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Course in Logistics

NOTES AS TO

JOINT ARMY AND NAVY ACTION IN OVERSEAS EXPEDITIONS

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Prepared in the

Logistics Section, Naval War College

November 23, 1926.

Special Note

These notes are the partial results of recent studies of joint overseas operations at the Naval War College. The studies have not yet been carried to completion. The notes are incomplete and changes in form and diction are advisable. They are issued at the present time in this incomplete form because they may, in spite of their incompleteness, have value in connection with certain phases of Operations Problem No. Two issued November 30. Constructive suggestions and criticisms are invited.

Joint Operations - Landing  
in force - 2024 - 13 Sept  
1927 - in connection with  
Op. Problem III - 1926-1927

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JOINT ARMY AND NAVY OPERATIONS IN OVERSEAS OPERATIONS

Section I - GENERAL PRINCIPLES.

- " II - ARMY ITEMS.
- " III - NAVY ITEMS.
- " IV - PREPARATION OF PLANS AND ORDERS. (Not yet completed)
- " V - ARMY DATA. (Not yet completed)
- " VI - NAVY DATA. (Not yet completed)

-SECTION I-

-GENERAL PRINCIPLES-

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1. REGULATIONS FOR JOINT ACTION.- The principles and data set forth herein are designed to apply primarily to activities in which forces of both the Army and the Navy are employed together in offensive operations overseas; for operations in which naval forces alone are employed, the landing being made with marines, including or not including a landing force of seamen, the principles have application.

2. JOINT OVERSEAS EXPEDITIONS DEFINED.- A joint overseas expedition is a joint Army and Navy undertaking for the purpose of conducting military operations on shore at the end of a voyage which is made under naval control.

3. COOPERATION BETWEEN ARMY AND NAVY.- The constitutional provision that the President is the Commander-in-Chief of the Army and Navy of the United States is the present limit of unity of command. A peace-time arrangement, which may be used in war, for bringing cooperation between the Army and the Navy exists in the Joint Board and its subsidiary Joint Planning Committee, together with the Aeronautical Board and the Army and Navy Munitions Boards. In their activities with respect to war plans, these agencies constitute a connecting link between the highest echelons of the Army and the Navy. The employment of these two independent branches of the Executive Authority together in an overseas expedition demands a very high degree of cooperation between all echelons of both services, particularly in the theater of operations. It may be said that the success of such joint operations is dependent to a great degree upon the extent to which unity of effort and cooperation are developed.

4. TRANSPORTATION SERVICE.- War Plans will usually provide for the control and responsibility of the transportation service required for the overseas expedition. It may be stated that in principle the Army controls the transportation service when no hostile naval opposition is expected; the Navy controls

when there is a possibility of naval opposition. The Navy is charged with surveying the available merchant marine and keeping the records of merchant vessels suitable for conversion into transports; the conversion is the duty of the service controlling the vessels under the specific war plan. Ports of Embarkation for land troops are operated by the War Department.

5. EMBARKATION.- a. Preliminaries. Nearly all landings require special equipment, such as boats for landing, special shells for navy guns, means for bombarding land positions from naval vessels, special means of transportation, and stores for troops on shore. Plans for proposed expeditions should therefore be prepared well in advance and the required material should be assembled accessible to sea terminals. These materials may be assembled in time of peace, ready for instant use upon outbreak of war, in accordance with approved plans of the War and Navy Departments and according to the details worked out in time of peace.

b. Unit loading is designed to meet the debarkation conditions of a forced landing against active enemy opposition. The tactical plan for operations on shore, and in approaching the shore, requires units to be ready for instant action with their combat equipment. The assembly of the units of the force including troops and field equipment must therefore be complete on the transport so that the unit will land in fighting condition. There is no time to assemble individual units from different ships. The size of the unit will depend on the character of the tactical plan, the size of the transports and landing equipment. Field trains not immediately needed may be landed later. Battalions and equivalent organizations should seldom, if ever, be broken up on embarkation, except that, when the estimated tactical situation on debarkation indicates the desirability, mounted troops, and particularly artillery, may be

divided among the transports. This will prevent all such units being accommodated by themselves in cattle ships.

c. Selection of transports. War plans or the operations plans should specify the number, types and capacities of the transports required. The transportation service furnishes the ships at ports of Embarkation at the times specified by the plan, being responsible for the seaworthiness and suitability of ships so furnished.

d. Responsibility. The assignment of quotas of troops and cargo to each transport, and the loading of the troops, animals and supplies are functions of the Army, after consultation with the naval convoy commander or his representative in order that the stability of the ship shall not be endangered in loading (Navy Regulations, 1461-6). The Army employs experienced men (riggers, longshoremen and stevedores) in loading, the work being under the supervision of the commanding officer of the transport.

6. CONVOY AND ESCORT. a. A convoy is a body of non-combatant vessels, such as transports or cargo ships, proceeding under the protection of one or more combatant ships.

b. An escort is a body of one or more combatant ships detailed to protect a convoy.

c. The navigation and defense of convoys at sea are entirely under the direction of the Navy. The Army personnel are passengers and do not interfere with the formation, route, or conduct of the convoy. When transports are escorted, the defense of transports by use of troops on board shall be as directed by the commander of the naval escort.

d. Complete security of the convoy is assured by attaining and exercising command of the sea and superiority or supremacy in the air in the theater of operations. For a major expedition, such command of the sea and air are essential prerequisites. For a minor

expedition, attack resistance by evasion may become necessary, at risk to the expedition. In many cases an overseas expedition will be employed as part of the means for gaining mastery over the sea and the air. In these cases, the risk may be great, and the security of the convoy will largely depend upon the skill with which the convoy is conducted and escort employed.

