks on fortified bases and discuss preventative measures.

Bombardments: -

During the Russo-Japanese war, the Japanese ships bombarded Port Arthur five different times, but in no case were the shore batteries the main objective. Their objective was either the ships and material inside the harbor or ships operating outside under cover of the coast batteries. All of these bombardments were at long range from the coast batteries or from positions upon which they could not bear. Observing ships were stationed to report the results of the fire. Only slight damage was done to ships in the harbor and to material on shore. After the first three bombardments, when the Russian gunfire became more accurate and all bombarding positions were endangered by gunfire or mines, the Japanese did not employ their major ships in such operations. But they did use their capital ships for bombarding so long as they could do so with safety. When conditions changed, less valuable ships were employed, but with care, as the failure to afford naval support to the army in its assault on Takushan showed.

At the present time capital ships, where fire results can be observed, can bombard large targets effectively at a range of about 18,000 yards. On account of the higher velocity of their

guns, they can do this safely even when opposed by coast defense guns of the same calibre at the same range. To render bombarding dangerous to an enemy (and make use of the inherent advantages of coast defense guns - accuracy of fire and great protection), it is then necessary to emplace the coast guns in advance of the area which they are designed to protect.

If the harbor is a salient harbor and the conformation of the land forming it precludes the placing of the batteries very far in advance of the harbor, great range for the batteries will be necessary to render a bombardment of the harbor dangerous to an enemy. The harbor may also be formed so that an enemy may choose a bombarding position at any point throughout a wide arc. In that case the advanced batteries would be exposed to fire from the flanks and rear unless additional batteries were constructed to prevent it. In order that a reasonable number of guns may cover the necessary water area and adjacent coast line and be adequately protected from all points, they should be mounted in turrets so sited as to have practically an all round arc of fire. If, on account of the depth of water off the harbor, mines cannot be used to prevent an enemy attaining a bombarding position, the work must be performed by the heavy guns and floating defense.

Torpedo Attacks: -

The Japanese torpedo craft were very active during the late war, sometimes operating in very bad weather. Time and again they dashed up to the entrance of Port Arthur and discharged torpedoes at ships lying at the outer anchorage or in the

entrance. The net results of their attacks were small, due, it is said, to the short range of the torpedo and to the difficulty in estimating ranges in the face of gunfire and searchlights. They generally attacked successively in groups of from three to six boats each. Submarines were not used by the Japanese during the war.

The defense necessary for the protection of harbors against torpedo craft attacks has already been discussed in detail.

Mine Attacks: -

In the Russo-Japanese war, the Russians first demonstrated the value of mining operations. The Japanese then took it up on a large scale, using mines both defensively and offesnively. The anchored contact mine was mostly used, the generally shallow water off the South Manchurian coast favoring the use of that type. During the course of the war, 62,000 tons of naval shipping (Russia, 22,000 tons; Japan 40,000 tons) were destroyed by mines, and much more damaged. Both belligerents laid hundreds of mines off Port Arthur, and finally sweeping operations were absolutely necessary in order to approach or leave the harbor in safety.

If the waters off the entrance of a harbor are favorable to mining operations and areas cannot be covered by rapid fire guns mounted on shore, then patrol boats and long range mortars (19,000 yeard) must be depended upon to prevent these attacks.

Japan has fully ratified the Hague Mine Convention, but Germany has excepted Art. 2 - "It is forbidden to lay automatic

contact mines off the coast and ports of the enemy, with the sole object of intercepting commercial shipping."

Blocking Attacks: -

During their late war, the Japanese made three desperate attempts to block the entrance to Port Arthur, and although the entrance is very narrow and the water very shallow, all failed. In these attempts the Japanese expended a total of 48,000 tons of merchant shipping and many valuable lives.

The best defenses against this form of attack, as was proven at Port Arthur, are searchlights (to make navigation difficult), mines and rapid fire guns (large calibre).

Mobile Sea Defense: -

While there are some positions for the security of which a mobile sea defense is not necessary, there are none for which such defense is not desirable. In the case of small island positions, where all attacks (land or sea) must be made directly by the way of the sea, torpedo craft will have the widest employment and are therefore very desirable - in fact, necessary for an economical defense. For, in spite of the costliness of naval materiel, this defense can be economical. As types of vessels peculiarly fitted for the defense of bases (torpedo craft and vessels carrying rapid fire guns) become, through age or rapid development of the type, unfit for duties connected with the main fleet operations, they can be used to great advantage and with best efficiency in the defense of bases. Any nation with a large navy will always have such vessels. But, one thing should

be remembered: - That where reasonable fixed defense can be made to serve the purpose, no vessel of reasonable value in major fleet operations against enemy floating naval power should be tied up in a base defense. As an instance of this, there are the monitors of the United States. These are generally considered as fit only for the passive defense of harbors. As a matter of fact, these vessels will be of great value in fleet operations. They form an ideal escort for submarines, for they can proceed on their way undeterred unless confronted by capital ships. And that capital ships should engage the monitors supported by submarines is greatly to be desired. If the base system of the United States is properly extended, the monitors might also be able to exercise an influence in fleet actions.

In general, the strength of the mobile sea defense will depend upon the mission of the defense and upon the powers and limitations of an economical "fixed" defense. At times additional sea strength may be required and new construction necessary for economical reasons. New construction will generally be necessary in the case of mine planters and aero boats. Aero boats will be of particular value and most economical for scouting purposes and should in the future always be included in the base defense.

LAND DEFENSE

Mobile Land Defense: -

The main object of the land defense of a base is to protect the fixed defense batteries; but it must also cover all objectives of any enemy which cannot be covered by those batteries.

It is the aim of an enemy to capture the harbor for his own use, it will be necessary for him to completely reduce the sea coast batteries and all that part of the land defense that bears on the harbor. If the enemy's aim is simply to destroy the material in and around the harbor or to deny the use of the harbor to the United States fleet, it will only be necessary for him to secure and maintain a position on land from where siege guns can be brought to bear on the objective. Siege guns may be used effectively at a range of six miles. The bases proposed are situated in small islands and are thus near to available landing places on the islands. Therefore, if an enemy once gained a foothold ashore he might have to advance only a very short distance in order to gain his mission. Moreover, it is likely that the enemy force would be in such numbers that only an extremely large defending force could check it as it would be necessary for the latter to occupy a long line of land defense. For these reasons, together with the fact that in all cases the coast line is so favorable to the defense and so unfavorable to the offense, the governing factor in the land defense of all the bases should be the necessity of preventing a landing. An examination of oversea expeditions and landing operations of probable enemy states naturally follows.

German Oversea Expeditions and Landing Operations: -

Up to the time of the Boxer Rebellion in 1900, the Germans paid but little attention to the employment of regular land forces overseas.

The few colonies which Germany possesses are, with the exception of Kiou Chau, which is garrisoned by about 2000 Marine Infantry and Artillery, garrisoned and policed by Colonial Troops, about 10,000 in all, partly German and partly native and officered by German officers. These troops have generally sufficed for the suppression of colonial troubles which have arisen from time to time.

