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Expeditions - Combined Operations.

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Combined Maritime Expeditions.

It is my purpose in this lecture to treat of the formation, movement, and disembarkation of expeditions that are composed of military and naval forces, organized and fitted out for a common end, that is for operations and landing upon an enemy's coast and territory. In discussing the question I limit myself to the movements of the attacking expeditionary force and will not include the **Combined Maritime Expeditions.**

**Combined Maritime Expeditions.**

NO 1.

Read July 6<sup>th</sup> 1894

Sketch of formation of Expedition

Plan of John French

Landing place at old Fort

to discuss naval support to a land engagement, exemplified so frequently during our late war both at sea and upon inland waters.

Maritime expeditions have been carried on from the earliest times and are possibilities likely to arise during any war carried on by us. Our history both Colonial and National is full of instances of this kind. During our Colonial days a very successful and creditable expedition of this kind was fitted out and carried on by the New England Colonists against the strongly fortified sea port of Louisbourg then in possession of the French.

During the Revolutionary war, without laying any great stress upon the expedition of Commodore Hopkins resulting in the capture of the principal island of the Bahamas; we have the combined expedition of <sup>De Grasse</sup> Boscawen and Rochambeau which so powerfully aided us in the capture of Yorktown and hence in the subsequent establishment of our Independence. Our enemies also secured im-



1 2  
variant results from Combined Maritime Expeditions. war, in their

attacks upon our It is my purpose in this lecture to treat of the formation, movement, and disembarkation of expeditions that are composed of military and naval forces, organized and fitted out for a common end, that is for operations and landing upon an enemy's coast and territory. In discussing the question I limit myself to the movements of the attacking expeditionary force and will not include the maritime attack or sea siege of a strongly fortified sea port by combined forces or the defense against such an attack; ~~which comes within the province of another lecture, whose subjects include that of Coast Defense.~~ Nor is it intended to discuss naval support to a land engagement, exemplified so frequently during our late war both at sea and upon inland waters.

Maritime expeditions have been formed from the earliest times and are possibilities likely to arise during any war carried on by us. Our history both Colonial and National, is not without instances of this kind- During our Colonial days a very successful and creditable expedition of this kind was fitted out and carried on by the New England Colonists against the strongly fortified sea port of Louisbourg then in possession of the French.

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portant results from similar expeditions during this war, in their attacks upon our Southern Seaports.

In the war of 1812 we did little of this kind and what we did was confined to the Great Lakes, but again our enemy afforded us examples in the operations against Norfolk, Hampton, and Washington, and also at a later date against New Orleans and the Mississippi River. The Mexican war gives us a fine example of a creditable disembarkation at Vera Cruz, while during our Civil War, the expedition under Du Pont against Port Royal, and the expedition conveying and convoying Burnside and his forces to the Sounds of North Carolina are not to be ignored.

In the future, possibilities and complications may arise at Panama, in Central America, especially if the Canal is built, or upon the coast of any country, or island, in or about the Continent of North or South America, which might require serious work and would most probably and effectively take the form of a combined expedition; as a purely naval operation has its limit, and requires also, if intended to be lasting or self-supporting, a certain amount of occupation of enemy territory by land forces.

Jomini gives as the purpose of a maritime expedition the following objectives securing complete submission from the conquered territory: 1 - A Colonial or isolated possession, fortresses left behind. 2 - Countries of second or lower rank without allies from the sea. 3 - The purpose of making a diversion of a temporary nature, or the capture of a position; the occupation of which for a period being of great



importance.

4 - To make a political, as well as military diversion against a state already engaged in a war and whose forces are employed at a distance from the coast.

A combined expedition becomes a necessity when a distant country reached only by sea, by its aggression requires warlike operations against it in order to secure redress for grievances,

A naval demonstration alone may easily be wanting, as said before, in lasting results, as a blockade may not from the insufficiency of foreign trade be effectual, and hence a landing and possession of ports or territory may become necessary and matters may not be settled without an engagement with the land forces of the enemy in order to secure submission and the proper terms of peace.

Besides the case when from necessity the territory to be attacked can only be reached by water, there are advantages in following sea and water routes that often make them more desirable when a choice of elements - land or water- is possible.

For instance it is received as a principle of logistics that a march of one hundred leagues in an enemy's country reduces an army one third; - the necessity of keeping open communications with the home base, - of securing complete submission from the conquered territory in rear; the siege or blockade of fortresses left behind; the guarding of magazines and roads; and the drain from the sick, stragglers and deserters; - all of these contribute to this diminution. The exposure and fatigue increases wonderfully the number of sick; and convalescents rarely catch up with an army



that is constantly advancing. Clausewitz gives the loss of Napoleon upon his march into Russia in 1813 in a period of less than fifty-two days, on a march of about seventy miles direct to the front, as amounting from sick and straggling alone to 95000 men a third part of the army.

Napoleon when he left the shores of the English Channel to march against Austria had 160,000 men and when he reached Austerlitz and fought his first battle he had less than 70,000. In this respect a maritime expedition presents great superiority.

Not only is there much greater rapidity of movement, but the chances are favorable to reaching the destination and place of action with the whole force and the communications being kept open at sea by the navy the land forces are not diminished.

In addition the choice, and variety, and extent of base, given by the control of a coast and river line gives a combined expedition opportunity which is denied to purely land operations depending upon land bases and communications. Justice has never been fully done to the Navy and its influence in keeping free for transport and communication, the waters in the vicinity of the various land operations having Richmond for objective. The bases upon the Potomac, upon the York River, and upon the James were of vital importance and the transport of great bodies of troops from the shores of the Potomac, to Hampton Roads and to the banks of the James gave us opportunities of the highest value.