7. DEBARKATIONS. a. Debarkations may be classified in two ways, first with respect to their purpose, and second with respect to the opposition to be encountered.

b. With respect to the purpose of the debarkation, the landing may be made either with a view to, first, the temporary occupation of the beach and adjacent shore, or second seizing and holding a beachhead for the prosecution of other operations. The former usually involves a small force, generally all from the Navy, with the purpose of capturing prisoners, destroying hostile works or creating diversions; such a raid requires usually a limited amount of supplies and artillery to be landed. The latter involves a large force, generally army and marine forces supported by the navy.

c. Debarkation with respect to opposition to be encountered; A landing made against opposition is a forced landing and will be treated in a later paragraph. When there is no opposition, the problem is simply one of technical, supply, and administrative arrangements in which the character of the beach, the kind and number of troops and amount of stores to be landed, the landing equipment available and the distances that transports and vessels must lie off shore under various conditions of weather, are the controlling factors. In such cases, a body of troops is put ashore, and facilities for handling stores and troops are constructed. Generally, a wharf is built, for discharge of passengers and cargo from small boats and lighters. Connections from the

wharf to the roads of the country and facilities for protecting and storing supplies landed are provided for.

d. Whenever landings are made with the navy present, the means of debarkation and protection from mines, submarines and other hostile craft are furnished by the navy which also assists the landing forces with aircraft protection, smoke and covering fire of ship artillery and machine guns, as circumstances require and as conditions permit.

8. FORCED LANDINGS. a. Forced landings, made either as a raid or for securing a beachhead, are difficult operations and require thorough preliminary preparation, careful planning, preliminary drill, excellent cooperation, and skilful execution.

b. Tactical consideration as to the objective and consequent employment of the land forces ashore are paramount; the landing must be made at such place that the forces ashore can reach their objective. The best locality for landing from the viewpoint of land forces may be very difficult of accomplishment from the viewpoint of the navy which may propose alternative localities; a compromise agreement must be effected between conflicting views; this compromise must assure the landing of sufficient forces at a place from which they can reach their objective and accomplish the mission for which the operation was undertaken.

c. It is absolutely essential that general plans for debarkation be decided upon before the expedition is embarked, in order that troops and material be so loaded on ships that those first needed may be available, according to the plan and to the tactical situation as it develops, and that they be landed as needed quickly and without confusion, and that they be capable of being maintained in the hostile country.

9. SCOPE OF THESE REGULATIONS.- These regulations, contemplating as they do the employment of large bodies of land troops, apply primarily to forced landings made with the intention

of seizing and holding a beachhead with a view to further operations, but are applicable to all joint landings.

10. FUNDAMENTAL PRELIMINARIES - In contemplating overseas operations, the following preliminaries are fundamentally important:-

a. Complete estimate of the situation, including study of available landing localities, the beaches in these localities, and the probable hostile resistance at each.

b. Organization both of the Army and Navy forces for the effort contemplated.

c. Training of both the Army and Navy for the specific type of operation contemplated.

d. Planning for all possible details of operations contemplated.

11. RELATIONS OF ARMY AND NAVY COMMANDERS.-

a. Complete cooperation between the army and the navy commanders is essential from the very beginning. Experience in past wars shows that failures of overseas expeditions debarking on hostile shores can be traced largely to failure of agreement or to lack of complete cooperation between the army and navy commanders; while the greatest successes have occurred when the army and navy commanders have worked together in full cooperation.

b. Every effort should be made during the development of such an expedition, to insure thorough cooperation between the commanders and between the staffs of the army and navy forces.

c. During the voyage it is advisable that the army and navy commanders travel on the same ship and that they consult frequently on all matters of common concern.

d. Final decision as to places and methods of landing rests with the responsible commander usually the Army commander, after consultation with the Navy commander as to the practicability of



landing at the places desired and as to the ability of the Navy to furnish the assistance required.

e. The arrangements for a landing are made jointly between the Army and Navy commanders, based upon a consideration of the tactical requirements and the means available.

f. The responsibility of the navy commander for supporting an army landing must extend to include the actual landing on the beach of all personnel and material carried in the convoy for use on land, and the full support by naval agencies of the troops ashore until such times as they are able to get into operation the personnel and material landed. This applies particularly to the air and artillery arms of the Army.

12. COORDINATION OF AIR SERVICE.- Since the navy controls the conduct of the convoy and supports the landing with its gun fire and air forces, and since army air service cannot operate until it has land bases, it should be accepted as a general principle that the control of the air forces of both the army and the navy should rest with the navy until the army air service has become fully established on shore. In many situations it may be especially desirable to effect preliminary establishment of some of the army air forces ashore at some near-by point to assist in effecting the landing of the land forces; according to the principle above stated, the control of these army air forces so established remains with the navy, subject to the one exception that division and corps air troops are primarily under their respective division and corps commanders.

13. MUTUAL UNDERSTANDING OF PROBLEMS.- In view of the importance of cooperation in overseas expeditions, officers of each service should have a clear understanding of the problems confronting the other service and the limitations incident to the employment of the facilities of both services. The staffs of both services should study the problem jointly as a whole

leaving the details of the technical operations by the respective services to be worked out as assigned. The next two sections of these regulations contain a statement of the requirements of each service, together with an indication of the powers and limitations of the two services in this kind of operations.