However, upon the outbreak of the Boxer Rebellion, the Germans felt that their interests in the Orient required the presence of a considerable force of troops and this necessitated the dispatch of a detachment of regular home forces.

On July 9, 1900, the German Emperor ordered the organization of a special expeditionary force to be formed of volunteers of the regular organizations and to consist of a battalions of infantry, 3 escadrons of cavalry, 4 batteries of field artillery, 1 battery of heavy artillery (howitzers), and the necessary special arms (railway, telegraph, pioneer troops, etc.), ammunition columns and trains.

Between July 17th and 18th the force was reported ready and the departure took place between July 27th and August 4th.

The force was composed as follows: -

500 Officers and Superior Officials

10,894 N.C. Officers and Men

558 Guns and Vehicles

16,830 cubic meters of baggage and stores were carried.

The force was carried by 10 steamers (3601 to 11,464 gross

tons or 2264 to 7300 net tons each) with a total tonnage of about 65,000 gross tons or 40,000 net tons. This allowed about 5.7 gross tons or 3.5 net tons per man with equipment.

So far as the size and construction of the steamers permitted, organizations were embarked in complete units. Owing to the long trip through the tropics (via Suez Canal) and the desire to have the forces arrive in the best possible condition, only about 70 per cent of the normal passenger capacity of the transports was used. All steamers were well fitted for the comfort of troops and carried supplies for 150 days.

Each transport was equipped with one steam launch and the regular number of pulling boats.

Only 30 horses were carried from Germany and these to test whether they could stand the voyage. The condition of these horses upon arrival in the East was unfavorably commented upon by American military observers. The bulk of the animals for use with the mounted arms were obtained in the United States, Australia and South China, and, sooner or later, met the Expeditionary Force at Taku.

The voyage lasted from 42 to 57 days and, with the exception of one steamer, the Strassburg, which was delayed by minor injuries, all steamers arrived at Taku on schedule time. Seven men were lost en route through accidents and disease.

In addition to the forces mentioned, a reinforcement consisting of:

269 Officers and Superior Officials

7,430 N. C. Officers and Men

303 Guns and Vehicles

and carrying 14,032 cubic meters of baggage and stores was dispatched on 8 steamers between August 31st and September 7th.

The transportation of such large numbers of troops across the ocean was a new experience for Germany. There were no preparations nor precedents, everything had to be improvised. This was demonstrated by the following:

(a) Upon the arrival of the expedition at Taku considerable difficulty was experienced in the disembarkation owing to the lack of proper water transportation. The German navy made every effort but could not secure lighters. It was first intended that the disembarkation should take place at Tsingtau, alongside the wharves, and only such equipment as was required for that operation was carried on the transports.

(b) Some of the organizations were delayed after disembarkation on account of not being able to get at their field equipment. This was caused by the government sacrificing war-like loading to hasty departure.

(c) Some of the animal transports did not arrive on time. Considerable difficulty was experienced in taming and training the new animals.

(d) The expeditionary force was not properly composed in that only a small detachment of cavalry was included. The terrain of North China is especially adapted to cavalry operations

and the want of mounted troops was badly felt during the campaign.

(e) Military observers stated that the ropps were poorly equipped as to clothing, etc., for service in China.

The expedition arrived in China only in time to take part in the aftermath of the rebellion - in punative expeditions - and little can be gathered from that service as to its efficiency as a fighting unit. It is known that it was not in a condition to take up a rapid offensive upon disembarkation, and being recruited from widely spread organizations and from landwehr was probably much below the accredited German standard in unit efficiency. Our military observers reported that the men seemed well disciplined and marched well under their heavy equipment; also, that the officers seemed efficient.

The next oversea expedition launched by the Germans was that sent to German Southwest Africa to aid in the suppression of the Herero revolt which broke out in the latter part of 1903.

The colonial troops proved unable to handle this situation and on January 17, 1904, a first expedition, composed of 4 companies of Marines, 8 machine guns, 60 men of the railway troops, and small detachment of seamen (in all about 700 men), was ordered prepared and on January 21st sailed for Swakopmund.

Reinforcements were subsequently forwarded by detachments and by the time the insurrection was finally quelled, in July, 1905, a total of 15, 734 men and 13,000 animals had been transported to the colony. No animals were shipped from Germany,

the horses, mules and oxen needed for transportation purposes being purchased in South Africa and the Argentine Republic and shipped direct.

The details of the transportation of the troops, animals and supplies are not known. At first much trouble was experienced in disembarkation operations at Swakopmund owing to the roughness of the sea, poor harbor facilities and the lack of proper preparations for the work.

During the first part of this campaign the Germans met with many reverses due principally to the following reasons:

(a) The forces lacked cohesion which is characteristic of improvised units.

(b) Duality of command; the Commanding Officer of the Expeditionary Force and the Commandant of the Colony working at cross purposes.

(c) The expeditionary forces were composed of volunteers from many different organizations and were not properly organized or fully equipped until their arrival on the scene of action.

(d) The Germans, both leaders and men, were inexperienced in tropical warfare and in operating in a closely wooded and rough country.

(e) They attempted movements by separate columns in a close country where any unlooked for circumstance may destroy all coordination.

(f) They were pitted against an extremely mobile and determined enemy that had a thorough knowledge of the country.

(g) The troops suffered much from tropical diseases.

The Germans finally brought the campaign to a successful issue through:

(a) Great superiority in numbers.

(b) Establishing a thorough system of communications, mostly visual, whereby forces could be coordinated to some extent.

(c) The upbuilding of the railway to facilitate the forwarding of supplies.

(d) The use of mounted infantry columns, where the country permitted, to offset the superior mobility of the enemy.

(e) Increased experience in this particular mode of warfare.

The Herero campaign was followed by operations against the Hottentots, but as these were really a continuation of the former campaign little of interest is to be derived from a study of them.

This campaign is the last instance to date of the employment of German regular land forces overseas.

It is evident from a study of the expeditions summarized herein that the Germans had not studied the science of oversea expeditions and landing operations to any great extent ... In both cases they were ill-prepared; the expeditionary forces were improperly composed and equipped as originally conceived and they were forced to learn by experience the forces and equipment and the mode of warfare best adapted to the enemy and the terrain in which they were operating.

In neither case were the forces in a fit condition to assume a rapid offensive as an efficient fighting unit upon landing; and this is most necessary in landing operations on hostile shores.

So far as is known at the present time Germany has no force specially formed, organized and trained in landing operations, unless the home detachment of Marine infantry and artillery, numbering about 1,400 officers and men, can be considered one; nor has she given her forces in general any special training in that line. One or two reports have been published in the last few years regarding landing maneuvers of small mixed detachments on the open coast in the North Sea, but these have not been verified.

However, Germany has doubtless profited from her past mistakes in oversea warfare (as is the German custom in things military) and has taken some measures to avoid them in the future. She has also doubtless profited much by recent Japanese operations. It is probably that, especially in great wars when conditions will be such as to permit her employing all units of her vast army, her expeditionary forces will be fairly efficient considering their inexperience.

