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Contents General Principles Governing the selection and establishment of Advance Naval Bases and outfit for the same.

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Naval War College,
Newport, R.I.,
December, 1909.

GENERAL PRINCIPLES GOVERNING THE SELECTION AND ESTABLISH-
MENT OF ADVANCED NAVAL BASES,

and

THE COMPOSITION OF AN ADVANCED BASE OUTFIT.

A Study Made By

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THE NAVAL WAR COLLEGE STAFF.

General Principles Governing the Selection and Establishment of Advanced Naval Bases, and the Composition of an Advanced Base Outfit.

1. The General Principle, that a nation, desiring to safeguard her interests in remote waters, must have fortified bases as point d'appui from which operations may be directed,, must be assumed as incontrovertible.

2. The strategical conditions of the late Russo-Japanese War were such at the very outset of hostilities as to force Japan to seize the Elliott Islands and make use of them as an Advanced Naval Base in the theater of actual operations. The seizure of Guantanamo Bay during the Spanish-American War, although it was not fortified and secured, exemplifies the necessity for a base at the front. Although Key West was less than 700 miles away, it was imperative that a base should be established in the immediate vicinity of the operations; and the necessity for fortifying it would have been equally imperative had Spain been a powerful and aggressive nation.

3. In consequence of the isolation of our country strategically, with respect to other Great Powers, it is probable that in any great war in which we may become involved, our fleets will be obliged to operate in regions remote from our permanently fortified bases.

4. Or, it may become necessary to seize and defend certain points, or to strengthen weak points in a line of communication, in order to prevent an aggressive enemy from making use of them.

5. A war between the United States and a powerful European state might cause the former to seize and defend some important harbor in the West Indies, that might be of especial strategical advantage to the enemy as an Advanced Base.

6. After the completion of the Panama Canal, the United States must be prepared to defend harbors in the immediate vicinity of the Canal Zone, such as Chiriqui Lagoon, Porto Bello harbor, or others that might be employed by an enemy for the purpose of landing troops to raid and attempt the destruction of the canal.

7. Further, in order to strengthen the lines of communication from the canal to Honolulu and Samoa, or to prevent raids, it might, in the event of a war in the Pacific, become necessary for the United States to seize and defend such islands in that ocean as threaten the western approaches to the canal.

8. That the United States does not possess a permanent base beyond the seas that could hold out against an attack of a more favorably situated power, until the arrival of the fleet, makes it necessary that the fleet itself should carry in its train the necessary force and equipment to provide a defensible position - an Advanced Base - which would serve for its immediate needs of refreshment, supply, and minor repairs.

9. In general, an efficient defense of an Advanced Naval Base contemplates an equipment of men and material that would be effective.

a. In completely refusing to an enemy, by means of gun fire and obstructions, all water approaches to the harbor, leaving free ingress and egress for friendly ships.

b. In providing for the protection of all obstructions.

c. In securing the base against land attacks.

The Character of the Defense of An Advanced Base.

10. The character of the defense of an Advanced Naval Base need only be such as will be effective in resisting a cruiser raid.

11. By a cruiser raid is here meant an attempt, by a few cruisers, or ships of light protection, accompanied perhaps by one or more transports with troops, to seize the port or harbor occupied as a base.

12. It may be assumed that no nation will risk her heavily armored ships in a perhaps ineffectual bombardment of a port, until it has obtained supremacy of the sea.

History furnishes abundant proof of the futility of ships bombarding shore batteries; and, with the introduction of the submarine boat and more general use of mines, it would be perilous to run the attendant risks with a ship of the first class. Temporary local sea supremacy might permit of a blockade and land attack against an Advanced Base, or the planting of offensive mines or obstacles outside of the harbor entrance; but no nation, until it has obtained a decided superiority at sea, could afford to send ships of the first class against shore batteries, even though they be of inferior strength. The risk run from mines and submarine boats, when within range of the shore, is too great; while the damage inflicted from sea bombardments has always been small.

13. The main object of attack, in naval warfare, is the enemy's fleet; and to this end, all the floating forces of a nation should be employed. The defense of an Advanced Naval Base must not, therefore, contemplate the landing of guns or crew from a ship, even though that ship convey the transport carrying the Advanced Base outfit; neither should any plan of defense consider the use of any ship, other than available monitors, for the defense of the port or harbor.

The Necessity for the Concentration of Force in the
Defense of an Advanced Base.

14. The strength of the force used in connection with the defense of an Advanced Naval Base must of necessity be small. The sub-division of such a force into smaller and widely separated detachments permits of its being beaten in detail; and, therefore, in the defense of an Advanced Naval Base, the preeminent principle of concentration of force for mutual support should be adhered to.

15. It must be admitted, however, that there are many cases where the tendency not to concentrate is strong; for instance, in an effort to cover a possible landing place too remote from the base to be covered by it or supported from it; but the failure to concentrate will invariably constitute a grave error.