It is not intended to claim that a combined expedition cannot reach its des But the flexibility and moveability of a small combined expedition like that operating in the Chesapeake and the tributary rivers was shown by the movements of General Ross in the war of 1812 against Washington and other Cities and in the singular success of the Kertch expedition in the Sea of Azof during the Crimean War, a success constrasting so forcibly with the failures occurring at the same time before Sebastopol as to compel a close examination from Kinglake in his historical study of this war with the resulting conclusion , " that in regions where land and sea much intertwine, an Armada having on board it no more than a few thousand troops, but comprising a powerful fleet, and propelled by steam power, can use its amphibious strength with a wondrously cogent effect".

To carry on such an expedition the command of the sea must first be obtained or be assured by predominance of Naval power. A combined expedition is not a fit fighting instrumentality to meet a fleet of squadron of equal or nearly equal force unencumbered with transports, or even with troops crowded upon the fighting Ships.

Admiral Colomb in his recent volume upon Naval Warfare after examination of the Naval attacks upon territory so frequent during the French and Spanish wars in the West Indies, says "We shall hardly avoid the conviction, I think, especially after a study of West Indian history, that command of the sea is the only real defence for territory which can be captured by expeditions over it." (pp 224 & 225)



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It is not intended to claim that a combined expedition cannot reach its destination by evasion and land without encountering the enemy; history points to Napoleon's Expedition to Egypt and that of <sup>the</sup> various French Expeditions to Ireland; but their want of final success, cut off from communication and reinforcement from the home country, also emphasizes the ultimate necessity of this command. There are cases where a landing force has established and maintained itself in foreign territory though cut off from all sea communication, but modern history at least gives us no examples of such operations so far as I am aware. *way been changed.*

It does not follow as a matter of course that given the command of the sea a combined expedition against territory will inevitably succeed. A failure may result from insufficient force, from want of perseverance, and even when the capture and occupation is attained, the expeditionary force may fail to hold the places captured from delays in receiving re-inforcements and supplies *on board* from the home bases, and also in the early stages of landing by being cut off from its sea communication by bad weather, or from ~~the~~ overland communication with its sea base by an <sup>important</sup> ~~important~~ advance at too great a distance inland. *reinforcements that will come after*

This is hardly the place to enter into ~~the~~ discussion as to the relative value of purely naval attacks ~~as~~ compared with attacks made by combined forces. I will only say that investigations of a full and comprehensive nature made by both Naval and Military historians bear me out in saying that successful attacks upon territory and fortified places by Naval forces alone are generally inconclusive and are mainly confined to bombardments *or passing fortification*



Admiral Colomb after a long and exhaustive examination concludes his volume upon Naval Warfare by saying "that these chapters leave ~~one~~ under the inference that certain conditions - command of the sea, sufficient and well handled land forces, landings, ~~either~~ <sup>either</sup> away from the batteries, or after their fire has been temporarily silenced, proper appliances and smaller vessels - have always been necessary to secure the success of territorial attack, and that there is at least nothing in recent times, to show that the rule has in any way been changed."

It must be borne in mind in considering the question of combined expeditions that the difficulties increases greatly with distance. The provisions and stores needed for vessels require more room, the coal capacity of a Steamer should be greater, delays ~~en route~~ are more possible and more prolonged from bad weather, from accidents or from stoppages en route and in general a greater margin of space <sup>on board</sup> for the passage, is needed leaving less carrying capacity for men, animals and <sup>the</sup> <sup>needed</sup> stores after landing. This holds good not only for the combined expeditions but also for the stream of supplies, ammunition and re-inforcements that ~~must~~ <sup>must</sup> come after a lodgment is effected.

It will be seen from what has been said that the combined expedition proposed for discussion is one including what in these days would be called a moderate land force. The discussion is not intended to include anything that may be ~~classified~~ <sup>classified</sup> under the head of an invasion.



Such an operation against a first class power or any populous State having a strong government, good military organization, facilities for defence, and means for obtaining intelligence is as Von der Gottz says more a scare crow than a danger. This change from ancient days results from the great increase in size of armies and the populations upon which they are based, while the possibilities for carrying numbers of men for expeditionary purposes remain very much the same as in other times. The concentration that railways afford should soon assemble more than the sufficient number of men to meet such an attack. Even if a landing is effected the difficulties of supplies continue; one or more large and secure ports are needed, and the rapid reduction of force by an inland advance, already referred to will soon reduce the expeditionary force below an effective limit.

The proper preparation of a combined expedition requires time and it is a legitimate object of study in time of peace, especially in these times of prolonged peace and sudden and quick moving war. The complicated nature of a maritime expedition combining the two instruments of warlike action, the Army and Navy, alone would demand that study. When the expedition has reached its destination it may well be that the least fault, the smallest oversight may prove beyond remedy and the consequences of the confusion resulting therefrom may prove fatal to the success of the expedition. The men and material of both Services must be in good condition and readiness at the proper time and the orders governing the movements must be drawn up with a clearness that will in-



sure promptness and regularity in execution . It is necessary above all to have that harmony of movement which is not likely to be found normally in the assemblage of two bodies, accustomed to manœuvre upon different elements and by different methods. Preparation which includes Drill is therefore required. Napoleon foresaw that in his constant practise at Boulogne and the Drills of Admiral Lord Keith and General Abercrombie at Marmorice Harbor prepared the way for the famous and masterly landing at Aboukir .