Japanese Oversea Expeditions and Landing Operations: -

Japan had her first experience in oversea operations during the China-Japanese war. Her operations were very successful. In fact, the capture of Wei-hai-wei has often been cited as a model for such operations. Her success was due to thorough preparation. Thus experienced, and again thoroughly prepared,

Japan, during the Russo-Japanese war, embarked, transported, and disembarked her expeditionary forces with a dispatch and ease that had never before been known. All foreign observers were united in the praise of thorough cooperation of the sea and land forces, the excellent landing organization, and the efficiency of the personnel and materiel and materiel for the work in hand.

Most of these operations were carried out under unfavorable conditions. The coasts of Korea and Manchuria are not adapted to landing operations. The mountains being near the sea, the coast is generally steep. The adjacent waters are shallow, the range of tide is great, and the ebb tide uncovers vast mud flats. As a consequence, transports cannot generally approach within three miles of the coast and sometimes small boats cannot land, thus necessitating the construction of landing stages or forcing the men to wade through long stretches of mud and water to gain the shore. Dalny was the only landing place of the Japanese where there were any dock facilities. They carried out disembarkations at night as well as day and often under very bad conditions of sea and weather. It may be truly said that during this war the Japanese experienced almost every difficulty that landing operations could develop.

The Japanese being past masters of the art of secrecy and of the ruses of war, and the expanse of available coast line being so great, their landings were generally entirely unapposed. Their general procedure was to make reconnaissances along a stretch of coast with gun boats and mine sweepers. These were

partly feints. When this was completed, and the sea communications appeared reasonably safe, the transports were dispatched direct to the point selected and the disembarkation began. Marines, thoroughly trained in landings, were always landed first as a temporary covering force.

When the transports were once in a position the disembarkation was carried out with great rapidity. Each transport generally carried all the materiel needed for the landing and coolies to handle it. The troops and materiel were transported from ship to shore in sampans or small flat bottom lighters. These held from 30 to 100 men and drew not more than two feet when loaded. Each sampan or lighter when filled dropped astern where they were lashed two abreast and formed into trains of from 5 to 10 each. When a train was made up it was towed in near the beach or landing stage and cast off. Coolies then sculled the boats into the landing. Some idea of the rapidity with which this work was done may be gained from the following summary of the landings at Chemulpo and Alkova: -

Landing of the advance force at Chemulpo, Feb. 8, 1904: -

Two transports, carrying about 2500 men and a few horses and anchored about three miles from the beach, were discharged between the hours of 6:15 p.m. and 3 a.m. The landing was effected at an old jetty in the harbor. Troops and material were transported from ship to shore in sampans, each holding from 30 to 60 men or 5 horses and 10 men. The sampans were towed in trains of

from 5 to 10 each by steam launches. The weather was favorable; landing unopposed.

Landing of expeditionary force at Alkova, Saghalein, July 24, 1905: -

The transports were anchored off a sand or shingle beach where they could discharge simultaneously. There were ten steam launches available and each transport carried two or three small lighters (approx. 9 ft. x 36 ft.), each holding about 100 men. The infantry transports were emptied inside two hours. Weather favorable; landing unopposed.

Japanese landing methods were the result of long experience in disembarking field armies at restricted landing stages on the South Manchurian coast. They are especially favorable to the rapid landing of a large number of men simultaneously on a limited beach space.

There is no record of the Japanese ever having landed in the face of a determined prepared enemy. They have so conducted their past operations that it has never been necessary. But, if it is necessary in the future, it is believed that they will make the attempt if there is a reasonable chance of success. It is true that with modern artillery and terrain favorable to the masking of guns and troops on the side of the defenders, and only restricted landing places available to the attackers, it would be a desperate undertaking and could only be carried out at a great sacrifice. But the Japanese will make the sacrifice, for their

past operations plainly show that where it is possible to succeed, the only limit to losses is that one set by success.

If the past tactics of the Japanese may be taken as a criterion, it is probable that for several days prior to attempting a landing the entire coast line will be reconnoitered by cruisers and all landing places bombarded in an endeavor to locate and develop the strength of the defense. The real attempt at landing, accompanied by several feints, will be made at dawn and will be supported by a heavy fire from the naval escort.

Although the Japanese will doubtless have good local knowledge of the various landing points, it is not likely that they will attempt a landing in force at night on account of the forbidding nature of the coast. They will, however, probably attempt to land small parties at different points with the idea of destroying material or of securing temporary covering positions for a landing in force at dawn. Past events show that a limited number of men, thoroughly trained in landing on a difficult coast and possessing local knowledge, can effect a landing at night under very adverse conditions.

To sum up: In case of war with the United States, both Germany and Japan will have strong land forces, otherwise unemployed, with which to support naval operations. The bases of the United States, especially those in the Pacific, will be liable to land attacks by efficient, determined forces in great strength.

General Scheme of Land Defense: -

As the purpose of the defense is to protect the base (station and anchorage) for the use of the fleet during the entire war, the defense should be such as to endure the most stubborn resistance for the greatest length of time. While all efforts should be concentrated on holding the main line of defense, provision should be made for further defense in event of that line being driven in. In other words the occurrence of the unexpected should not result in the fall of the point protected but merely in the fall of a portion of the defenses. The enemy should be forced to take succeeding lines and finally a stronghold. The stronghold should be around the main elements of the sea defense, for until they are destroyed the enemy cannot use the harbor for his own fleet, and the defenders will have a foothold in case an opportunity for recapture of the fallen positions should present itself.

In view of these considerations, the defense should include a Main Line (first line), and provision for a Second Line and Stronghold, the latter two to be occupied in force only in event of the defenders being forced to retire from the line in advance.

Main Line: -

This line should follow the sea coast and defend all possible landing places on the island; and it should be assumed that an enemy is likely to land at any point where a landing is possible. (While weather and sea conditions may sometimes

permit of the withdrawal of the major portion of the defense from one quarter and concentrating it in another, yet these conditions should not be counted on in planning an initial defense.)

The disposition of the armament and personnel in the Main Line should be made with the following objects in view: - (a) To delay the transportation of troops from ships to shore. (b) To deliver a sudden volume of shrapnel, machine gun and rifle fire on the enemy as he is landing, or about to land. (c) To contest the advance of an enemy inland from the moment of landing. (d) To protect the defenders from fire from the sea. (e) To ensure a safe retirement of the defending force to the Second Line.

Included in the Main Line should be the following: - (a) A line of portable searchlight positions covering the main landing points. These positions should be so located as to not only enable the defenders to detect an approach of landing parties at night, but also to render navigation as difficult as possible. The searchlights should be distributed in pairs, one in position and one in the infantry position to rear. The searchlight best adapted for this work is believed to be the 36" portable searchlight (with mother traction).

(b) A line of well fortified and masked infantry and machine gun positions within effective range of and flanking the beaches where landings may be made; so located when possible

as to afford mutual support. Also positions to the rear from which an effective fire may be brought to bear in support of those in front and on probable initial covering positions which the enemy might attempt to occupy directly upon landing. These psoitions should be prepared for a strong defense. The widest use should be made of obstacles on the fronts of positions, at the beaches, and in the water approaches to the beaches.