16. Take, for example, the extreme case of an island. It will, unless it is very small, be found impracticable to defend the entire island with the means at hand; namely, an advanced base outfit of men and material. The defense of only one port or harbor in the island should be required; and this defense would be made much more effective by concentrating the forces at hand around the harbor to be defended, rather than by distributing them at various bays and bights of the island; which would permit only a weak and possibly inadequate resistance to an attacking force.

Tactical Considerations Governing the Selection of a
Location for An Advanced Base.

17. There are many tactical considerations governing the selection of a harbor for an Advanced Naval Base, the most important of which are the following:

(a) The formation of the harbor should be such as to permit of some of the main battery guns being well advanced from the entrance to the harbor, thereby increasing their effectiveness in protecting the harbor approaches.

(b) If possible there should be only one channel entrance to the harbor, as this greatly simplifies the defense.

(c) Two entrances, in order to be of tactical advantage to the defense, must be so widely separated as to require a greater force than that contemplated in an advanced base outfit.

(d) If the entrance to the harbor is formed by one or two narrow peninsulas an enemy might be able to maintain a cross fire on them; therefore such a site should be avoided.

(e) For the purpose of defense, it is important that the entrance of the harbor selected as a base should lead or open directly into the sea; and vessels bound for it should not be forced to pass along and close to a coast, up an unprotected river, bay or sound, or over channel shoals or through straits, unless the latter are well guarded. The greater the depth of water directly outside the entrance of the harbor the better. These considerations are important in that they would tend to make impracticable the planting of submarine mines by the enemy beyond the gun range and outside the entrance to the harbor.

(f) A harbor with a narrow entrance should be selected in preference to one with an entrance so broad that it cannot be effectively covered by the guns of the main battery of the advanced base.

(g) While recent history shows that numerous attempts have been made by the attacking force to seal the entrance of a narrow harbor held as a base, such attempts cannot be said to have been successful; and the danger of such an effort on the part of the attacking force is more than offset by the facility and effectiveness of the defense that is possible in such a case.

(h) The tidal current in the entrance should not be so great as to prohibit the use of submarine mines; or the depth such as to make their planting an arduous and long task.

(j) The entrance to the harbor should not be so situated as regards the prevailing winds as to make the port unsuitable as a base during certain seasons of the year.

(k) A slight current or set outside and past the mouth of a harbor is beneficial, rather than otherwise, to the defense, as it precludes the use of offensive mines unless anchored.

(l) If possible there should be high solid ground at the entrance to permit of batteries placed there delivering a plunging fire.

(m) The harbor itself, while apparently sufficiently large in size, may be too deep; or, on the other hand, contain many shoals and thus give very little anchorage room; or the bottom may be such as to make poor holding ground.

(n) The surrounding country should admit of a strong defense by land.

(o) There should be no possibility of over land bombardment of the harbor, at easy ranges, from the sea.

(p) The surrounding hills, within easy range of the harbor, may command it and be impracticable to defend, - a condition that should be particularly guarded against.

(q) The resources available in a port or harbor would also play an important part in its selection as a base.

(r) A study of the lessons of war teach us that land operations are generally necessary in order to seize a naval base, no matter how insignificant the defenses may be; and, therefore, in the selection of a base the greatest consideration should be given to the feasibility of defending it against a land attack.

(s) All tactical considerations must be weighed most carefully when selecting a harbor for an Advanced Naval Base. They may, however, be entirely outweighed by strategic considerations such as the situation of the port and its proximity to the enemy's port or territory.

Considerations Affecting a Possible Necessity for
Two Adjacent Advanced Bases.

18. The growth of navies has been so rapid and the fleets of the great powers are assuming such immense size that it is fairly questionable whether, in the event of hostilities between any of them, one Advanced Naval Base would be sufficient. Considering the swarms of torpedo boats, des-

troyers, and submarines which might accompany a fleet, to act in conjunction with or independently of it, suggests the probability that an auxiliary Advanced Base, distinct from the one used for the main fleet, but close by it, might have to be established for the use of a mosquito fleet and certain auxiliaries.

19. Such an auxiliary base would have to be defended with as great care as the secondary base itself. In the selection of such a base, the same considerations, in the main, govern, as in the selection of the secondary base; with the exception that the anchorage room and depth of water need not be so great, while, on the other hand, it is more essential that the harbor should be landlocked or be at least more protected naturally.

Considerations Affecting the Equipment of an Advanced Base.

Guns - Main Battery.

20. The determination of the size and number of main battery guns that should be provided with an Advanced Base outfit must depend upon the strength of the force constituting the personnel of that outfit, the maximum weight of gun that can be handled under the severe conditions that will characterize their emplacement, and the time that can be allowed for the completion of an adequate defense of the Base.

21. Assuming a force of the strength of one regiment as the unit best suited for Advance Base work, it is believed that the 5-inch 50 cal. gun is best adapted to fulfill all the requirements of main defense, and, at the same time, lend itself to that facility of handling that will be required to conserve to the limited time allowance that the conditions will impose.