In regard to the securing of vessels the practice with us has been to place the selection of transports of the army in the hands of the War Department, and of the Officers of the Quartermasters Department of the Army, the Revised Statutes providing however that the President may detail temporarily three competent Naval Officers for the service of the War Department to inspect transport vessels and for such other services as may be designated by the Secretary of War. The regulations of the <sup>U.S.</sup> Army for 1881 direct that the Military Commanders charged with the embarkation of troops and the Officers of the Quartermasters Department intrusted with the selection of transports will take care that the vessels are entirely seaworthy and proper for such service and that suitable arrangements are made in them for the health and comfort of the troops. The new regulations for 1889 omit any mention of the subject.

The control of transports by one branch of the Government with only an optional and subordinate inspection by Officers of the Navy creates a weakness and want of unity in the formation



and preliminary equipping of our combined expeditions, exceptional in its nature, and at variance with the experience and practice of other countries. No country <sup>makes</sup> use of combined expeditions more than Great Britain and in that country they define the jurisdiction of the Navy as extending from the shore of embarkation to the shore line of the disembarkation, giving complete control to the Officers of the land forces over their own men, subject to the general regulations provided for the health, comfort and safety of all persons embarked, during the passage and at the times of embarkation and disembarkation. The whole matter of transport vessels, and of their proper inspection and navigation after embarkation is so nautical that it should be in the hands of Officials of the Naval Service and when practicable the transport should be commanded by a Naval Officer.

The examination of the question of the adaptability of a Steamer carrying the U. S. mail for duty as transport or cruiser is in the hands of Naval Officers by law and the inspection and classification of these vessels for auxiliary Naval Cruisers

and for transports is their work the matter should be extended to all transports.

The act to provide for Ocean Mail Service between the

United States and foreign ports, provides that the Steamers that receive subsidy from the United States for Mail Service may be taken and used by the government of the United States as transports or cruisers, upon payment to the owners of the fair, actual, value at the time of the taking, and if there shall be any disagreement as to the amount, appraisers are to be appointed to fix the



amount to be paid by the United States. <sup>only</sup> In the new Naval Regulations the reference made to the ~~the~~ transport service is in regard to the questions ~~only~~ of land and naval forces serving together on board Ship.

In the old regulations of the Army valuable instructions were incorporated in regard to the care and comfort of men, the proper stowage of material, ~~be~~ the care of horses and to an extent as to the inspection of the transport. These portions of the regulations were originally formulated in 1863 and in 1866 and were the results of experience gained during the Civil War and of the sad <sup>wreck or foundering</sup> loss of life accompanying the ~~loss~~ of Army transports both upon the Atlantic and Pacific coasts.

An instance of the Army methods in the early part of the War is given in the following extract from an Official report by General Wool from Fort Monroe concerning the transports of the Port Royal expedition, he says, " Brigadier-General Sherman ~~has~~

~~been here since~~ Tuesday last. On his arrival, in order to hasten his departure, I gave him a large amount of supplies, among others 350,000 rounds of cartridges. It appears that his ammunition was stored at the bottom of his Ships, and could not be got at short of four days. To prevent this delay I granted him the ammunition, ~~with~~ which leaves me less than 100 rounds to each man of my command, <sup>naval transport vessels or "troopers"</sup> which I earnestly request that you will have increased to the number delivered to Brigadier-General Sherman with as little delay as practicable. When I gave the ammunition I was under the impression that the expedition would leave immediately. It is now near-



ly seven days since the general received the ammunition, and the fleet is still in port, and when it will sail is more than I can tell. I am now furnishing ten day's ration for the soldiers, and for the same reasons assigned for the ammunition furnished, that their rations are stowed where they cannot be got at without several day's delay. I will venture to assert that a worse managed expedition could not well be contrived." *their present policy is*

*otherwise* Commander Goodrich in discussing the working of the Transport Service at the time of the English Military operations in Egypt in 1882 says, " the entire British sea transport is managed by the Royal Navy, and is presided over by a Naval Officer at the Admiralty, entitled the Director of Transports. At each principal port at home and abroad, in the colonies, is a Transport Officer, in charge of the transport operations at that point. The Army is represented in this connection by a Military landing Officer *and to* through whom the commanding Military Officer transacts all business *of the expedition* relating to the sea transport of troops, animals, and material." ~~Relating to the sea transport of troops, animals, and material~~ relating to the sea transport of troops, animals and material.

Practically the Army states the number or quantity of the latter to be moved and the Navy furnishes the means. The responsibility of the Navy begins at the water line on embarking or loading, and ends at the water line on disembarking or unloading." Besides the naval transport vessels or "troopers" a list of vessels available for this work is always kept at the Admiralty and in case of need bids are invited by advertisement.

In regard to carrying troops upon men of war or vessels



expected to take part in an action or to be in readiness to use  
 their battery, I think there will be but one opinion upon the part  
 of Naval Officers and that adverse to such arrangements. The mod-  
 ern Ships of the Navy, certainly those of our Navy, present no avail-  
 able accommodations for this purpose. The French in times past  
 have used their vessels of war for this purpose, but their experie<sup>n</sup>  
 ence has not been an encouraging one and their present policy is  
 otherwise. The presence of a number of landsmen foreign to the  
 ways of the sea and sea fighting is a source of weakness and a  
 positive encumbrance to the fighting of the Ship besides adding to  
 the general discomfort and useless loss of life. In the Crimean  
 War when the allied fleet made its passage from Varna in Bulgaria  
 to the Crimea, the French and Turkish men-of-war were so encumbered  
 by soldiers on board, which they were transporting, that they were  
 considered as being inefficient and disabled as men of war and to  
 the English fleet was relegated the duty of <sup>the</sup> protection <sup>of the Expedition</sup> from any  
 possible attack from the Russian Squadron then anchored at Sebas-  
 topool. <sup>men of all arms with the necessary animals, material and</sup>  
<sup>ammunition</sup> The number of men that can be transported in a combined  
 expedition varies with the distance which prescribes the amount of  
 provisions and other impedimenta. The English invasion proposed  
 by Napoleon called for a force in the neighborhood of 150,000 men.  
 Italian Officers profess to believe that France can embark 70,000 <sup>at one time</sup> ~~a~~  
 men from Marseilles and Toulon for Rome and land two divisions in  
 ten hours at some important point upon the Italian coast. But these  
 expeditions, with the command of the sea, and all other circumstan<sup>ces</sup>