(c) A line of defiladed field or mountain artillery positions (about 1000 yards in rear of infantry positions) from which an effective fire may be brought to bear on landing places and approaches thereto, and with alternative positions near at hand from which a direct fire may be brought to bear on those objectives and on the fronts of infantry positions. In case the country is close and there is good protection the lighter guns might be pushed well to the front, even to the beach, at times.

Mountain artillery is especially well adapted for this work in the island positions of the United States. The new mountain gun is practically as effective as the Field Artillery piece and is much more mobile. Its carriage has a narrower tread, it is well adapted to motor or pack transportation, and can be man-handled if necessary.

(d) A line of defiladed siege artillery (guns and howitzers), with alternate direct fire positions for guns, somewhat retired from the field artillery positions and near the main "belt" road, from which fire may be brought to bear on transports within

range, landing places and their approaches, and on the fronts of infantry positions. The piece best adapted for this purpose is believed to be the 4.7" siege gun. It has a range of about 7,500 yards and is sufficiently mobile. The howitzer is not so effective (primarily) as the gun, but a certain number should be employed as they will be invaluable for use in case an enemy gains a foothold on shore. A howitzer of at least 6 inches in calibre should be provided.

(e) A line of section supports, in or near fortified positions, so located as to best support the positions in front and each other, and contest the approaches to the Second Line in case retirement becomes necessary.

(f) A general reserve so located as to best support the sections, or cover the retirement of the advanced forces and occupy the Second Line or Stronghold in case it should be necessary.

The apportionment of forces to advanced positions, supports and reserve should be governed by the following considerations: -

(a) The force necessary for the initial defense of the various landing points in case the enemy attacks under favorable conditions. (b) The time necessary for the supports and reserve to act. (c) The provision of reliefs for the forces in permanently occupied positions.

Second Line: -

This line, which should be prepared for occupancy in case it is necessary to retire from the Main Line, should be so

located as to prevent effective bombardment of the station and anchorage by siege guns. In case a good defensive line is not possible at the required distance from the harbor and station on account of the weakness of the defenders, then a line nearer to the harbor and station with advanced positions should be held. By holding the latter (even to sacrificing the garrisons) effective bombardment by the enemy will be rendered very difficult, if not impossible, and the advance of the enemy will be greatly delayed.

Stronghold: -

A strong position, containing important elements of the sea gun defense (placed there with this object) should be prepared to be occupied as a last resort. The holding of this position will not prevent the destruction of material at the naval station nor protect the harbor from the land side but it will deny the use of the harbor to the enemy, which is very desirable.

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The main item of expense in base defense is maintenance of personnel. It costs the United States about $1,000 per year to maintain one infantryman. Materiel is comparatively cheap. Therefore, in the defense of bases, materiel (guns, wire communications, transport, etc) should supplant men wherever possible. For the same reason the widest use should be made of native labor and material obstacles.

Communications: -

A system of defense of the nature proposed cannot be effective without the most quick and thorough cooperation. This

is very important in the case of the island positions of the United States as the defending forces must by necessity be small and the mobility of transports favors the execution of numerous feints and sudden serious attacks. It is then most necessary that such a system of first class roads be constructed as will enable troops to concentrate at assailed points with safety and dispatch, and that a complete system of wire communications be installed.

Roads: -

In planning the road system, in addition to ensuring rapid communication between various parts of the defense, the following points should be considered: -

(a) Concealment from view and protection from fire from the sea.

(b) Facility in executing counter attacks.

(c) The safe retirement of the defenders to the Second Line and the covering of the roads leading thereto by the advanced positions of that line.

The system, in general, should consist of the following roads: -

(a) Radial roads leading from the General Reserve to the Section Supports.

(b) A "belt" road extending around the Main Line in rear of the defensive positions.

(c) Spur roads leading from Section Supports to defensive positions.

(d) Connecting roads between the Main Line system and the Second Line.

(e) A beach trail around the island for the use of patrol.

Wire and Visual Communications: -

The particular necessity for rapid cooperation renders necessary two systems of wire communication - one for command purposes and one for artillery fire direction. To ensure good service under all conditions, these systems should be double and the parts near the coastline securely protected against fire from the sea, and from small raiding parties which may effect a landing.

The wire communications required are outlined below.

Command System: -

General Reserve to: - Headqrs. Sea Defense
Observa. Station Chf. Artillery
Section Supports

Section Supports to: - All defense and searchlight
(Obs. Sta.) positions in Section and to
Commanders Section Artillery
(Obs. Sta)

Artillery Control System: -

Observation Station, Chief of Artillery to: - Observa. Sta., Commanders of Section Artillery.

Observation Stations, Commanders of Section Artillery to: - All artillery positions in their section.

A system of visual communication in readiness for operation is required for use of the cyclist patrols and for general use in case the wire communications are interrupted.

Transportation: -

Regular animal transport is very costly in the tropics as animals do not thrive well and the cost of maintenance is great. Experiments carried out in recent years show that even in this country, provided that the roads are such as to allow of its free use, motor transport is more economical. It has been found that one motor truck, with a load capacity of about 3000 pounds and a high speed of about 12 miles per hour, can do the work of two escort wagons. The main objections to motor transport for military use in the past have been its mechanical unreliability and its inability to traverse bad or hilly roads. In later types of motor transport, these objections do not apply to nearly the same extent and all nations are now supplementing their animal transport with it.

It is believed that this form of transport is well adapted for use in the island positions of the United States and should replace animal transport entirely. A proper system of military roads will permit of its free use all the year round and under war conditions. It will also be more rapid and more economical. There will be no difficulty with the fuel supply as the Navy will have to keep a large reserve at bases for its own use. Motor lorries may be used not only to transport supplies and ammunition but, parked at the reserve and support stations, may also be used to transport guns and men to positions.

Mobile reserves are of the utmost importance in this case and therefore any means by which their mobility can be imcreased should be adopted. For the same reason also part of the infantry

at the reserve and support stations should be equipped with bicycles. With reliable means for the rapid transportation of guns and men at hand, the forces in the advanced positions could be considerably decreased and the reserves increased. This is very desirable.

THE DENIAL OF BASES

Whenever an expenditure of funds is advocated for the securing of an oversea port for the nation's use in war, one argument always advanced is that of a value of denying the port to an enemy. With the American people, seemingly wedded to the passive defense, this is a potent argument and has doubtless been an important factor in the securing of appropriations. But while it may be the "open sesame" to an appropriation, it is not sound. The advantages to be derived from the denial of a port to an enemy should never, in any degree, be a factor in the selection of a naval base. If, after thorough study and investigation, a point is necessary to support fleet activity in certain waters, then the most suitable point for that purpose should be selected and secured for that reason alone. This is truth; it needs no supporting arguments. Besides, the more denial of a base is an easy matter in most cases, requiring no appropriations for the performance of major operations on the surrounding terrain.

To deny a harbor to an enemy it is not necessary that the armament be such as to be able to sink every vessel that comes within its range of action, but only that capable of rendering the use of the harbor dangerous to vessels. A Commander-in-Chief would be somewhat annoyed if he found his anchorage covered even by rifle fire; if he found it covered by siege gun fire, it is safe to say that he would not use it. For overhauling and refueling under the fire of high explosive shell (particularly effective against train vessels, the upper works of men of war,

and mental tranquility) would be unbearable.