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14. SURPRISE.— The chances of a successful forced landing are much improved when surprise is effected. Strategical surprise is difficult to accomplish, as air and surface scouting can be carried a long distance to seaward, may result in the early discovery of an approaching hostile fleet. Tactical surprise, namely the commencement of operations against a particular beach at a particular time, is often possible before enemy land dispositions can be accomplished; every effort must be made to effect this surprise. With power boat equipment or large forces, concealment of the operations is usually impossible from the time debarkation begins. The effectiveness of tactical surprise is dependent upon the number of landing places available, the size of the landing force, the secrecy of approach, and the character of the enemy dispositions.

15. SELECTION OF LANDING LOCALITY.— Landing operations against a beach strongly defended by infantry and field artillery, supported by heavy coast defense artillery, ordinarily cannot be successful unless these latter agencies can be neutralized by air operations in the beginning supplemented by other means. Transports cannot withstand artillery fire, and naval vessels ordinarily cannot be risked in combat with heavy shore batteries. In consideration of these limitations, the selection of beaches for landing operations of large forces will usually be confined to those the least defended or to those likely to be defended only by infantry supported by mobile artillery, notwithstanding that such selections may involve the invader in considerable marching overland to reach the objective of the operations.

16. BEACH FOR LANDING DEFINED. A beach for landing is any section of the shore where it is practicable to land whatever is necessary for the attacking force and having facilities for establishment of signal stations provided always that the beach gives access to the terrain over which the troops are to operate. It may be more or less favorable, depending on the extent to which it is covered with rocks and obstructed by mud flats or other obstacles and the character of access to the hinterland. It may be artificially obstructed by the defenders and so be unfavorable.

17. DETERMINATION OF EXACT LOCATION OF BEACHES.-

a. Estimates and calculations as to the ability of the defenders to concentrate troops opposite each possible beach, compared with the ability of the attackers in this regard, must be made before selecting the number and the exact location of the beaches. Allowance must be made for permanent works or for obstacles which the defenders may have installed.

b. The form of shore line may affect materially the choice of beaches. If peninsulas or promontories can be attacked near their bases, such action may lead to the capture of the hostile forces defending them, as a result of a successful attack across their line of communications. The possibility of securing converging artillery fire against the interior of such land salients should be considered when islands are attacked. The size of the island and the strength of the forces to be employed are important factors in deciding the number of sides of the island to be attacked. In such cases, the defenders control interior lines; but with superior forces, not too greatly separated, the attackers may obtain the advantages of an envelopment.

c. Local currents, currents close inshore, probability of weather conditions, rough water, surf, and state of the tide are matters which must be considered in determining what beaches are practicable. A particular combination of tide, wind, fog or moon may be necessary.

d. The extent of the beach must be considered. The beach need not be continuously available for landing, provided that the various sections of the shore allow the units landing thereon to be mutually supporting. A small extent of beach can be more easily defended than a long one, hence the landing wherever possible should be made on a broad front in order to be certain of attacking weak points in the line of defense

and of overcoming strong points of envelopment.

e. In the landing of large forces, the depth of the beach and the character of the terrain inland is vitally important. The establishment of a beachhead requires that the landing forces be able to clear rapidly the area adjacent to the beach inland at least 5000 yards so as to allow the continued landing of troops without interference by light artillery fire; it further requires that the landing forces be able to establish themselves on a defensive line at least 15000 yards from the beach so as to allow the continued landing of heavy material without interruption by concentrated long range artillery.

18. INFLUENCE OF THE ENEMY AIR SERVICE.- When the enemy is provided with air service, the hostile observation is almost certain to learn of the approach of the expedition, and the hostile air force, unless neutralized, may prevent the convoy from approaching the coast, or it may prevent a successful debarkation or landing. The convoy should be assisted by observation, pursuit, and attack aviation, strong enough to defeat decisively the hostile aviation and to keep it away from the convoy and the debarkation areas; this is a function of the navy, with such army assistance as may be practical. In some cases, extensive aerial operations, which may include the establishment of an advanced base for a supporting air force, will be a necessary part of an overseas expedition. To prevent the enemy from suspecting the location of debarkation areas, it may be necessary to dispense with aerial reconnaissance of these areas for a time prior to the landing, unless such reconnaissance can be concealed by including it in other aerial operations.

19. OTHER ENEMY INFLUENCES. a.- The army must fully appreciate the influence of enemy submarines and mines on the

conduct of the convoy, and the effect that the presence of these weapons may have upon the navy conduct of the expedition, the selection of the locality for landing, the navy conduct of the approach to the beach selected, and the navy method of debarkation.

b. The navy is responsible for the demolition of such underwater obstacles near the beach as may be practical to overcome, the army indicating the localities where such demolition should be undertaken, insofar as it affects the points of landing.

20. IMPORTANT ITEMS GOVERNING LANDINGS:-

a. A forced landing is in effect the assault of an organized defensive position; the methods outlined in army training regulations should therefore be employed where practicable.

b. Tactical units should be given objectives as in assault operations on land; when large land forces are employed, assaults will be on division fronts.

c. The division attacks will normally take one of the formations shown in Annex A, (not yet issued) the assault battalions varying from four to six as the situation demands.

d. Three phases in the operation are to be expected, each being marked by successive attacks with limited objectives:-

(1) Seizure of a foothold on the beach, followed when sufficient strength has been landed by an advance to secure the beach from enemy light artillery fire.