22. The employment in the defense, as has been suggested by some, of 6" howitzers, firing 120 pound projectiles, would unquestionably have many advantages. They would be capable of use soon after reaching shore and, being fitted for indirect fire, they could cover all arcs and be perhaps well concealed. Their range and effectiveness would, however, not be as great as the 5" 50 cal. It must be borne in mind constantly that the strength of the defending force will be limited and that the introduction of the 6" howitzer would mean not only different calibre and ammunition, but it would entail the training of men for the handling of this particular weapon; which must of necessity tend, with the limitations on the strength of the force, to the slighting of some other important element of the defense.

23. The 3" field piece, capable of using indirect fire, would, it is believed, answer all the requirements for immediate defense on landing; would certainly be more easily handled, and would be effective in covering the mine field and refusing the entrance, and in strengthening the land defenses until the main batteries could be gotten into position and mounted.

24. Twelve 5" 50 cal. guns are considered as sufficient to provide an adequate main battery protection to any Advanced Base that may be selected.

Secondary Battery.

25. The 3" high powered gun with its great range, flat trajectory and great penetration, relative to other secondary battery guns, moderate weight and great mobility, is recommended as the calibre for adoption to the exclusion of all other calibres for secondary battery guns.

26. The defence of an Advanced Base by the

26. This gun should be fitted so as to be capable of using indirect fire as well as direct fire; be fitted with panoramic telescope sights and quadrant and have slight shock in recoil. Twenty of these guns should be provided: twelve with pedestal mounts and designed for use in protecting the mine field or to assist the main battery guns in covering the harbor entrance, and eight with field carriages and shields, designed for use in the defense of the Base against land attack.

Machine Guns.

27. The efficiency of the machine gun as an element of defense can scarcely be overestimated; and it is recommended that 40 of them with their spare parts and with tripod mounts be provided with each Advanced Base outfit; 10 belt loading machines should form a part of this equipment.

Transportation of Guns.

28. In the defense of an Advanced Naval Base the transportation of guns from the ship to their selected position on shore is no easy task under any conditions, but it is imperative that it should be accomplished in the very shortest possible time and it is consequently exigent that every possible preparation be made in advance to facilitate such work.

29. The experience of the Boer and Russo-Japanese wars have abundantly demonstrated the feasibility of transporting guns of medium weight for comparatively long distances on improvised carriages or by other means. The roads were not any too good and, in some cases, are stated to have been bad, while the rate of travel was in all cases excellent.

30. The British, in the Boer War, designed a special traveling carriage for their 4.7" naval guns, consisting of a double 14" timber trail fitted with plates and bearings to carry the cradle of the ordinary ship mounting. The

carriage wheels were made of steel with broad tires held by curved angle iron and were of large diameter. In this war these guns were transported on shore to considerable distances, using oxen teams for hauling power.

31. The Japanese in the Russo-Japanese War transported 28 c.m. mortars to selected positions in front of Port Arthur and also south of Mukden. These guns weigh about ten (10) tons and were hauled on low trucks or timber dollies, by man power. It is stated that 150 or 200 men would walk away with a truck and gun. The accompanying sketches illustrate the type of truck and the method employed.

32. This system applies especially to the transportation of guns in advanced base work and would generally necessitate but little clearing or work on roads. In the event of heavy roads, due to rain or loose sand, planks could be placed in advance of the truck wheels for them to run on. It will be noticed that, with trucks of this design, the center of gravity of the weight carried is low and the truck not likely to capsize.

33. Fifteen (15) of these trucks should be furnished with the material for the defense of an Advanced Naval Base.

34. It is not claimed that this method is ideal, but it has been tried and found to answer, in time of war, for the apparently rapid transportation of much heavier weights than would be transported in the defense of an Advanced Base.

35. Perhaps the ideal method would be the use of a Decauville Sectional narrow gauge railway made with especially heavy cross ties, or more of them and having strong platform trucks for transporting heavy weights. The rails, it is thought, are sufficiently heavy and the addition in the number of steel cross ties or in their strength would prevent the spreading of the rails when carrying heavy weights. As a truck advances a rear section of the track would have to be flected forward.

36. Twelve sections of track as well as twelve trucks would be required for advance base work and could be used to supply ammunition to the ready magazines. The weight of this equipment is, however, so great a disadvantage as to practically exclude it from consideration as a part of an Advance Base outfit.

Ammunition.

37. In the determination of the kind of ammunition for the main and secondary battery defense of an Advance Base the governing consideration should be its utility, coupled with the avoidance of a tendency to provide too great a variety.

38. The efficiency of the high explosive shell, fitted with a percussion fuze, against unarmored or lightly armored craft, or unarmored portions of heavily armored ships, has been very amply demonstrated in the recent war between Japan and Russia. The relatively localized and often harmless effect of an armor piercing shell of the calibre of gun recommended for the main battery defense, suggests that for the 5" gun only high explosive shell be provided. For the 3" battery and 3" field pieces both high explosive shell and shrapnel should be provided in the following proportions:- for 3" battery for harbor defense 1/10 shrapnel; for 3" field pieces (land defense) 3/4 shrapnel.