Therefore it is only essential that the denying force be in a position to cover the anchorage, entrance to the anchorage, or both, with siege gun fire when desirable. It is not necessary that the fire be of great volume nor that it be continuous - far from it. All that is necessary is a few shots occasionally. An officer conversant with the ways of ships and men will have no difficulty in recognizing the proper mements for action.

The next and most important question is: How are those siege guns to be so secured that, in the face of sea attacks from the fleet and land attacks from the troops carried with the fleet, their action will be ensured? This question will be answered by taking a concrete case - Guantanamo Bay. This point is chosen because it is the only case in which there is sufficient information at hand on which to base an answer.

It is presumed that all are familiar with the general characteristics of Guantanamo Bay.

About 4000 yards west of Hospital Cay there is a knoll (about 175 yards in length, about 100 yards in width, and from 30 to 40 feet in height) surrounded by tidal flats. The field of fire from this point is clear (or can be cleared with very little labor) on all sides for a distance of at least 800 yards. Although there are points of approximately the same elevation within about 1000 yards, the nearest commanding positions are at least 5000 yards distant. All parts of the anchorage and entrance lie within siege gun range (7000 yards) of the knoll, and can, with the possible exception of the west half of the outer

harbor which may be masked by the ridge back of Conde Beach, be observed therefrom.

It is believed that this knoll can be so fortified and garrisoned as to resist any attack that may be made against it by a fleet or by land forces accompanying the fleet.

The form of work proposed is a closed redoubt, with complete bomb-proof cover. As the reason for the work is the denial of the harbor, it must be so planned as to best protect and facilitate the action of the siege guns which make the denial possible. Provision must be made for handling the siege guns in the same manner as fortress counter-assault guns - that is, for holding them in secure bomb-proof cover until time for firing and then running them on firing platforms emplaced in defiladed pits. A portion of the pits could also be provided with bomb-proof cover. This arrangement will render the guns, when in firing position, practically secure against fire from ships and only slightly exposed to high angle fire from shore batteries.

The natural characteristics of the position are very favorable to a strong defense against land attacks. The shores of the knoll are steep and can probably be made sheer for a considerable height. As extensive a ditch as desirable, or as time will permit, can be constructed around the position and naturally will be filled with water. Sapping by an enemy is believed to be impossible, and all assaults must be made in the open through water or sticky mud. If, added to these conditions, adequate protection be provided for men and materiel and the fullest use be

made of material obstacles, there seems to be no reason why the position should not hold out until the supplies are exhausted.

The supply of the position in preparation for a siege will not be a difficult matter. Supplies can be taken up the Guantanamo River by lighter to within 800 yards of the position and then carried across the flats. Water can be brought up the river in the same manner and then pumped across to the position through a temporary pipe line.

The reason that this particular position is chosen in preference to an island position is that it is better located to withstand the fire from ships. Immediately upon the arrival of an enemy fleet a number of small craft might closely surround a lightly armed island position and, with their great number of rapid fire guns, smother the fire of the defense and literally pound the work to pieces. This is not possible with the position chosen. If it is taken at all, it must be taken by land forces whose operations, although directly successful, must consume considerable time. During this period at least the harbor will be denied to the enemy fleet.

For the prolonged defense of this position the following armament and garrison is proposed: -

Armament: - 4 six-inch howitzers
4 three-inch mountain guns
8 machine guns
2 thirty-siz inch portable searchlights
2 fifteen-inch portable searchlights

Hand grenades

1 Field Wireless

Garrison: - 250 men

If the purpose of the denying force is simply the denial of the harbor to an enemy fleet as a first base in the caribbean, then the armament could safely be lessened by two six-inch howitzers and one thrity-six inch searchlight, and the garrison by fifty men.

From the information available it would seem that the other harbors in the Caribbean, the denial of which to an enemy is of importance, can be denied in a manner similar to that outlined for Guantanamo.

Nipe Bay, by a redoubt on Signal Station Hill.

Fort Liberty Bay and Manzanillo Bay, by a redoubt on the east side of the entrance to Fort Liberty Bay.

Fajardo Roads, by a redoubt on Palominos Cay.

Gulf of Cariaco, by a redoubt on Point Arenas.

Margarita Id. Anchorages, by two redoubts, one on the west end of Coche Id. and one on the east end of Cubagua.

The selection of locations for the above mentioned redoubts is based on slight information. A personal reconnaissance may prove that there are no redoubt sites at some of the locations which can be made sufficiently strong to resist probably attacks. But it will be unusual if there is not at least one good redoubt site, suitably located, near each harbor which can be made to fulfill requirements.

These fortified points will not only prevent an enemy fleet from using the adjacent waters but will also directly support the operations of one's own fleet by (a) forming points of refuge for small craft when hard pressed and (b) serving as a foothold and support in case circumstances render it desirable to occupy and secure any of the adjacent harbors as advanced bases.

It is realized that the construction of the type of redoubt necessary will be no small task. But there will be at least one month after the beginning of hostilities in which to perform the work, and in most cases native labor will be available. If complete plans are prepared in times of peace and the men are trained to the work the scheme should be feasible.

THE SECURITY OF ADVANCED BASES AND ADVANCED BASE OPERATIONS

The principles governing the defense of permanent bases have already been outlined. The principles governing the defense of advanced bases are identical, but owing to the conditions under which the defending force must operate they cannot be applied to the same degree. This, however, is counterbalanced by the fact that under normal conditions the advanced bases will always be protected tc some extent by the strategical dispositions of the fleet. While the attacks on advanced bases will be of the same nature as those on permanent bases the presence of the fleet will prevent their occurrence with such frequency and in such strength.

Normally, the projecting of a fleet into a disputed area and the establishing of an advanced base denotes superiority, or at least equality of naval strength. The fleet may therefore be depended upon to keep the main body of the enemy occupied and thus prevent an attack in force either by land or by sea. Moreover, until the sea contest is decided, it would be dangerous for an enemy to detach a strong force for this purpose, and even if he did so it would be extremely wasteful to hazard it in a contest with shore defenses (even intermediate calibre guns) unless the results to be obtained thereby were very great. If a nation has succeeded in establishing a complete system of bases in time of peace, it is safe to say that no compensating results would be gained by such operations. In that case the capture of an advanced base would only effect a temporary setback in the

operations and would not exercise any vital influence on their ultimate outcome.

For these reasons it may be generally concluded that advanced bases will be subjected only to raids by cruisers, torpedo craft and blocking vessels, combined probably with land attacks. As these operations would have to be executed with great secrecy and rapidity, the landing force would be small, probably composed of not more than 10,000 men. It is not likely that cruisers or other ships of value would attempt a close attack on the sea defenses, but would confine their attacks to long range bombardments with the idea of keeping the sea defenses occupied while a landing was attempted. Determined attacks by torpedo craft and blocking vessels are to be expected at night however, because an enemy will endeavor mainly by torpedo operations to lessen his opponent's naval superiority and thus prepare the way for a favorable fleet action.