favorable, represent the maximum of force and the minimum of difficulty. The best authorities I can find upon the subject seem to limit the number of men that ~~can~~ be carried within reasonable time, with the necessary material, by one country to 50,000 and that only for a moderate distance and by countries possessing a number of Government transports in addition to what can be obtained from a considerable mercantile Marine. It must be remembered that the continuance of the principal Steamship lines of a country is important and a suspension, even partial, of trade would prove a great loss both to the Government, and to individuals, and hence only a limited number of vessels can be spared *from these lines*

It must be borne in mind that in speaking of the numbers of a force of an expedition of this kind a reference is only made to the initial force carried, and not to the re-inforcement and increase both as to men and material which comes afterwards.

The most convenient number which can be carried by a single expedition is put down generally as an army Corps, of about 30,000 men of all arms, with the necessary animals, material and ammunition. A descent upon an enemy's territory requires celerity of movement, the greater the better, which becomes impeded as the number of vessels and men increase.

Napoleon's Egyptian Expedition carried about 30,000 men, the ill-fated Walcheren expedition of the English reached 40,000 men; the expedition from Varna across the Black Sea of the Allies composed of over 30,000 English, 24,000 French and 6,000 Turks, the Port Royal expedition during our Civil War had a ~~land~~ force of



of 12,000 men and the Burnside expedition numbered 16,000 soldiers. All of these expeditions, the Egyptian expedition of Napoleon alone excepted, had but short distances to go from their bases.

England and France are the only countries possessing any number of transport vessels kept permanently in service. Their Colonial possessions, the greater ones like India and Algiers especially, require the carrying to and fro of comparatively large forces of troops and the great distances at which some of these possessions are placed, like Cochin China and Hong Kong, also make a large number of vessels necessary.

Great Britain, including its Indian government has fifteen transports belonging to the Naval Establishment, while it has held subject to the disposition of the Admiralty, with and without subvention 26 Steamers of the Merchant Marine. In addition to these there are numerous Ships on the Admiralty list complying with Admiralty conditions as to subdivisions of hull which have no ~~na-~~ <sup>ment</sup> ~~govern-~~ <sup>tional</sup> tie. They are suitable for armament or transport, but there is no arrangement with their owners except the promise of preference for occasional Government employment.

France has over fifty steam transports of various sizes belonging to the Naval Establishment, without counting upon vessels that may be procured from the great French lines like the Compagnie Generale Transatlantique and the Messageries Maritimes. France endeavors to be prepared for making sudden movements and for rapid Naval and Military mobilisation while England relies to a great



degree upon the reserve shipping of the Mercantile Marine in the home ports for extensive transport service.

The practice with the United States is to charter vessels from the Merchant Service for transport Service when the emergency arrives and the vessels found upon such occasions have not been noted either for their suitability or seaworthiness. Measures have been taken of late years by the Office of Naval Intelligence to procure data concerning vessels suitable for such purposes at their principal sea ports. The fact that transportation by rail is so readily effected ~~by us~~ in times of peace renders us independent of transport vessels <sup>at most times</sup> ~~in time of peace~~ and hence there is little probability of any number of transports for either Naval or Military purposes being constructed, or maintained, in the Government Service.

The force and composition of an expeditionary Corps is shaped by the work which it has to do. If it should consist of an Army Corps requiring all of the necessary and complete arrangements of animals, artillery and material, the difficulty of transport increases. This means a sufficient number of animals to give the Corps in its mounted Officers, its Cavalry, field artillery, baggage wagons, ambulances, ammunition wagons, provision trans, pontoons, and telegraph wagons, sufficient mobility, to operate in the field. The question of transporting the horses and mules to do this becomes a very serious one. One horse takes up the space necessary for several men so that a Steamer of moderate size can



carry but three hundred with the necessary forage etc.

The Assyrian Monarch, for example, <sup>belonging to</sup> a well known transatlantic line was chartered in the English Egyptian Expeditionary transport Service. This Steamer of 3700 tons was transformed in four days to a horse transport having a capacity for 600 animals upon the upper and lower decks, forward and above the engine compartments. Stalls were fitted out with troughs, and other fittings, and ventilation provided for. In coming out to Egypt this transport brought but 250 horses, but afterwards at Beyrout it embarked 360 animals in ten hours and was considered to have a capacity for 100 horses and 500 mules.

The Russians in transporting their horses lost a number from ~~having~~ overfeeding and from having them cared for in rough weather by <sup>soldiers</sup> ~~landsmen~~ who were too seasick to attend them, <sup>the crew being too small</sup> to allow a detail of men for that purpose. The cattle Steamers that cross the Atlantic at present have men especially employed for that purpose, a species of Ocean Cowboys.

In 1870 a German corps <sup>d'armee</sup> consisted of about 40,000 <sup>and</sup> men requiring nearly 12,000 horses. A French Corps ranging from 30 to 35,000 men in effective strength requires in the neighborhood of 8,500 animals, horses or mules. In 1882 at the time of the English operations in Egypt a small Army Corps was sent to that country by sea transport, numbering 24,000 men fully equipped and properly proportioned in all arms of the Service, and transportation was required for animals, principally horses, above 6,200 in number. This would make roughly one horse to nearly every four men. If active movements are not immediately required or anticipated



this amount can of course be very materially reduced, especially in the baggage and provision wagons, ammunition trains, pontoon equipages and to an extent in artillery, cavalry and mounts for officers.