39. The generally accepted method of attacking trenches is that which grew out of the practice of the Japanese in their last war, where the preliminary to an attack was always heavy salvos of shell fire followed by a heavy fire of shrapnel.

40. Tracer shell should be provided for all calibres.

Fire Control.

41. The control of the mine field, search lights, automobile torpedo battery, and protecting battery of 3" guns,

should be under the direct command of one officer stationed in a bombproof observation or lookout station.

42. The control of the main battery guns should be obtained from a centrally located bombproof lookout or observation station, situated at some commanding point, but well screened.

43. The control of the land defenses should be placed directly in the hands of one officer whose station would be in a bombproof lookout or observation station at some commanding point near the defensive field works.

44. The control of the complete defense of the base should be in the hands of the regimental commander stationed in a lookout station, erected at such point as he may deem proper, and in telephonic communication with all unit commanders and other necessary stations.

45. Each fire control station should be directly connected by telephone with the sub-units under its control, such as the mine observation station, batteries, automobile torpedo battery, etc. This system should be on a battle circuit, independent entirely of any system that may be devised for administration purposes. All sub-stations should be directly connected with the main fire control station at the location occupied by the regimental commander.

Submarine Mines.

46. In selecting the type of mine most suitable for use in the defense of an Advanced Naval Base the factor of time again enters as one, if not the most important, element to be considered. The operation of planting controlled mines, if all appliances, including mine planter, distribution vessel, and marker launch, are available, is, under most favorable conditions, a difficult task; and with little or no facilities for handling mines, distribution boxes, and cable, and with green or untrained men, the task is one of such magnitude as to make the use of such a system impracticable for an Advanced

Base outfit.

47. On the other hand, non-controlled mines can be readily sown from a launch or towed scow; and, when once planted, require no further care or preparation but become immediately an effective obstacle at that point. They are especially useful at places where it is desired to permanently close a water approach.

48. The best type of mine to be used for the defense of a naval base is a reliable, modern, self-depth regulating non-controlled electric mine, with the battery either distinct from the mine itself or forming a part of it. Such mines should be most carefully planted in two distinct but overlapping lines, at an interval of about 75 feet. The radius of action of a mine is about 50 ft., and the usual distance heretofore for planting has been 100 feet; but the introduction of submarine boats has necessitated a closer sowing, in order to prohibit their entering the harbor. The opening left for friendly vessels should be guarded by both submarine boats and an automobile torpedo battery. Care in planting should exclude the possibility of a mine of this class breaking loose from its mooring; but, in the event of its doing so, if the battery is separate from the mine, it would be rendered harmless, and, if a part of the mine, some mechanical means must be employed to attain the same result. In preparing for the defense of an Advanced Naval Base, this mine should alone be considered, thus simplifying the defense and not hampering it by the addition of unweildy controlled mines with their attendant parts and cables.

Countermining.

49. Countermining is an exceedingly dangerous and tedious operation, being slow under the most favorable conditions and is not recommended. The removal of mines can be much more

easily effected by dragging, using a weighted bight of rope or a chain.

50. Floating mines may be caught in the bight of a rope or net towed by launches or tugs. In the British service the North Sea type of fishing trawler has been found most serviceable for this class of work.

Obstructions.

51. Other obstructions have been recommended for closing a water approach; among them the most notable is the boom defense, having an opening or gate abreast the channel and designed to completely refuse the harbor to a raid by torpedo boats or other light and fast craft. Recent experiments, made by the British Government, seem to have proven the inefficiency of this means of defense. A torpedo destroyer, with a slight additional strengthening of its bow, and running at a thirty knot speed, succeeded in cutting in two a spiked boom defense without any injury to itself or crew, or a material reduction in its speed.

52. The labor and time required to construct this system of auxiliary defense, when considered together with the space required to stow it in transportation; its inability to refuse the harbor to an enemy's submarine boats, and the doubtfulness of its efficacy against destroyers and torpedo boats, should exclude it from consideration as a part of the materiel of an Advanced Base outfit.

53. The advance of an enemy making a land attack should be delayed, while under fire at close range; and to this end obstacles are used to impede an enemy's advance and break up his formation. The obstacles most suited for use in the defense of an Advanced Naval Base are high barbed wire entanglements, abatis, and land mines.

54. If the terrain is suitable, land mines can be made effective and have considerable moral force. The necessity

therefore, for a supply of wet gun-cotton, primers, detonators, and magneto firing batteries, to be used for demolitions and land mines, is obvious.

Automobile Torpedo Battery.

55. An automobile torpedo battery for the protection of an open channel, if the battery can be properly located and protected against gun fire, is excellent and its use is recommended.

56. A barge or scow can be used as a firing platform, and admits of being towed to any point to permit the recharging of air flasks, and also of being moored in water of sufficient depth to insure a proper run being made. This depth should be between five and six fathoms.

57. There is usually some projecting point in the entrance of a harbor where such a scow could readily find protection, either natural or artificial; and, with the long range of the modern torpedo, an open channel could be easily covered. In case of fog, mist, or darkness, its mobility would accentuate its usefulness as a protection to the harbor entrance.