The foregoing statements apply to advanced bases in general. In the consideration of advanced bases from the standpoint of the United States one is again confronted by her special position with its two distinct situations - one in the Atlantic and one in the Pacific. Only through a study of these two situation with particular reference to advanced base operations can definite conclusions be arrived at as to the peculiar functions of the force charged with that work and thus the personnel and armament with which it should be provided for its successful action. All operations connected with bases are considered, as the

execution of all will probably fall to the same force, the Marines with the fleet (or Advanced Base Outfit), and such consideration is necessary in order to arrive at economical conclusions.

A review of the situations in the Atlantic and Pacific here follows:

ADVANCED BASE OPERATIONS IN THE ATLANTIC: -

The advanced base operations in the Atlantic will be somewhat abnormal. The United States will be inferior in naval strength. She will therefore act on the strategic defensive, and, with Panama and Samana Bay (or Culebra) secure, will carry out all operations in close proximity to permanent bases. This fact may render advanced bases unnecessary, or, if they are occupied, of comparative unimportance. However, this cannot be determined with much certainty as the operations of the United States fleet will depend to a large extent on enemy movements.

But there is one exception to the foregoing and that is Culebra. If Culebra cannot be made suitable for use as a permanent base and is therefore not secured as such, then it should by all means be held as an advanced base during the entire campaign. Although it may not be suitable for a permanent base for the entire fleet throughout the campaign yet, by reason of its position, it will be of great value as a pivot of operations for the entire fleet during the first phase of the campaign and for small craft - scouts, destroyers, submarines, etc. - at all times. In any event Culebra should be denied, not only to prevent an enemy from using it as a base, but for the reason that it should always be in the

possession of the United States at the end of a war.

Culebra is a small island position and can be held strongly by a small force, and, being United States territory, it can be fully prepared for occupancy and defense in time of peace. (This work, by the way, would be the best of peach training for those forces which will be assigned to its defense in time of war). Culebra will be open to attacks in force, as in the case of the permanent base in the Caribbean, but the enemy will not have the same incentive to attack. When attacks in force become possible there will be but little materiel there to destroy and operations intended to deny the use of the harbors to the United States or to completely reduce the place would be very costly and therefore unprofitable.

The balue of the denial of certain points in the Caribbean to the enemy fleet and an economical scheme for affecting such denial have already been outlined. It is probably that if other advanced bases, besides Culebra, are found to be necessary that some of these points will serve the purpose, and a neucleus of the defense will have been already installed. While some of these positions could not ordinarily be easily defended as advanced bases yet it is not believed that it will be a very difficult matter in this case. The occupation of further advanced bases will signify that the United States has been more or less successful in the first pahse of the campaign and is pushing offensive operations. At this stage of the contest the enemy will be fully occupied and he will not be in a position to make attacks in force on bases with naval

materiel nor to support the oversea transport of land forces for that purpose, granting that the importance of the bases warranted it, which is improbable.

It is not probable that the initial occupation and preparation of the Caribbean points for defense will be opposed to any great extent. Guantanamo and Culebra are situated in United States territory. The other points which it is desirable to occupy are in foreign territory, but it is believed that if proper representations be made to the nations concerned and the nature of the occupying forces (which would not be of sufficient strength to be considered a menace) be fully explained to the, there would be no opposition.

In the initial operations in the Caribbean, the Advanced Base forces will have at least one month in which to prepare their positions before being confronted by the enemy.

The foregoing are the main considerations effecting the defense of advanced bases in the Atlantic. These, in turn, are affected by the natural characteristics of the harbors occupied, but in this case this phase does not exercise a great influence in estimating the forces necessary for their future defense. The harbors will not be secured by an enemy and therefore the United States fleet will probably be free to occupy any type of harbor it desires insofar as they are naturally available. Besides the Caribbean harbors mentioned there are numerous other harbors of all types which might serve as advanced bases for the United States fleet, for it will always operate in close proximity to permanent bases. This together with the fact that in this theatre of war it is

particularly difficult to predict the trend of operations after the first phase (by reason of being forced to conform to enemy movements) renders any detailed study of the natural characteristics of the harbors (with the exception of Culebra and thos harbors to be denied) of comparatively little value.

The general characteristics of Culebra have been commented on. Other harbors which may be occupied as advanced bases by the United States fleet will probably have the following general characteristics:

(a) They will be situated in large islands, or in the continental mainland.

(b) They will be retired from the sea.

(c) They will have comparatively narrow entrances.

(d) The entrances can be mined, but not the waters off the entrances.

Besides operations connected with the defense and denial of bases, the troops with the United States fleet in the Caribbean will be called upon to perform another form of operations - the raiding of enemy bases.

The importance of a Caribbean base to Germany will render this form of attack particularly effective. While lack of troops or enemy dispositions may render a strong raid impossible, such attacks should not be foregone. At least small parties can be landed at night to raid batteries, searchlights, etc., and thus keep the enemy in continual anxiety as to the security of his base armament and force him to keep as great a naval force as possible

on the qui vive for its protection. Such raids would be particularly effective if combined with raids by torpedo craft.

In view of the foregoing considerations it may be concluded that the peculiar functions of the Advanced Base Force in the Atlantic will be to: -

(a) Defend Culebra (a small island position) as an advanced base for the United States fleet against all attacks.

(b) Deny harbors, suitable for use as advanced bases, to the enemy.

(c) Defend retired harbors (with narrow entrances), situated in large islands or in the continental mainland, as advanced bases for the United States fleet. Resist especially torpedo craft attacks.

(d) Raid enemy bases.

ADVANCED BASE OPERATIONS IN THE PACIFIC: -

In the Pacific, the United States will be superior in naval strength and the war will be waged under more or less normal conditions so far as advanced base operations are concerned. There are, however, several points which it will be well to consider specially. They are as follows: -

(a) It is probable that all points suitable for use as advanced bases by the United States fleet will be denied in some strength. This will necessitate the A.B. force being prepared for the execution of opposed landing operations, and of attacks on denial positions similar to those porposed for the Caribbean

region.

(b) The United States fleet will be operating offensively in enemy home waters and rapidity of operations will be an important factor in its success. The A.B. force must therefore be so composed and prepared as to carry out its work with the greatest speed possible.

(c) The advanced bases will be subjected to torpedo attacks and land attacks in comparatively great strength, for the advanced bases must by necessity be located in close proximity to the great centers of enemy torpedo and land strength. This applies especially to the latter part of the operations when the advanced base will be moved farther from permanent bases (and therefore closer to enemy strength) and its security becomes of greater importance and more difficult to maintain. The A.B. outfit must be prepared to meet these attacks.

Such are the main considerations which particularly affect the defense of advanced bases in the Pacific. In this case they, unlike the situation in the Atlantic, are strongly affected by the natural characteristics of the harbors occupied in the consideration of the forces necessary for their defense. As stated, the harbors will be denied in more or less strength, and therefore the United States fleet may not choose the type of harbor it desires, one that is easily defensible or one that suits the advanced base armament with the fleet. It must take what it can get.

The harbors in the Pacific which might be occupied as

advanced bases are the following: -

Camiguin: -

This anchorage (Port San Pio V) has an area of about 3-1/2 square miles. It is formed by the Island of Camiguin on the south around by east to the northwest and is partially protected by Font Island on the west. The land forming the harbor is generally high. There are two deep water entrances, one on either side of Font Island. The northern entrance is about 1800 yards wide and the southern entrance about 2400 yards wide. The water in and off both entrances is too deep for mining.