(2) Seizure of a beachhead, namely, a farther advance to a defensive position which allows complete debarkation without interruption by long range artillery fire; this frequently involves the securing of a harbor with facilities.

(3) Land operations against the objectives for which the landing was made.

e. Simultaneous assault upon the beaches should ordinarily

be made by all assault divisions and especially by the assault battalions within each division.

f. Limitation as to available landing boats, as well as the desired approximation to usual formation of assault battalions, will usually cause the debarkation to be made in successive waves, the first wave taking the assault battalions, the second reserve battalions, successive waves taking other reserve battalions and auxiliary troops in the order of debarkation demanded by the situation and as predicated upon the tactical employment of troops on shore.

g. While local conditions must control it is usual that: assault battalions approach the shore in formation as closely approximating that of an assault on land as the landing boats allow; assault companies in two subwaves if practicable; support-companies similar echeloned in depth if practicable; distance between subwaves should approximate 2000 yards. It is imperative that the landing be made on the beach by tactical units, even down to the squad, in order that tactical team unity be preserved and the fighting power of the team be kept at the maximum at the moment of physical contact with the enemy.

h. In the night assault, fire of the assaulting troops is withheld until on the beach; in the day assault, assault platoons endeavor to develop all fire power practicable.

i. The assault should be made under supporting artillery fire approximating that which is usual for infantry when the supporting artillery is on land; this fire must be furnished by a supporting force of ships until such time as the artillery of the land forces is in position ashore ready for action.

See paragraphs 24 and 26.

j. The plan of debarkation must avoid encumbering early infantry waves with auxiliary troops. Field artillery is difficult to land, but pack artillery can be landed comparative-



ly easily and may be advantageously used as soon as a foothold has been obtained on the beach.

k. Communication between ship and shore is of primary importance; it is the duty of the navy to establish and maintain this communication effectively. Every echelon of the army must early establish its command post in communication with this navy beach communication system; the army extends this line of communication inland as the attack progresses.

l. Previously trained artillery liaison sections and air service liaison sections are established at naval beach communication stations by the army so that messages may be transmitted in terms and manner to which each service is accustomed.

m. Field guns mounted on ship's decks are under the control of the navy. The army decides when such guns are to be dismounted preparatory to being put ashore, all in accordance with the operation plans.

n. In making any landing, it is highly important that the units as they land have easily identified points on which to move, thus aiding in the formation of tactical units ashore. Endeavor should therefore be made to designate features of the terrain for first units ashore, these units to mark promptly and plainly landing points for following units, together with early establishment of message and information centers. This marking may be done by using signal lights displayed so as to be visible from the sea only.

o. The difficulties of landing troops on a hostile shore make it mandatory that special training be had in such operations, particularly in:-

- (1) Embarking in small boats from the transports.
- (2) Landing with equipment on beaches from small boats.
- (3) Rowing and assisting in handling boats.
- (4) Firing from small boats.

p. The landing of the impedimenta of large forces,

particularly the reserve supplies and heavy equipment and material, requires a well equipped harbor with wharves and railway facilities.

21. ARMY DECISIONS.- The time of landing and the strength and composition of each wave are determined by the army commander after consultation with the navy commander. These are dependent upon the plan of operations, the number and kind of boats available, distance of transports from shore and the sea and shore conditions at the time and place of debarkation. The order of landing of troops and supplies is determined by the army.

22. THE BEACHMASTER.- Experience in the World War indicates that a beachmaster should be appointed for each beach where a landing is to be made. He is assisted by, and cooperated with, a shore party commander. The beachmaster is a naval officer, and he has complete control of the beach, the naval operations thereat, and the landing facilities. The beachmaster also locates signal stations for communicating with ships, has the beach marked in order that it may be readily recognized, maintains communication with the navy, and cooperates with the shore party commander.

23. THE SHORE PARTY COMMANDER.- The shore party commander is an army officer; he works in cooperation with the beachmaster. The shore party commander takes charge of all troops, equipment and supplies as soon as landed by the beachmaster on the beach and of all utilities pertaining to the clearing of the landings, after the immediate vicinity of the landing point has been cleared of the enemy. The shore party commander controls labor parties; establishment of dumps, collecting stations, and prisoner's cages; supervises all construction required; and takes such measures as may be required to prevent undue loss from hostile shell fire. He establishes a message center and marks routes to the front, which is important, as troops are liable to have difficulty in

finding the parts of their units which have landed before them, or which have landed at a different part of the beach.

24. NAVAL ASSISTANCE REQUIRED.- a. In making a forced landing, the army requires the following assistance from the navy;-

(1) Protection of transports and their troops during debarkation and protection of landing boats during movement to beach, involving both the counter battery fire against the heavy land guns covering the transports and against the light guns opposing the landing.

(2) Bombardment of the beach, especially along the shoreline, to destroy the defense and permit the landing, lifting as the initial wave approaches the beach.

(3) Concentrations generally 1000 yards inland until the assault battalions are established on the beach. (Note: A concentration is a fire delivered by one or more batteries upon a defined area or designated target, the area or target being so limited in size as to insure an effective fire density. Density for effective fire varies with the purpose to be accomplished, whether it be interdiction, neutralization or destruction.)

(4) Counterbattery of enemy guns bearing on the beach, together with concentrations on enemy support and reserve positions and routes of approach of reserves, and on strong points holding up the advance ashore, until the advance has progressed sufficiently to cut off effective enemy artillery fire on the beach, approximately 6000 yards.

b. The navy furnishes this support by employment of air forces, and ship gunfire, utilizing smoke as necessary.