58. A scow containing two torpedo tubes, eight torpedoes of the very latest type, and torpedo directors, together with the necessary air compressors should be provided for the defense.

Submarines.

59. The advantage to be derived from having one or more submarine boats form a part of the defense of an Advanced Base are manifest. One or two small or defensive submarines could be easily transported on board a collier or transport of the fleet train, especially fitted for hoisting out such boats for use as a part of the defense; and the mere knowledge of the presence of such vessels in a harbor would limit the range to which an enemy would bring his ships or blockade a

port. Furthermore, if a landing was attempted in the vicinity of the defended port or harbor, a submarine would be a most excellent weapon to use against transports or other vessels attempting to land, or assist in the landing of troops

60. The submarine is in no way a substitute for the mine field with its practical certainty of action under all conditions of sea and weather, and with equal efficiency night or day.

Plows.

61. In order to facilitate the construction of trenches, steel plows would be of the greatest service and six (6) should be provided as a part of the material needed in the preparation of the defense in addition to the entrenching tools carried by the troops.

Search lights.

62. Search lights for use in the trenches, as well as in the sea defense, would be of the greatest value and should form a part of the Advance Base outfit. Their usefulness in defensive operations was amply shown in the defense of Port Arthur. They should be a portable type to facilitate their movement as may be necessary. Six (6) should be provided with each outfit, three (3) to cover the entrance and three (3) for the land defense.

Signals.

63. Wireless communication is essential in order that a base may keep in constant communication with the fleet and a wireless set should be installed at some prominent point within the defensive position.

64. There is, nearly always, at least one other point surrounding a harbor where it is essential or desirable to establish a signal station, and no better means of communication than by wireless could be obtained. It is therefore recom-

mended that at least two wireless sets should form a part of the defense equipment.

65. A complete set of No. 3 signal flags, Navy Code and International; also semaphore, and wigwag flags should be provided with each outfit.

Telephones.

66. In the defense the telephone must play a most important part.

67. If efficiently served, a telephone system can be made an indispensable adjunct to the defense; but, if poorly served, it can become the greatest detriment and source of danger. All battle circuits should be entirely separate from any others that may be erected for routine business.

68. Where exposed to artillery fire telephone lines must, if possible, be laid about three feet underground in pipe or other conduits which should be provided.

69. The wireless telephone suggests itself as the ideal if, in its further development, it proves entirely efficient and trustworthy in all conditions of weather and service. Its development should therefore be carefully noted with a view to its adoption for use in an Advanced Base outfit.

70. A general scheme of telephone systems to be used in connection with the defense of a base is given below, but is only general and additional communication would invariably be needed.

MINE COMMANDER

(Mine covering guns - range finder
(Mine covering ready magazine
(Main magazine
(Mine field search lights.
(Automobile torpedo battery
(Mine store house
(Advanced Base Commander's Station

MAIN BATTERY COMMANDER

(Main batteries - range finders.
(Main batteries ready magazines
(Main magazines
(Advanced Base Commander's station

FIELD WORK COMMANDER

(Each battery of field artillery -
 (observation station.
 (Points in trenches at regular in-
 (tervals.
 (Land mine firing positions, if not
 (near telephone station.
 (Reserves
 (Ready magazines
 (Machine gun positions
 (Search lights
 (Detached posts or outposts
 (Advanced Base Commander's position

ADVANCED BASE COMMANDER

(With all unit commanders
 (With main magazine
 (With wireless station in defensive
 (position.

Central stations would be necessary for all units and switch boards should be provided for this purpose.

Helipgraphs.

71. Heliograph outfits form an important means of communication under certain conditions and should be included in the defense material to the number of ten (10).

Acetylene Lamps.

72. These lamps might often be needed for night signaling either to ships when the wireless was not working or between certain shore stations having no other means of communication or the communication being temporarily interrupted. Ten (10) lamps with about thirty (30) cartridges are deemed sufficient.

Gun Mountings.

73. In the Boer War the British mounted their 4.7" naval guns on platforms made of four (4) heavy 12" x 12" pieces of timber fifteen feet long. The four timber pieces were placed crosswise, on each other, two transversely, and separated about two or three feet, and two underneath longitudinally and separated and all strongly bolted together, well placed in the ground and firmly set by the use of cement. This mounting allowed firing up to ranges of 12,000 yards, was simple of construction and thoroughly secure, and admits of

being prepared in advance and easily stowed.

74. Sufficient material for platforms for all guns of the main and secondary batteries should form a part of the material in the defense of an Advance Base.

Grenades.

75. Various forms of grenades were used in the Russo-Japanese War and in many cases were formidable. Such weapons in connection with the defense of the field works of an Advanced Base might, if further developed, be of considerable use; and, therefore, their development should be carefully noted.

Shears.

76. Four (4) three legged shears with the accompanying gear should be included in the material for an Advanced Base outfit. Differential chain pulleys, as well as an adequate supply of "jacks", would be of great assistance, and would permit of the releasing of a number of men for other work.

Blacksmith's Forge.