The Island of Camiguin is about 12 miles long and 7 miles wide at the widest part. It covers an area of about 50 square miles. The coast is unfavorable to landing operations.

Coffin Bay (Newport), Bailey or Coffin Group: -

This anchorage has an area of about 4 square miles. It is formed by the Island of Haha Jima on the northeast and by a chain of small islands and reefs on the east, south and southwest. The land forming the harbor is generally high. The main entrance is to the westward and is about 1-1/2 miles wide. The other entrances are narrower. The water in and off the entrance is too deep for mining.

Haha Jima Island is about 7 miles long and about 2-1/2 miles wide at the widest part. It covers an area of about 7 square miles. The coast seems to be unfavorable to landing operations.

Miyako Jima (or Taipinsan) Anchorage, Meiaco Sima Group: -

This anchorage has an area of about 16 square miles. It is formed by Taipinsan Island on the east and by two islands on the northeast and south, which afford partial protection in those directions. The land forming the harbor is fairly high. The main entrance is about 4-1/2 miles wide. The water in and off the entrance is too deep for mining.

Taipinsan Island is about 16 miles long and about 12 miles wide at the widest part. It has an area of about 50 square miles.

Nakura Wan and Ishigaki Hakuchi Anchorages.

Meiaco Sima Group: -

Ishigaki Hakuchi Anchorage covers an area of about 3 square miles. It is formed by the Island of Pa Chung San on the east, by Roberton Island on the west, and by coral reefs on the south. The entrance is to the northwest and is about 1-2/3 miles wide with a depth of water of about 20 fathoms. The harbor is very salient to the south and would be difficult to protect from bombardments.

Just to the north of this harbor is Nakura Wan anchorage. It has an area of about 5 square miles and is formed by the Island of Pa Chung San. It is open to the west and northwest. The entrance is about 4 miles wide. The water in and off the entrance is too deep for mining.

Pa Chung Island is about 18 miles long and about 10 miles wide at the widest part. It covers an area of about 100 square miles. The highest point on the island is 1680 feet.

Chim Wan Bay, Lu Chu or Okinawa Group: -

This anchorage covers an area of about 8 square miles. It is formed by the Island of Okinawa Jima on the north, west and south and is partially protected on the east by small islands and reefs. The land forming the harbor is generally high. The main entrance is to the northeast and is about 3 miles wide. The water in and off the entrance is too deep for mining. The defense of this place against land attacks would necessitate the holding of land lines on Okinawa Jima to the north and south of the harbor - about 3 miles in each case - and the prevention of landings on a portion of the island covering an area of about 150 square miles.

Nakagusuku Wan, Lu Chu or Okinawa Group: -

This anchorage covers an area of about 25 square miles. It is formed by the Island of Okinawa Jima on the north and west, and is partially protected by small islands and reefs on the south and west. The land forming the harbor is generally high. The main entrance is to the westward and is about 2 miles wide. The water in and off the entrance is too deep for mining. The defense of this point against land attacks would necessitate the holding of a land line about 3 miles long on Okinawa Jima and the prevention of a landing on a portion of the island covering about 100 square miles.

Nago Wan, Lu Chu or Okinawa Group: -

This harbor has abundant anchorage room. It is formed by the Island of Okinawa Jima and is open to the west and southwest. The land surrounding the harbor is generally high. The

entrance is about 5 miles wide. The water in and off the entrance is too deep for mining. The defense of this point against land attacks would entail the holding of about 10 miles of land lines and the prevention of a landing on a portion of the island 70 square miles in extent.

Korama Group Anchorage: -

This anchorage is about 6 square miles in area. It is formed by 5 islands of the group and is open to the south. The land is generally high. The main entrance is about 2 miles wide. There are narrow entrances to the northwest and northeast. The water in and off the main entrance is too deep for mining.

The largest island is about 5 miles long and 1-1/2 miles wide at the widest part. It covers an area of about 7 square miles.

Iheya Group Anchorage:-

This anchorage is about 3 square miles in area and is formed by four islands of the group. The land is generally high. The main entrance is to the southwest and is about one mile wide. There are also narrow entrances to the northwest and east. All can be mined.

Amami Group:-

There is abundant anchorage room in the O Sima Straits, but the land defense of this anchorage would entail the holding of long lines of land defense or of the entire Island of Amami O Sima. This island is about 38 miles long and 18 miles wide at the widest part. It covers an area of about 150 square miles.

The best anchorage in this group for use as an advanced base seems to be that south of Kakeroma Sima Island, in Ikoma and shadon Bays and vicinity. This anchorage is formed by the Island of Kakeroma Sima and the small islands to the southward. There are three entrances to this anchorage, all about 2-3/4 miles wide. The water in and off the entrances is too deep for mining.

The islands in which the aforementioned harbors are situated are mountainous, the country is generally close, the roads are few and poor, and the coast lines are unfavorable to landing operations.

From a perusal of the harbor data given it will be noticed that a large majority of the harbors have the following characteristics in common: -

(a) They are located in small islands

(b) They are more or less salient to the sea

(c) They have wide entrances

(d) The entrances to the harbors and the waters off the entrances are too deep for mining.

In view of the foregoing considerations it may be concluded that, so far an advanced base operations in the Pacific are concerned, the peculiar functions of the Advanced Base forces will be to: -

(a) Execute opposed landings and attacks on denial positions

(b) Defend open, salient harbors situated in small mountainous islands (with poor communications and close terrain) as advanced bases for the United States fleet. Resist

particularly land and torpedo craft attacks.

(c) Perform all operations with the greatest rapidity.

THE ADVANCED BASE FORCE

We have reached definite conclusions in regard to the functions of the Marines in time of war. Under ordinary conditions these should form the basis for the determination of the nature, organization and distribution of that service and the lines of its preparation in time of peace, but in the case of the Marine Corps they do not entirely. For there are wars and "near" wars and the Marines are vitally concerned with the latter. While the functions in war are paramount, the functions in "near" wars cannot be disregarded.

The question is: - What personnel and armament are necessary for the proper execution of these functions and how should the force be organized and distributed? This question cannot be answered with this paper as a basis except in the most general way.

The Defense of Advanced Bases: -

This work is of greater importance in the Pacific than in the Atlantic and it is therefore the conditions surrounding the operations in the former region that should govern more particularly in this matter. The majority of positions which will probably be occuped as advanced bases are of the same general type as those proposed for permanent bases - small island positions. From the considerations affecting the defense of permanent bases, as outlined, and from the information which we have of probable scenes of action we can come to some conclusions at lease.

The ideal defense for an advanced base would be that defense provided for it were it a permanent base supporting fleet

activity under similar conditions. Of course such a defense is impossible with an advanced base force by reason of the limiting circumstances under which it operates, but the aim should be to make it as near that defense as is possible.