The history of the French expedition to Mexico in 1861 is significant as to effect of want of animals. The initial expedition under Admiral Jurán de la Graviere left France without animals or wagons. It was hoped to secure them at Havana and the commanding Officer of a ship preceding the Admiral managed with great difficulty and expense to secure 250 mules and 39 horses. Unable to secure a vessel at a moderate price to carry them to Vera Cruz they were put on board the vessels of the Squadron and the procuring of vehicles was obliged to be postponed until the arrival at Mexico.

Upon the arrival at Vera Cruz, it was found almost impossible to obtain wagons, and orders were sent back to Havana, to obtain material, wheels <sup>and</sup> wood to be made into vehicles by the workmen of the fleet. This question was with the French the one of utmost difficulty especially as the sickly season, required an advance inland to the higher level and the provisions had to be transported. A party of 12 wagons, like our Army wagons, required 15 men and from 150 to 160 animals, to obtain these <sup>and the necessary</sup> with <sup>the</sup> horsing of a mountain battery required great difficulty and occasioned great embarrassment and outlay, although the French force was but 3200 men of all arms.

Our Mexican expedition in 1847, so successful in contrast



started off with excellent organization in this respect having no less than 3000 wagons and 15000 mules. ~~additional hatchway air~~ <sup>European</sup> ~~ports and~~ transports for carrying men are fitted ~~abroad~~, in case of government and naval transports, for berthing the men in hammocks, hired transports are more apt to be fitted out with standing bunks either hastily knocked up, or of iron and wood as Steerages of immigrant Steamers are equipped. The heights between decks should not be less than six feet for men and not less than 12 feet for horses. With the English the special fittings required are put in at Government expense and can be removed as its property. Such matters, and provision for the messing, and messing material, bedding etc, ~~are~~ <sup>things</sup> ~~matter~~ that can be arranged by contract.

The inspection of a vessel of this kind which may and should be done <sup>with us</sup> by Naval Officers, should comprise the following matters;- the rating of the vessels at the underwriters; the age of her hull and machinery; and especially that of her boilers, and also their condition. If necessary and possible the ship should be docked and her bottom below the water line examined. Her capacity for Officers and men should be ascertained as well as her provision of properly fitted boats, anchors <sup>and</sup> chains, life rafts <sup>and</sup> life buoys <sup>these</sup> ~~etc~~ <sup>in good condition</sup> should be sufficient; ~~and~~ <sup>should be</sup> the deep load water line marked -ed The crew should be mustered and seen to be sufficient in number, the certificates of the Officers shown; the instruments for navigation, such as the proper charts, leads, logs, compasses, chronometers, sextants etc examined; the water supply and distilling apparatus inspected as well as the galley and utensils, mess gear



and tables and berthing arrangements. The arrangements for ventilation should be ample and if necessary additional hatchways, air ports and ventilation scuttles should be cut and provided, the sleeping and lower decks <sup>to be</sup> dry and clean. Ample water closets and washing facilities should be provided. The usual running lights, storm sails, fog, and night and day signals, and designatory number and flags. Especial attention should be paid to pumping apparatus and bilge strainers for fire and for emptying the Ship. The Ship should have a sufficient number of water tight bulkheads and the working and accessibility of the valves should be examined. Provision should be made for gun racks, store rooms, baggage rooms magazines and cells. Hoisting engines are of course useful especially where horses are to be dealt with. The stationing of the Crew for fire and for lowering boats, should be looked into.

In estimating for the space and capacity Commander Goodrich gives the rule that a man occupies 52 and a horse 126 cubic feet and roughly speaking each man requires from 3 to 4 tons, and each horse from 8 to 10 tons of gross tonnage.

The transports should be numbered or lettered, each with a separate character to be painted upon the bow and quarter and side in large size.

In loading the stores precaution should be taken that each transport has the complete stores necessary for the detachment carried, so that there will be no bad results accruing from the non-arrival of another vessel. They should of course be placed on board in such a manner that they may readily be reached in the



probable order of requirement. Several lists or invoices should be made of the stores on board and <sup>their</sup> places of stowage

In addition to what has been said concerning the shipment of horses those interested can find <sup>fuller</sup> ~~further~~ details in Commander Goodrich's report upon the English operations in Egypt with <sup>his work</sup> plates that give ~~the valuable information~~ <sup>much of interest and utility</sup>. I am indebted to this book for valuable information upon this subject.

Great stress should be laid upon the proper means for disembarkation. Steel lighters are often carried upon the sides of transports, and when flat bottomed, square ends, with sloping bows and hinged gang plank from the end, they are serviceable for landing men, animals, artillery and wheeled vehicles in smooth weather.

Sharp bowed lighters with decked ends are better for rough weather or surf. Steam launches and also steam tugs for towing purposes <sup>of course</sup> add much to the efficiency of disembarkation, <sup>and are necessities.</sup> For embarkation quick work can be done by vessels <sup>placed</sup> along side piers, two to a pier;

the wharfage and water front at our Navy Yards is <sup>so</sup> exceedingly limited in ~~this~~ respect <sup>that</sup> the wharves of our larger sea ports would

give the best facilities. ~~The~~ Carfloats and ferry floats found there are serviceable ~~in this way~~ for transferring horses to vessels in the stream. The capacity of our Navy Yards <sup>is measured - and limited -</sup> ~~is marked~~ by the water front available for vessels; and I know no want more urgent in connection with our Dock yards than an increase in this respect

Rapidity of embarkation, though depending mainly upon the facilities offered, is much assisted by Drill and experience.