77. A blacksmith's forge and outfit are necessary for many details of the work of defense, but especially for bolting the timbers together in preparing the gun platforms, and should be included in the equipment.

Airships.

78. The feasibility of the employment of airships in connection with the defense of Advanced Bases must shortly be considered if these ships of the air continue to develop in the remarkable manner in which they have during the past few years. A small dirigible balloon or aeroplane might be of great service in obtaining information or locating mines or defenses in a nearby enemy's port, even if not put to a more extended warlike use.

Water Supply.

79. In connection with the defense of an Advance Base it is highly probable that either the water supply will be insufficient, or that it will not be potable unless boiled, requiring considerable additional work and care.

80. Wherever there is an advanced base it would seem that the necessity for a distilling ship at the base would exist in order that fresh water might be available for visiting ships' boilers, as well as for use by personnel.

81. It has been found in practice that wooden barrels are not very satisfactory for transporting water, generally giving out around the bung and causing great inconvenience. It is believed that iron barrels with a screw plug and raised bands would be much more efficient, and would last much longer. The raised bands would serve as wheels when the barrels were being rolled, and thus facilitate transportation.

82. Some receptacle that could be used for boiling water in case it become necessary should also be provided. Galvanized iron cans (new garbage cans) have been found to be entirely satisfactory for this purpose; they are light, heat quickly, and hold together well.

Personnel.

83. The force used to defend an Advanced Naval Base must be one especially trained for the purpose. Its duties are strictly military but are of an exceedingly high order and include a thorough knowledge by both officers and men of not only guns of intermediate calibre, mines, search lights, automobile torpedoes, and field defenses, but also a thorough appreciation of the natural defensive features of the terrain. The turning of a flank, inability to comprehend the significance of the enemy's movements at sea or on shore, may cause the fall of the base and consequent denial to the fleet of the refuge it is forced to rely upon

84. The fleet must have its base for offensive work and, against an active enemy, the base must be scientifically defended, as the preponderance of force, probably great, will be with the enemy, and a weak point in the defense against land attack made the objective.

85. The work to be performed by the personnel in the preparation of the defense includes the transporting of guns and material to shore, the planting of mines and construction of field works, and perhaps a landing in force in order to seize the port or harbor intended as a Naval Base.

86. It would therefore seem necessary that such a force must not only receive the highest order of military training but must also have a sufficient naval education.

87. The necessity for the base and the defending force being under the command and control of the C-in-C. is apparent.

88. The strength of the force to be used in connection with the defense of an Advanced Naval Base must not be so large as to make it unwieldy, and yet at the same time it must have sufficient resisting strength.

89. The defense may be divided, for convenience in work, into three parts - (1) Gun defense of all water approaches. (2) Mine defense or water obstruction. (3) Land defense, mobile or not, as the case may be.

90. The regiment especially adapts itself to the purpose of the defense of an Advanced Base. It is flexible, easily handled and administered, is divided into three battalions, thus permitting of the assignment of work by battalions as units. Each battalion should be carried on a separate transport with all the stores and material necessary for it to carry out the particular work of defense to which it has been assigned and allowing the landing at the base to

be greatly expedited.

91. The regiment, however, must have its full strength, every man in it will be needed, and in no case must the strength of a company fall below 150 enlisted men.

92. This is a slight increase in the company strength giving a regiment of 3 battalions and 12 companies - a total of 1800 men. When due allowance is made for sick, casualties, men on special detail, such as cooks, camp attendants, outposts duties, etc., the number of men that would be re-remaining for the necessary work of installation would be the minimum that could accomplish the preparation and conduct of the defense of an Advanced Base within a reasonable time.

Necessary Advanced Base Equipment not Hitherto Provided.

93. The following items not hitherto considered in connection with an Advanced Base outfit should be furnished:

- 10 light boxes for magazine lighting, with suitable candles or lamps.
- 50 oil battle lanterns for use at the batteries at night.
- 50 galvanized iron cans for use in boiling water.
- 30 iron water barrels with screw plug and raised band for rolling.
- 10 bbls. cement for gun emplacement.
- 1 blacksmith's forge and outfit.
- 10 differential chain pulleys.
- 15 jacks.
- A supply of gun cotton primers, detonators and a magneto firing battery for demolitions and land mines.
- 1 International code signal set (No. 3)
- 6 Plows.
- 2 - 9 foot Barr & Stroud Range Finders, in addition to the 10 smaller ones already provided.

94. There is appended hereto a list showing in parallel columns the Material hitherto considered as adequate for the needs of an Advanced Base and that now recommended.

LIST OF BOOKS AND PAPERS CONSULTED

IN THE

PREPARATION OF THIS PAMPHLET.