Fixed Defense: -

Heavy Guns: - By reason of the saliency of the harbors to be defended, the generally wide entrances to those harbors (some of which cannot be mined or protected by a boom and net defense), and the attacks to which the harbors will be liable by capital ships, the main heavy gun defense should consist of direct fire guns of as large calibre as can be handled with reasonable dispatch - 6" if possible. They should be provided in ample numbers.

Torpedo and Barrier Defense Guns: - By reason of the harbor characteristics mentioned above and the attacks to which the harbors will be liable, the main gun defense must be principally relied upon for this work; smaller calibre guns will not suffice. Some 3" with aerial mounts should be provided for this use when harbor characteristics are favorable and for resisting aerial attacks.

Barrier Defense: - It is of vital importance that boom and net defense be provided and used wherever possible. Its use will save the mounting of some heavy guns and will provide much greater security.

Both observation and automatic contact mines should be provided; the former for use in the main entrance channels and

the latter for use in waters not covered by the main defense. All mines should be laid so as to be effective against torpedo craft and blocking vessels.

Search lights: - To support the main gun defense, upon so much will generally depend, the largest portable searchlights should be provided - especially for searching and illuminating lights. Smaller lights will suffice for immediate channel defense.

Mobile Sea Defense: -

The mobile sea defense must be furnished from the fleet as needed - mainly from those craft which through service or war damage sustained are least valuable for major operations. The "fixed" defense should be such as to require as little floating defense as possible.

Mobile Land Defense: -

The mission of the mobile land defense will be to prevent a landing. The defense should be carried out along the same lines as that outlined for permanent positions of the same type. In this, however, there is one point which must receive special consideration, and that is that the advanced base force will have but very little time in which to establish or improve roads and wire communications. This will exercise considerable influence on the mobility and coordination of the land defense.

Heavy Artillery: - The 4.7" siege gun would be the best type but more extended reconnaissances of positions likely to be occupied in the Pacific may show that the nature of terrain, etc., would preclude its use. But if it can be used it should be

provided, for it will not only be valuable for land defense but also for temporary sea defense while heavy guns are being installed. This also applies to the heavy howitzer which should be supplied in limited numbers as an auxiliary to the regular land and sea defense. Most all island positions will be small and these weapons installed even in a fixed position would cover a long stretch of coast line.

Light Artillery: - Considering the character of the work to be performed the 3" mountain gun would be ideal for advanced base defense. The mountain guns might be supplemented by a limited number of mountain howitzers.

Searchlights: - These should be provided for the covering of possible landing places. A 15" or 18" light should be provided.

Machine Guns: - These should be provided in large numbers as the nature of the defense will allow of their widest and most efficient employment. There should be at least 1 machine gun to every 50 infantrymen.

The Denial of Bases: -

The armament and personnel required for this work has been outlined. In case of operations in the Pacific this materiel will be available for use in the defense of advanced bases.

The Raiding of Enemy Bases and the Seizure of Harbors for Use as Advanced Bases: -

The best force for this work would be infantry with machine gun, and mountain gun and howitzer detachments, and would consist

of such forces as were not actually engaged in the defense or denial of bases.

Expenditions in "Near" Wars: -

This work will be mainly performed by infantry, with machine gun and mountain gun detachments. This composition permits of the greatest exercise of strength consistent with the mobility necessary.

Below is given an estimate of the men and principal armament required for the execution of the functions as outlines. This estimate is based on these and other studies made by the writer at the Naval War College. It is at best a rough estimate but it is believed to be a conservative one.

12 6" 50 Cal. R. F. Guns

12 6" Siege Howitzers

8 3" 50 Cal. R. F. Guns

12 4.7" Siege Guns

36 3" Mountain Guns

12 Mountain Howitzers

100 Machine Guns

4 Largest Portable Searchlights

10 36" Portable Searchlights

18 18" Portable Searchlights

Boom and Net Defense

Mines, Observation and Contact,

To man the above armament (land defense armament as semi-fixed defense) there are required: ---2,400 Off. and Men.
There is required as infantry, etc., at least--7,000 Off. and Men.

(The estimate of officers and men does not include those needed for service on board men-of-war nor those so located that they will not be available for service in both theatres of operations).

Organization of the Advanced Base Force: -

The Advanced Base Force should consist of the entire personnel and armament provided for the support of Naval Operations.

This force should not be divided into "outfits" for a special type of operations as certain force will economically fit more than one set of conditions. Nearly all kinds of units may be required in every case but the number of each kind will vary. For these reasons it would seem that the best organization would be a collection of small units, company units for instance (2 6" guns or 4 3" guns with personnel, signal and fire control companies, etc.), with no larger units except for temporary command purposes. Such units could then be economically assigned for the purpose of performing any functions in peace or war without breaking up any organization or disturbing the normal arrangements for command. Infantry organizations should be temporary as at present.

Distribution of Forces: -

The ideal distribution would be that one which would permit of the existent force being equally available in peace and war. This will be impossible however owing to the expeditionary work necessary. It is not probable that the expeditionary force in the Philippines will be available for war service in the Caribbean nor is it certain that the expeditionary force in or

near Central America will be available for war service in the Pacific; but it is likely that they in war will be made available each in its own area.

The advanced base force is as much an element of fleet strength as any type of man-of-war and the principles of concentration should therefore apply to an equal extent. If the peace station of the fleet is to be on the Atlantic Coast it is there that the Advanced Base force should be concentrated - to exercise with the fleet in peace and accompany it in war. The point selected should be one which permits of quick mobilization and at the same time affords the best facilities for training. Considering probable war operations and peace time expeditionary duties, the nearer the point is to the Caribbean and Central America the better. As the Coast Artillery and Mobile army take over the defense of permanent bases the Marine contingents in the United States and oversea possessions should be out down to the limit and concentrated at the Advanced Base garrison. This should apply to all detachments except those necessary in the Philippines, Central America, China, etc., for expeditionary duties on the spot.

All Marine Schools should be at the Advanced Base Rendezvous and that men for sea service and recruits, (so far as economy will permit) should be trained there.

To insure complete coordination with the Navy and maintain the Marine Corps as an efficient force to support naval operations it is deemed necessary: -

1. That the senior line staff officer at Headquarters be a member of the General Board of the Navy.

2. That the senior line staff officer at Headquarters and certain other officers preferably officers on duty at the Advanced Base Rendezvous, (composing a board) make a thorough study of the mission of the Marine Corps (as determined by the General Board of the Navy) both in peace and in war and determine in detail the personnel and armament necessary for its execution.

3. That his board make an exhaustive report and that its contents be diffused throughout the Marine Corps so that all may know the mission of the Corps, and thereby secure unity of thought and action in the preparation for its execution.

4. That this board (in lieu of a General Staff or equivalent) be a permanent board and, in addition to other duties, make recommendations as to Marine Corps policy and prepare plans of operations.

5. That officers thoroughly conversant with the work to be performed by the Marine Corps make the necessary reconnaissances of probable theatres of operations.

6. That the Marine Officer on the Staff at the Naval War College, the Marine Officer on duty at the Bureau of Naval Intelligence, and the Marine Officers on duty at the Colleges or Schools of the U. S. Army be charged with the duty of submitting to the Marine Corps board any information which they may acquire bearing on Marine Corps work.

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