After the Russo-Turkish war when the Russian Army was transported



back from the Black Sea and Sea of Marmora to the Crimea, temporary piers and railway tracks were provided and after experience rapid time was made though the vessels as a rule were in the stream and the men had to be towed alongside in barges. Under favorable circumstances with troops upon the pier and barges alongside the pier, at one time a transport was loaded with 59 Officers <sup>and</sup> 2100 rank and file, and weighed anchor in one hour and fifty five minutes

In this embarkation about 80,000 Officers and men, 8000 horses, 193 pieces of artillery, over 4000 vehicles, and over 2700 tons of military stores were embarked from two points in a little over a month. As vessels accompanying the transports (as circumstances require), there should be included Colliers, hospital Vessels, water supply vessels, and factory or repair vessels. The latter not only for the machinery of the Steamers accompanying the expedition but also for the repair of the boilers and engines of the Steam launches engaged in towing at times of embarkation.

There are two possible obstacles to combined expeditions - bad weather and an enemy. The preparation and inspection of the individual vessels should ensure their seaworthiness, and the enforcement of the rules and regulations concerning the care, and discipline of the personnel embarked, and the care of the animals and material should provide for their safety and comfort. Instructions should provide for signalling, for orders for sailing, for rendezvous in case of separation, or for formation in case of at-



tack . It is presumed that no attack in force is to be expected the enemy being so inferior at sea and the command of the sea being with the flag covering the expedition. Still a command of the sea is not always so complete as to mean the utter annihilation or extinction of all Naval force of the enemy and hence a dash against scattered members of an expedition might occur if the body were not kept well in hand, and the convoying Naval force properly placed. The composition of the convoy will naturally be guided by the circumstances of a possible attack. If armored vessels of the enemy are likely to sally forth, armored vessels must be of the convoy, fast cruisers, the faster the better, will in any case have to be of the convoy, to act as scouts, to chase a chance raider of the enemy which would have speed as an attribute, if nothing else. The scouts of the enemy must be captured or driven away especially as the landing point may be approached. In addition to these classes light draught vessels will be required to cover the disembarkation anchoring close in shore. The good formation suggested is that of a square, or a quadrilateral, so placed as to have an apex or point in advance and rear, scouts or lookout vessels ahead, astern, and upon the flanks; the heavy fighting vessels in the front and rear angles, and the transports within the limits of the square in columns, so arranged that the advanced guard of the land force comes first and then the transports of the men and afterwards the horse transports and finally the transports with stores and material. Allowances of sufficient distances and inter-



vals must be made for the necessarily inexact movements of an irregular body of Steamers mostly merchantmen; and precautions are particularly necessary at night, and in thick weather.

The choice of a point of disembarkation involved several matters for consideration- It should <sup>if possible</sup> be a point so situated as to place the expeditionary force near the vital point of attack, it should <sup>also</sup> if possible provide in its immediate vicinity sufficient shelter, and space for the vessels of the expedition, and also a shore line sufficiently accessible, and reasonably smooth and safe for landing. In regard to the configuration, the more convex the outline the better, a point or small peninsula being best of all if suitable for landing purposes so that the shore shall be under cross fire of the vessels, which clearing the country will also cover and protect the landing.

should be (See plan of Sidi- <sup>Ferruch</sup> ~~French~~ p- 55 of Degoay-) vessel

The advantages of such a point extend to a re-embarkation. The position of Sidi- <sup>Ferruch</sup> ~~French~~ as shown is almost an ideal one, a tongue of sand not too narrow, terminating at the end in a rocky height, the sides accessible for the landing of boats, the available anchorage space upon both sides being such that the first of vessels can cross each other over all the space- Finally a line of earth works at the neck of the peninsula can be thrown up both to protect the landings of the stores and material and also to

cover a re-embarkation

Another point <sup>is</sup> to be considered a nearly level space for



a deployment of the landed force with accessible means of reaching the interior or the objective point. Woods alongside the shoreline are objectionable as affording cover for opposing troops. swamps and marshy districts are objectionable both on account of the difficulty of movement and unhealthiness. If a good water supply can be obtained at or very near the place of disembarkation great advantage is gained, both for the time and for the force remaining to guard the point of landing.

Another great advantage will be secured if an island is near by which being sufficiently accessible can be used as a coal and ammunition depot, a deposit for stores, and for hospital purposes.

Before the expedition approaches within sight of the place in whose vicinity a landing is to be effected a reconnaissance should be made by a vessel in advance, on board of this vessel there should be either the commanding Officers of the land and Naval forces of the expedition or suitable and responsible representatives of both. The selection should then be made of the landing place, with a due consideration of the points just mentioned and the circumstances of varying nature which appertain to each expedition. The reconnaissance should be made in a vessel of light draught and with constant reference to the charts of the locality. An important point is also to be determined as far as it can be done and that is whether the landing is likely to be opposed and the nature of the opposition. It is the business of the



enemy, to hide any preparations for defence, this will be difficult so far as permanent works are concerned, but less difficult now than in times past, as works carrying disappearing guns make little show and the out works and other necessary buildings may readily be hidden by a cluster of trees, shrubbery or by the brow of a hill. Suspicious places of this kind can probably be developed by opening fire. The floating and Naval defences can more readily be determined, with the exception of torpedoes which require a closer examination. Such examination, both for torpedoes and other obstacles, should be made before the anchorage is taken up by the fleet. A number of small craft may have to be employed for this purpose. It is wise, of course, if the enemy is supposed to be in any force to make such feints as time will permit so as to conceal the exact spot proposed to be used. Sketches and photographs of the various points may be taken for the use of the Commanders-in-chief if they do not reconnoiter in person. All of this time the expedition should be kept out of sight.