- Field Fortification - - - - - Clark
- Applied Principles of Field Fortification for
Line Officers - - - - - Woodruff
- Notes on Field Fortifications in the Russo-
Japanese War - - - - - Von Toepper
- Report of Practical Instructions in constructing
rifle trenches - - - - - Harllee
- Epitome of the Russo-Japanese War - - - - - M.I.D.,U.S.A.
- Reports of Military Observers attached to the
Armies in Manchuria during the Russo-
Japanese War - - - - - M.I.D.,U.S.A.
- Military Operations and Maritime Preponderance - - Callwell
- War and the World's Life - - - - - Maude
- Journal U.S.Artilleary
- Journal U.S.Infantry
- Foreign Service Papers, Periodicals, and Magazines
- Submarine Boats, Mines, Torpedoes - - - - - Sueter
- Aerial Warfare - - - - - Hearne

<u>Present list of Guns, Men, and Material available.</u>		<u>Recommended List of guns, Men, and Material.</u>	
Regiment of Marines - Marine Equipment complete as per list in Portfolio One. Strength - 1249 officers and men.	1	Regiment of Marines - Marine equipment complete (list to be revised). Strength - 1837 exclusive of Hospital corps men U.S.N. (enlisted) and Electricians for wireless	1
Transports - Dixie class	3	Transports	3
Store, Refrigerator, and Repair ship	1	Store, Refrigerator, and Repair Ship	1
Vessels carrying water, distilling plant, ammunition, and rough stores.	1	Vessel carrying water, distilling plant, ammunition and rough stores	1
None	-	Vessel for transporting two small submarines	1
None	-	Submarine boats	2
Field Medical outfit for a Regiment of Marines	1	Field Medical outfit for a Regiment of Marines, Present outfit should be gone over and brought up to date, if this has not been done.	1
Wireless telegraph outfit for installation on shore	1	Wireless telegraph outfit for installation on shore	2
Army mines - Six miles of multiple cable, ten miles of single cable	100	None	
Naval Defense Mines	150	New Naval non-controlled mine	200
5" R.F.G. with pedestal mounts and gun platforms for mounting on shore and accessories complete.	17	5" 50 cal. R.F.G. pedestal mounts, gun platforms for mounting on shore and accessories complete. Sights for night and day use.	12
3" 50 cal. R.F.G., pedestal mount, gun platforms for mounting on shore and accessories complete.	10	3" 50 cal. R.F.G. latest type, pedestal mounts. Sights for night and day use; Gun platforms for mounting on shore and accessories complete.	12
6 pdr. or 3 pdr. R.F.G. with mounts, gun platforms for mounting on shore and accessories complete.	16	None.	
Machine guns with tripod mounts	20	Machine guns with tripod mounts	40
Machine guns with field mounts	20	Machine guns with field mounts	20

3" 50 cal. R.F.G. on field mounts. (Not capable of indirect fire.)

3" 50 cal.R.F.G.on field mount (Not capable of indirect fire)	3	3" R.F.G.on field mount, of ^{high} ballistic power, and capable of indirect fire. Battery commanders telescope, telephone, and appurtenances used for control in indirect fire	8
Rounds of Shrapnel for each 5" R.F.G.	25	None	
Rounds of Common Shell for each 5" R.F.G.	75	None	
None		Rounds of <u>HIGH EXPLOSIVE COMMON SHELL</u> for each 5" R.F.G.	200
Rounds of Shrapnel for each 3" 50 cal.R.F.G. on pedestal mount.	100	Rounds of Shrapnel for each 3" 50 cal.R.F.G.pedestal mount	150
Rounds of common shell for each 3" 50 cal.R.F.G.pedestal mount.	100	None	
None		Rounds of <u>HIGH EXPLOSIVE COMMON SHELL</u> for each 3" 50 cal. R.F.G., pedestal mount.	100
Rounds of Shrapnel for each 3" 50 cal. R.F.G. on field mount.	150	None	
None		Rounds of Shrapnel for each 3" R.F.G.on field mount, capable of using indirect fire and possessing high ballistic qualities.	200
Rounds of Common Shell for each 3" 50 cal.R.F.G. on field mount.	50	None	
None		Rounds of <u>HIGH EXPLOSIVE COMMON SHELL</u> for each 3" R.F.G. on field mount, capable of using indirect fire and possessing high ballistic qualities.	50
Rounds of Common Shell for each 6 pdr. or 3 pdr. R.F.G.	300	None	
Cartridges for machine guns	10,000	Cartridges (new, in order to obviate the probability of jamming) for each Machine Gun.	25,000
None		Tracer shell for all cal- ibres.	
Gun Platforms for 5" R.F.G.	11	Gun Platforms for 5" R.F.G.	12
Gun Platforms for 3" R.F.G.50 cal.	6	Gun Platforms for 3" 50 cal. R.F.G.	12

Gun Platforms for 6 pdr. or 3 pdr. R.F.G.

12

None

NOTE: These platforms can be improvised from heavy timbers or logs, therefore, the number of guns that can be mounted need not be limited to the number of mounts for which material is provided (See a Manual of Practical Instruction to Officers of the U.S. Marine Corps, 1903.)

NOTE: Platforms for all guns should be provided and none left to be improvised. For, though suitable timber was available, the time necessary for this work could be profitably spent on other work equally important and of such a nature that it could not be performed before the arrival at the BASE.