25. AIR SERVICE SUPPORT OF LANDING.- The initial landing should be strongly supported by air service. Pursuit aviation is needed to drive off hostile aircraft of all kinds; attack and bombardment aviation, to assist the rapid advance of land forces, to destroy hostile batteries, and to interfere with the employ-

ment of hostile reserves. Observation aviation is essential to provide aerial reconnaissance for land forces and naval gunfire. Air service support can ordinarily be given only by naval air service until such time as the forces on shore have obtained a beachhead large enough to provide a suitable landing field out of the range of hostile artillery, unless a suitable advance base for a supporting air force has been secured in advance.

26. ARTILLERY SUPPORT.- a. As in any advance of infantry against a defensive position, artillery support during a forced landing is essential. This support can be furnished only by gunfire from naval ships until army guns can be landed and emplaced. The amount of gunfire required is determined by methods similar to those used for assaults on land; the nature and the amount of resistance to be expected is estimated from a consideration of the enemy forces likely to be present on the beach to oppose the initial landing, the defensive organization of the beach, the supporting hostile artillery including field, railway and fixed armament, the available enemy supporting troops including their routes of approach, and the location of reserves.

b. Ship's gunfire is controlled by the navy, the army indicating the localities to be fired upon, the amount on each locality, and the times of commencing and lifting. The limitations of this kind of gunfire are discussed in paragraph 38. The army must take into account the limitations of this fire and provide for lifting at greater distances than for supporting fire from land artillery, particularly if the firing ships are in movement.

c. Supporting gunfire of the navy will most efficiently support the army and will provide the flexibility required of supporting artillery to which infantry is accustomed if the assignment of ships follow as closely as may be practicable the normal assignment of artillery support to infantry tactical organizations. Thus, when a corps is landing divisions on

nearby beaches, a group of naval ships may be assigned to the close support of each division to simulate division artillery, and a group may be assigned in general support to simulate corps artillery. The ships of a group supporting a division should further be assigned to the support of brigades or regiments, thus simulating the normal assignment of artillery to support assault battalions within the division.

27. DEBARKATION OF AIR SERVICE.- The army air service usually will be debarked only after a suitable landing field has been secured ashore, and after piers or other means for handling large crates and the necessary air service supplies are available. Airplanes may be flown to such fields. Initial debarkation of planes may be at a site some distance from the troop landing but within flight reach.

28. DEBARKATION OF ARTILLERY.<sup>2</sup> a. The landing of field artillery heavier in weight than pack artillery upon open beaches is difficult, and the terrain may be such as to make the prompt movement or employment of such artillery, after landing, impracticable. When the beach is bordered by high hills, heavy artillery on shore may be of no value until the hills are secured, and artillery emplacements and approaches thereto constructed. In favorable situations, on a good beach, a small amount of field artillery may be landed early. Such artillery will usually have to be moved into position by hand. Debarkation of heavy artillery is preferably by means of barges and wharf or pier facilities on shore, with the necessary protection. (See Paragraph 1p )

29. ENGINEERS.- An engineer party should be landed soon after the first troops. It should establish at once improved landing places for boats. This may require removal of obstructions. A wharf of some kind is usually the next work, and it should be completed with the least possible delay. Next comes the construction of routes of communication into the interior. If the country be mountainous, nothing more than paths up the sides of the hills and cliffs may be practicable at first. These

paths are enlarged subsequently into trails available for pack animals, and eventually they are improved into roads. The laying out of these routes of communication may be determined beforehand by a study of maps, and this should be done whenever possible.

30. MILITARY POLICE.- Confusion is likely to occur at the beaches, due to the irregular arrival of troops and cargo, to fire from the enemy, to stragglers and wounded coming to the rear, and to runners looking for persons for whom they have messages. It is necessary, therefore, to have the beach well policed, and a sufficient number of military police to control traffic and stragglers should be at the disposition of the shore party commander.

31. MEDICAL SERVICE.- As it usually will be impossible to provide for hospitalization ashore, or to arrange for evacuation of sick and wounded during the early phases of debarkation, adequate medical troops, with such supplies as can be carried by hand, should be landed early. Until the beachhead is established, such evacuation as is practicable must be handled by the navy with their small boats to transports and vessels of war.

32. INFLUENCE OF SUPPLY.- a. Troops usually can carry only enough rations, and the infantry only enough ammunition, upon landing, to last for one to two days. If the landing be made during hot weather or in a tropical climate, the amount of water that can be carried may be considerably less than the landing troops require. When there are no water facilities in the country where the landing is to be made, arrangements must be made for furnishing water. Allowance should be made for loss of water and containers, including damage by hostile fire. Very liberal provision for supplying water should be arranged. The British advance from debarkation at Suvla failed, largely due to the exhaustion of troops on shore caused by the lack of water on an intensely hot day. It is well to place one or more casks of water in each boat going ashore. This will not materially reduce the space available for troops.

b. For initial supply purposes, pack trains may be of the greatest value until such time as roads are established. When it appears that the country permits operation of pack trains, they may be unloaded at an early hour on the first day.

c. The use of vehicles is practicable only after a beachhead of considerable extent has been gained and suitable roads established.

d. The plan of attack must provide for the supply of the troops on shore. The needs of the latter must be foreseen, and transports must be loaded in accordance with the plan of supply. The first administrative orders to be issued after landing must be prepared before the departure of the expedition, and must be ready for issue at the proper time. Ordinarily, few stores other than ammunition can be unloaded the first day.