The point decided upon, buoys should be planted, to mark anchorages, and if no enemy be in sight a few men should land and examine the immediate vicinity of the shore and by climbing elevations view the surrounding country.

In the meantime the plans of the landing are determined in the squadron which is still out of sight and preparations are made for the anchoring and disembarkation. Cruisers from the fleet should follow the coast line on each side for a distance, to unmask any vessels or troops to cut railways and to divert attention



If possible the fleet should arrive at the place of disembarkation at day break or early morning so that the full ~~full~~ day will be before them for landing purposes.

If the landing be unopposed the first force to be landed should be a party of seamen, a Naval battalion or brigade, from the Naval vessels that come in with the advance guard of the troops. Landing with nothing but their arms, a day's ration and full canteens, they should deploy, occupy certain points, houses, coast guard and signal stations, a company remaining on the beach to assist in the landing of the troops. The anchorage should be taken up ~~with~~ with respect to the shore somewhat in the order of sailing the fighting vessels being outside of all, under way, or at anchor as occasion requires. The advance guard of ample strength and proportioned in all arms should be landed, in barges or lighters, steam launches towing; pulling boats assisting in carrying the infantry. The infantry lands first, then the cavalry, then the Engineer force and artillery. The advance guard relieves the Naval force who return or assist upon the beach as required. An advance inland should not be made so far as to isolate or endanger the advance guard in case ~~of~~ bad weather, heavy surf, or fog should cut off communication with the fleet.

A good example of a large force landing when unopposed and showing both merits and ~~some~~ faults, is the landing of the allied forces upon the Crimean peninsula.

The Allied leaders had but little information at command concerning the Crimea before they reached there. They knew



vaguely that Sebastopol was a great Naval port and Dockyard and well fortified towards the sea. In a general way they knew the topography of the shore line and of the peninsula. They did not rely upon the information received concerning the Russian force though it was proven to be in the main accurate. They knew however that their movements towards the Crimea had been published to the world and must be known to the enemy. From these facts and from what could be seen from the Ships engaged in the preliminary reconnaissance off Sebastopol and along the adjacent coasts they expected that either at the landing or between the landing place and Sebastopol they would find the enemy in strength.

The rendezvous of the fleet was to be a point (at sea) forty miles west of Cape Tarkan, the speed of the fleet assigned was  $4\frac{1}{2}$  knots. Upon arrival near the rendezvous on the 9th of September the expedition anchored in deep water (25 fathoms). The allied Commander had not up to that time agreed upon the point or even portion of the peninsula at which to land and Lord Raglan and Admiral Lyons with General Cannobert and other French representatives <sup>went</sup> ~~went~~ ahead to select the spot.

The Russian fleet of 15 sailing line of battle Ships, some frigates and brigs, one powerful Steamer and eleven small ones were in the harbor of Sebastopol. The English fleet under the Commander in chief Admiral Dundas guarded the Expedition, it consisted of ten (10) line of battle ships, two screw Steamers, two fifty gun frigates and thirteen Steamers carrying heavy guns. The French



and Turkish vessels of war were so encumbered with troops and stores as not to be in a fighting condition. They consisted together of twenty three (23) line of battle Ships and fifteen (15) Steamers. To an enterprising enemy a splendid opportunity was afforded by a rapid and bold attack upon the transports at anchor; but no Russian vessel ventured outside the harbor. A fine opportunity was

apparently Lord Raglan and his associates made their survey in a fast Steamer, the Caradoc, off Sebastopol, and then towards the North until near Eupatoria, a long beach was found, and here ~~near Eupatoria~~ at a place known as Old Fort the landing place was designated. The information was conveyed to the more or less scattered vessels of the expedition and they were slowly conveyed towards Old Fort, each ally collecting his transports, ~~so~~ many of which were either towed or under sail,<sup>so</sup> that the rate of speed did not exceed three knots an hour. The 14th of September 1854 was the day of disembarkation. ~~the Russian fleet, while detached vessels~~

~~shelled~~ The landing place selected (see sketch Kinglake p. 168) was about 28 miles north of Sebastopol, and about six miles north of Bulganak river. It was without defences. Along the coast in this portion of the Crimea the cliffs rise to an height of from 60 to 100 feet, too close to the sea to allow much beach. Near Old Fort the high ground recedes and at a place selected the beach is a strip of sand having beyond it a salt water lake, still farther to the northward being another and similar beach with a larger salt leka inland. The two lakes are separated by high ground. It was intended that the two principal armies should land at the first



beach in front of the smaller lake, but by a misplacing of the buoy which was to mark the divisions between the landing places of the two armies, the English ground was so limited that they landed upon ~~the~~ beach in front of the larger lake and the two allies were separated by the high ground between the lakes and their movements cramped by the lakes in front of them. A fine opportunity was apparently lost by the Russians not occupying in force the high ground and using their opportunities of attack upon either or both sides. The fire from the Ships would have reached this point; but hasty earth works might have been provided and the landing would have been at least hampered and delayed. If a convenient attack had been made by land and by the fleet issuing out of Sebastopol, it is doubtful whether the landing could have been effected.