Sets of Material for the Construction of Magazines

5

Sets of Material for the Construction of Magazines

5

None

Light boxes for Magazines (Including suitable lamp)

10

None

Oil Battle Lanterns for Lighting Battery Positions at night

50

Transporting carriages for 5" R.F.G.

3

Transporting trucks for 5" and 3" R.F.G. Skidding material for places too steep for trucks.

15

Material for the construction of derricks; consisting of timbers, tackles, blocks, builder's winches, etc.

5

Three legged shears with all necessary gear for hoisting heavy weights.

4

None

Differential Chain Pulleys

10

None

"Jacks"

15

None

Blacksmith's Forge and Outfit

1

None

Cement for Gun Mountings(Bbls)

10

None

Gun cotton, primers, detonators, and magneto firing battery for demolitions and land mines.

None

Iron water barrels with screw plug and raised bands for rolling

30

None - with A.B. Outfit

Galvanized Iron cans for boiling water.

50

None

Motor cycles for orderlies, etc.

3

Heliographs

10

Heliographs

10

Boom Defense

Miles- 2

None

Acetylene Signal Lamps

10

Acetylene Signal Lamps

10

Cartridges

20

Cartridges

30

Binoculars

30

Binoculars

30

Telescopes

10

Telescopes - 30 power-On tripods

10

Navy Flag Signal Sets	2	Navy Flag Signal Sets (No.3)	1
None		International - sets	1
None		Semaphore - sets	1
Wig-wag flag sets	flags 20	Wig-wag flag sets	flags 20
Very's Signal Outfits	20	None	
Portable field telephones	20	Portable field telephones	80
Miles of wire for telephones	80	Miles of wire for telephones	100
Field telegraphs	20	Field telegraphs	5
Portable Search lights (Complete)	3	Portable Search lights (complete). (3 for defense of entrance and 3 for use in trenches)	6
Reels of barbed wire for entanglements.	36	Reels of barbed wire for entanglements	36
Barr and Stroud range finders	10	Barr and Stroud Range finders	12
Automobile Torpedo Outfit	1	Automobile Torpedo Outfit (latest type of torpedoes and launching tubes)	1
Outfit for Observing Mine Firing Station (including two Observation Stations)	1	None	
Sand Bags	3000	Sand Bags	10,000
Emergency Rations	3000	Emergency Rations	6,000
		Flows	6

U.S. Naval War College,

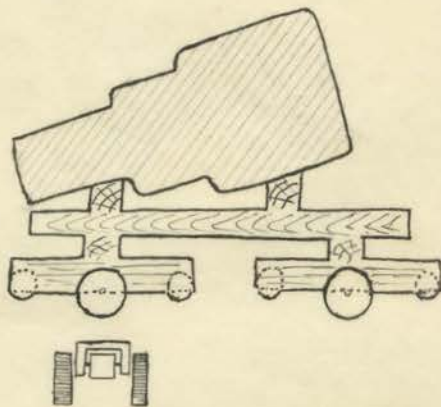
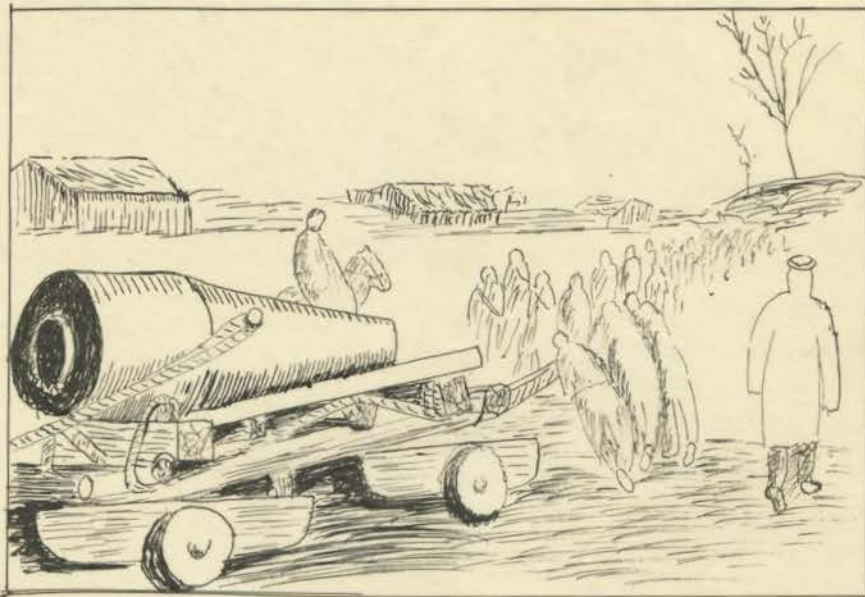
Newport, Rhode Island,

December 9, 1909.

APPROVED:

R. P. Rodgers

Rear Admiral, U.S. Navy,
President.



Sketch showing method of transportation of 28 cm mortar by the Japanese in the Russo-Japanese War.

Weight of mortar ---- 10 tons (approx)

Diameter of trucks -- 6 inches.

Copies from Major Kuhn's report and Journal U.S. Artillery.