33. HOOR OF LANDING.- In order to make the maximum use of the element of surprise, to keep losses to the minimum, to keep the enemy in ignorance of the strength of the effort, and to have available the maximum daylight in which to reach the day's objective and consolidate the position for the beachhead, the debarkation so timed as to allow the first wave of the landing troops to reach the beach about daybreak is a probable advantage. Debarkation at night involves difficulties and sacrifices which may not be commensurate with the advantages gained (see paragraph 48 following). The decision as to the hour of landing rests with the army commander after consultation with the navy commander and due consideration of what the navy can do.

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Air Forces (incomplete)	



34. COMMAND OF THE SEA.- An overseas expedition presupposes command of the sea within the time and the area of the operation. Command of the sea does not necessarily preclude possible damage to the expedition from raids by single ships or striking forces; hence an overseas expedition is ordinarily escorted by men of war. The size of the escort required depends upon the enemy naval opposition to be expected and the naval support required in effecting the landing.

35. EMBARKATION.- When the Navy controls the transportation service, the Army is charged with embarkation and loading plans and the actual placing of the expedition on the transports. The loading plan will depend upon the tactical plan of operations on landing. The Navy will furnish the necessary data as to the capacity of the transports and supply ships and will supervise the loading plans and the loading insofar as the stability of ship is concerned and with a view to utilizing the maximum capacity of each ship consistent with the Army embarkation and debarkation plans. (See paragraph 5 b ante). When the ships are loaded full control passes to the Navy.

36. ESCORT AND CONVOY.- The convoy and each vessel therein is commanded by a naval officer. The escort is furnished by the navy. See paragraph 6 ante.

37. NAVY RESPONSIBILITY.- Although the army, with naval advice, selects the beach for landing, the navy has definite responsibilities with respect to effecting debarkation, movement of troops from ship to shore, supporting the landing by fire from ships, and advising the army as to navy capabilities and limitations. The limitations of naval gunfire with respect to firing on land targets must be thoroughly understood. Naval advice is to be given with respect to local currents, weather conditions, wind, rough water, surf and state of tide, much of which data may not be shown on charts and may materially effect the plan of landing of the army.

38. EMPLOYMENT OF NAVAL GUNFIRE AGAINST LAND TARGETS.-

a. General principle. From the large strategical and tactical viewpoint, the employment of vessels of war against land targets in landing operations, when such vessels are suitable for offensive action against hostile naval vessels, is in violation of the principle of economy of force unless there be no probable future use during the war for these vessels in naval battles for the command of the sea.

b. Against harbor defenses. Landing operations on a large scale against beaches, the sea areas of which are effectively covered by heavy armament of modern harbor defenses, involve too much risk to be practicable; vessels of war are too vulnerable to gunfire from shore, transports have to lie far off shore, and gunfire from ships against shore defenses is comparatively ineffective unless incommensurate losses are risked.

c. Against beaches. The armament, types of ammunition and fuses, and in general the ammunition supply of vessels of war, are basically unsuitable for providing the kind and volume of covering fire required for an infantry assault of a defensive position, either at the shore line of the beach or in support thereof. Use of vessels of war in support of landing operations of overseas expeditions is therefore an emergency employment predicated solely upon the absence of other more suitable equipment and demanded by proper conception of the conduct of the war; when such employment obtains, maximum use should be made of vessels which through age or other reason have lost their prime value as offensive units in naval actions, and then only after such arrangements have been made with respect to types and amounts of ammunition, together with the training of personnel in firing at land targets, as the situation permits. A basically important overseas operation may demand and justify the design and construction or adaptation of vessels with armament, particularly suitable for landing support.

d. Against heavy-mobile armament. If enemy heavy mobile armament be concentrated in quantity particularly if the enemy secures effective air observation so as to extend the usual unaided limit of observation (approximately 15000 yards) to the limit of range of this armament, it is a risk to bring either vessels of war or transports into the area covered by the fire.

e. Control of ship gunfire. The control of all ship gunfire is a function of the navy, including that delivered from army armament which may have been mounted on the decks of ships; the army indicates the localities, to be fired upon, the volume of fire to be delivered, and the time when fire is to commence and to lift.

f. Special plans. Details of the artillery preparation and the gunfire support during the attack require that the general character of the naval supporting gunfire be worked out prior to embarkation, in order to insure that a sufficient amount will be forthcoming, that the correct ammunition is carried on each ship, and that special ammunition and special ships required are provided.

g. Indirect fire. Gunfire in support of a landing is primarily indirect fire; such fire against land targets is capable of considerable development by Training, but even at best may generally be less effective than that which artillery emplaced on land is capable of delivering. Movement of firing ships increases the difficulty in securing accuracy of fire against land targets.

h. Close support. The naval guns are designed and installed to give flat trajectories and long ranges. These characteristics reduce the life of large caliber naval armament to about 100 rounds. In general it may be stated this limit on life of guns reduces greatly the support which naval ships can render to landings; further, firing characteristics prevent the

safe placing of fire on land targets closer than 2000 yards from friendly troops. For land artillery mounted on the deck of ships, the crews of which have been trained for firing at land targets, this distance may be reduced possibly to 1000 yards. In any event, the close support of front line assault troops is a difficult operation, especially when the firing ships are in motion.

i. Fire adjustment. All artillery fire requires adjustments to place the center of impact on the target. Night firing from naval ships against land targets, except on especially bright moonlight nights when observation of fire and adjustment thereof is possible, requires that the relative positions of firing ship and target be definitely known. Fire without observation for adjustment is naval bombardment fire, and as such is inferior in fire effect to observed fire. Fire from ships whose positions are not definitely known and whose fire is not capable of adjustment is essentially an inaccurate bombardment fire; it is normally ineffective on desired targets; it is invariably dangerous to employ such bombardment fire in support of landings within distances from friendly troops to be of any service to them.