Admiral Dundas however with the main force laid outside with all the vessels, stretching his force from Eupatoria to Sebastopol, undisturbed by the Russian fleet, while detached vessels shelled every encampment within sight. Kinglake in his history in describing the landing ends by saying "As though in the arrogant, yet quiet, assertion of an ascendant beyond dispute, one solitary English Ship, watching off the Sebastopol Harbor, stood sentry over the enemy's fleet. Men had heard of the dominion of the seas---now they saw it." ~~King had to be surprised and for two days and night~~ The plan of landing was the usual one of having the transports and the boats landing <sup>from</sup> there so placed as to carry troops in the transfer ashore in the same order of formation as they in-



tended to ~~be taken~~ after landing. The whole force to be landed was <sup>the land numbers</sup> ~~about~~ 33,000 English, 24,000 French and ~~about~~ 6000 Turks, the latter under the orders of the French General. The 400 vessels carrying this force fortunately had a clear and open anchorage stretching parallel to the coast but protected only to the North from wind and sea.

The number of boats employed in landing the English force was 326 and the number of flats or barges for horses and guns were 24. The artillery of the English amounted to 54 guns and the horses were over 3300. The French had no Cavalry.

The arrangements of the English enabled them to land at each trip 6400 infantry, 12 guns and 216 artillery horses, Lord Raglan having decided to land the Engineers and Cavalry last of all.

The first to land were the French at 7 in the morning while the English commencing at 9 AM had by 6 PM 30,000 infantry and 24 guns landed the troops having three days rations but no camp *Equipage* or water. The sea was smooth and the landing unopposed by a single shot. Complete harmony existed between the Army and Navy and greatest zeal and energy was displayed by the seamen and Officers of the fleet. The French and Turks landed all of their force of men during the same day. At nightfall however the sea was so heavy that the landing had to be suspended and for two days and nights the English forces were cut off from communication with the fleet, exposed to the bad weather, with no water except that which fell from the skies, with only half of its artillery, no the



shelter, with the provisions only that their haversacks carried and in the vicinity of a powerful enemy. Certainly the Russians lost another opportunity in not making a night attack. The French were better off in having shelter tents, and the Turks landed best of all with full camp equipage, horses, ammunition, the necessities and even some comforts of life.

Admiral Mends who had charge of the disembarkation at Old Fort for the English forces sums up as a result of the experience gained at that place the following general principles.

"If the landing is to be effected on a foreign shore the strength of the force must be considered with a view to that likely to be opposed to it after they shall have landed; the beach or part of the coast must be well selected; the depth of water in close proximity to the beach, and the sort of beach ascertained, the Ships to form the flotilla arranged and adapted to each arm, with a view of rapid disembarkation; the sailing and anchoring directions clear and explicit; the means for landing the force well and amply provided; the convoying or protecting fleet told off; the pivot and covering Ships well instructed and in clever hands; for the execution of the operation with precision specially tests upon them; the direction of the wind, the barometrical indications, the rise and fall of the tide noted; the instructions well understood by men, as well as by the Officers and finally the heart to undertake it."

Ends

Before closing this lecture which ~~will finish with~~ the



subject of disembarkation from an expedition when unopposed, I will add a brief mention of the landing of the small American Army under General Scott in the vicinity of Vera Cruz during our war with Mexico in 1847.

The transports had made a rendezvous and assemblage at Anton Lizardo, an anchorage about eighteen miles, to the southward of Vera Cruz. There being no Naval force of Mexico in existence no preparations were necessary to protect the landing or vessels from seaward. A joint reconnaissance was made by General Scott and Commodore Conner and the sandy beach opposite and due west from the island of Sacrificios was selected as the landing place. It was practically on the open coast and the landing had to be effected through the surf. The country back of the landing place consisted of sand hills and was undulating while the distance from Vera Cruz was but three miles. There were no fortifications, or batteries, in sight but as Vera Cruz was fortified and garrisoned and the presence and intentions of the fleet known it was reasonable to expect that the landing would be opposed.

To make the landing more uniform and to reduce the number of vessels at the anchorage which was ~~at~~ restricted one a large portion of the landing force was transferred to the Naval vessels. The Naval vessels and such of the transports as still had men on board weighed anchor from Anton Lizardo about II AM and with a favorable wind from the South-east the Squadron soon reached the anchorage between the Island of Sacrificios and the main shore.



The sea was smooth and the weather conditions fine. Five gunboats and two small Steamers were anchored close in shore above and below the space allotted for landing and shelled the sand hills in rear of the beach. The soldiers were landed in surf boats, sixty five in number, constructed for the purpose, manned by seamen from the fleet and in charge of Naval Officers. Captain French Forrest commanding the frigate Raritan, having charge of the flotilla. The Princeton was anchored directly opposite the center of the landing place and the boats in double column took position astern of her in accordance with the shore formation the companies and regiments, displaying designating flags. After the beach had been shelled by the gunboats, a signal was made, the line abreast was formed and the first detachment was landed. The landing which commenced in the middle of the afternoon of the 9th of March was complete by ten o'clock that evening, the force, consisting of 13,000 men with stores and provisions for several days having been landed without accident.



The sea was smooth and the weather conditions fine. Five gunboats and two small steamers were anchored close in shore above and below the space allotted for landing and shelled the sand hills in rear of the beach. The soldiers were landed in surf boats, sixty five in number, connected for the purpose, manned by seamen from the fleet and in charge of Naval Officers, Captain French, Forrest commanding the frigate Barisan, having charge of the flotilla. The Princeton was anchored directly opposite the center of the landing place and the boats in double column took position astern of her in accordance with the shore formation the companies and regiments displaying distinguishing flags. After the beach had been shelled by the gunboats, a signal was made, the line abreast was formed and the first detachment was landed. The landing which commenced in the middle of the afternoon of the 26th of March was complete by ten o'clock that evening, the force, consisting of 1800 men with stores and provisions for several days having been landed without

accident.