39. INFLUENCE OF THE ENEMY SUBMARINES.- a. If the enemy have submarines, their interference with the landing may be material. In order to avoid being torpedoed, ships in lieu of other protection usually keep cruising at high speed, instead of anchoring, while awaiting an opportunity to debark. When the time for debarkation comes, the ships instead of being able to anchor, move slowly and debark into lighters or boats which are cast off at a suitable time, allowing the ships to resume their cruising at high speed. The consumption of fuel by the ships, under these conditions, may be large, and must be provided for so as not to cause the ships to return to a home port or base before any opportunity to unload has occurred. Careful calculation should be made as to the length of time it will take to unload vessels with the facilities existing, and vessels should not be required to

arrive within the danger zone before they are needed.

b. Where hydrography allows transports may be anchored in less than ten fathoms as a considerable protection against hostile submarines.

40. INFLUENCE OF THE ENEMY MINES.- When the water in front of the proposed landing beach is known to be, or is suspected of being mined, it must be swept clear before a landing can begin. The plan of debarkation must provide for this. The necessary mine sweepers are provided by the navy, which must notify the army of the length of time required for mine sweeping. Mine sweeping may be undertaken as a feint. This is not ordinarily practicable for a surprise attack at the commencement of war. In such a case, if the sweeping cannot be accomplished within a few hours, a surprise cannot be expected.

41. UNDERWATER OBSTACLES NEAR BEACH.- Consideration should be given to the possibility of destroying underwater obstacles near the beach by means of cutting devices on small boats, drags, depth charges or possibly aerial bombs and by any other means. The army in consultation with the navy indicates the localities where demolitions should be undertaken in so far as it affects the points of landing, and the navy performs the demolitions in accordance with the plans of the two services. (See paragraph 19 b)

42. SELECTION OF BEACH.- a. From the viewpoint of the navy, the beach selected should:-

- (1) Afford close approach of vessels.
- (2) Afford sheltered anchorage and / or maneuvering space, free from enemy gun fire.
- (3) Be sandy without natural obstacles.
- (4) Be of a slope permitting beaching of boats close to land.
- (5) Be firm, particularly where guns and land transports are to be landed.
- (6) Be sheltered, so that ships may complete debarkation without interruption by rough weather, and boats can land troops and equipment without undue interruption or interference

by waves or surf.

h. Unfavorable beaches may of course have to be selected for various reasons: for small landing parties, use of such beaches may be obligatory even at the risk of losses in order to take the over-balancing advantage of surprise or gain a flanking fire which will assist the larger landings on the favorable beaches.

43. METHOD OF DEBARKING.- a. Full opportunity is taken to make as complete reconnaissance of available landing localities and beaches as the situation allows, but indication to the enemy of the probable objective must be avoided; air forces and submarines are particularly suitable for such reconnaissance. See paragraph 19 ante.

b. Detailed plans for debarkation are made by each service coordinated in all details. See paragraph 11 ante.

c. Mine sweepers clear positions of covering ships and transports; certain long range land artillery may be attacked by air bombing forces and by ship gunfire if the situation makes it compulsory; air supremacy is obtained if possible, to limit long range land artillery fire.

d. Naval force heads in proper order for the beach selected, heavy ships opposite positions assigned them for land attack, preceded by destroyers and mine sweepers and followed by transports, aircraft up when practicable to protect transports and troops from enemy air forces. See paragraph 44.

e. On reaching assigned positions, ships open fire at times and in manner indicated by prearranged firing schedules, destroyers keeping to land side of heavy ships and making full use of smoke screen boxes when wind is favorable.

f. The debarking point is that position opposite the beach at which the transport debark the troops. Transports

are brought to this point only as required by the debarkation schedule, lying to or anchoring in line parallel to the beach when practicable; the remainder keep clear of enemy fire under protection of that part of the escort not engaged in covering the landing.

g. The debarking point should be as close to the beach as the situation permits, in order to reduce the time of landing operations; this distance depends upon the depth of water, the enemy resistance, and the visibility.

h. Full use is made of small boat equipment of transports, assisted as may be necessary by power boats from the escort, which report to assigned transports at debarking point in conformity with prearranged schedules. See paragraph 45. Armored, or fast naval vessels such as destroyers, may sometimes be advantageously used in effecting the transfer from transport to landing boats, particularly when the transports must lie a long distance from shore.

i. Troops debark according to schedule. Landing boats start for beach on signal, maintaining line in each subwave so that landing will not be echeloned, advancing through the covering force to the beach, mine sweepers alongside transports when practicable to assist in debarkation; they may also assist in towing boats.

j. All boats used in debarkation and landing carry navy crews for handling, and when practicable should mount one pounders and machine guns manned by the navy; boats should have such protection against small arm fire from beach as may be practicable to provide.

k. The army is landed thus in successive waves, the heavier material of later waves requiring usually the construction of ramps or temporary piers and special landing boats where practicable. See paragraph 29 ante.

44. SHIP GUNFIRE ASSIGNMENT.- a. General Task Group. Naval organization for the support of landings consists of the designation of Landing Forces assigned the task of covering specific beaches, together with designating specific tasks for the heavier ships in general support of the landing as a whole.

b. Landing Force Group. The landing force group protects the transports designated for a specific beach, furnishes the additional landing boats required by the transports, takes charge of debarkation and landing, furnishes the naval beach parties, and covers the landing with gunfire and smoke. It consists of cruisers auxiliary cruisers, gunboats, destroyers and mine sweepers.

c. General Support Group. The heavier ships, ordinarily a part of the battle fleet, with the task of giving general support to the landing as a whole, have assigned to them specific tasks, such as the long range counterbattery by gunfire of hostile long range land artillery capable of damaging the transports and naval landing forces.

d. Landing Force Gunfire. The landing force group usually furnishes that part of the gunfire required by paragraph 24 as follows:-

- (1) Counterbattery of light guns opposing landing.
- (2) Bombardment of beach preparatory to landing.
- (3) Concentrations generally 1000 yards inland while assault battalions are establishing themselves on the beach.
- (4) Counterbattery and concentrations inland in support of advance of land forces up to approximately 6000 yards.

45. LANDING BOAT EQUIPMENT.- a. The landing boat equipment consists of the large motor (sailing) launches and smaller launches of the vessels of war, the moderate sized rowing lifeboats of the transports (commercial vessels), such additional motor launches as may be added to the transports and such special equipment as has been provided for the specific purpose of the landing.



b. For assistance in transfer from transport to landing boats and in towing toward the shore, there may be available mine sweepers, destroyers and tugs.

c. Lifeboat capacity of transports for estimating purposes may usually be taken as approximately one-third of the troop capacity of the transport.

d. All landing boat equipment is designed primarily for movement of loads between wharves and vessels where loading and unloading equipment is available. All are difficult to unload by manpower on the beach, and the floating equipment may be subject to considerable damage in landing operations.

e. The large motor sailing launches of vessels of war are suitable for the transportation of troops, but are not suitable for towing many small boats. There is a risk in their use in landing operations which may permanently deprive the vessels of war of their equipment; these launches are, however, the best type of landing boats now available.

f. Neither the motor sailing launches nor the lifeboats are suitable for landing the heaviest material, such as field artillery, tanks, stores, horses or motor transport. For this material special equipment is desirable, such as barges or floats. Such special equipment requires special provision for debarkation operations. The floating equipment may well be protected by plating against machine guns and also by compartmentation.

g. Experimental work has been done on special equipment. "Beetle" boats, both power and rowing, are practicable of construction; their designed capacity may be made to suit particular conditions or problems. Armored or protected floats and barges have been designed.

46. HANDLING LANDING BOATS.- a. The embarkation of troops from the transports to the landing boats at night without lights is a difficult operation, primarily due to the difficulties ex-

perienced by soldiers in finding their way about the dark transports and in getting into small boats with their necessary packs and arms, even when land troops have been trained in debarkation.

b. The night maneuver of small boats toward the beach, either singly or in tows, carries with it no assurance that the boats will arrive at a predetermined place and time in the formation desired. The navy can better assure such movement in daylight.

c. Limitations as to power boat equipment usually require the movement to shore to be made in tows until such time as the towed boats can be cut off and make for the beach in the formation desired by the assault battalion commander. Modern daytime gunfire makes dispersion in the boat formation desirable in breadth rather than in depth, thus making as many columns as there are power boats for towing.

47. HOUR OF LANDING.- a. Whereas to gain surprise, it is desirable to take full advantage of darkness or fog, to place the first wave close to the beach before discovery, generally necessitating debarkation of the first wave before daylight and its landing at daylight, there are great difficulties incident to approaching an anchorage or harbor in the dark or fog when aids to navigation have been removed or altered, to maneuvering a large force of transports in the dark or fog, to attempting sweeping operations under such unfavorable conditions, to debarking soldiers into landing boats without lights, to maneuvering these landing boats in line to assigned beach sections in dark or fog according to a prearranged schedule and to covering the landing with effective gunfire.

b. This basic difference of opinion between the army and the navy requires that the army, with whom the basic decision as to hour rests, must give most careful consideration to the recommendations of the navy.

c. In general three situations may be considered with

respect to hour of debarkation; namely night debarkation and landing, night debarkation and landing at daylight, and daylight debarkation and landing. Night debarkation and landing appears to offer the army the smallest losses in landing, but involves the navy in difficult operations which may bring about disorder in loading the small boats and attaining the sections of the beach intended, but if made without lights on the transports reduces losses from enemy bombing operations to the minimum. Daylight debarkation and landing presupposes the greatest army losses from enemy land fire and bombing attacks, but allows the navy to load the troops and dispatch the small boats to the sections of the beach intended by the plan, and to provide maximum effective covering gunfire. A middle ground seems to be the night debarkation of one wave with transports dark, with a departure for the beach at the earliest possible time that the navy can insure the arrival of the boats at the sections of the beach intended, with such effective covering gunfire as may be practicable. An estimate of each situation must be made to determine upon the hour of debarkation which will mean the minimum losses for the army.

d. While a night landing may therefore be decided upon in any situation as necessary to avoid heavy losses in attacking a well defended position or effect surprise, it should not be undertaken without the most careful comparison of the advantages and disadvantages pertaining to such an operation.