ARTILLERY

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ASSAULT TRAINING CENTER
CONFERENCE
HQ ETOUSA

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KM

ADDRESS BY: Col M. W. BREWSTER (Chief, Tactics Sub-Section, Assault Training Center (Prov)

ARTILLERY IN A LANDING ASSAULT

I notice Col Conrad and myself are both down for this lecture, and before I started out for Africa we worked together on it. Col Conrad worked up part of this and I worked up the rest, so maybe it will be a little disjointed in parts, but I will try and connect up as best I can.

To open this discussion, I would like to refer to FM 31-5, and if you will bear with me I would like to read that part of the manual dealing with Field Artillery. I think there are several points brought out here with which we will be considerably at variance.

(At this point paragraph 208 of FM 31-5 was read).

I believe that modern weapons and transport, together with the fact that any operation across the English Channel will be a combination of ship to shore and shore to shore, raises a serious doubt as to the soundness of these principles, as applied to this particular operation. In none of the combined or amphibious operations in this war has this same condition existed. I believe had the weapons been available good use could have been made at Dieppe of the organic artillery laying off shore in the manner I shall propose later. However, the self propelled gun was not available at that time, and no effort was made to land artillery as such. I question the use of the system, I believe we should investigate, on purely raiding expeditions. If the artillery has to go ashore and be taken off again I don't believe it is much use employing the system I shall propose. However, we are not considering a raid. Once we go ashore we must stay ashore. In all other operations in this war organic artillery was put ashore on more or less conventional lines as laid down in FM 31-5, no attempt was made to use it until after it was put ashore. This was entirely possible when the scale of the defense expected was as light as it has been in all operations up to date. We know from the G-2 people, that the Germans depend on stopping us by fire after we are held up by obstacles. This being the case, we can ill afford to have the organic artillery of the infantry division laying off shore waiting for a signal to come ashore that fires are all off the beaches and it is perfectly safe to land. It has been pointed out repeatedly that the weak point in any amphibious assault against such a defensive system as we may expect on the Continent, is a lack of fire support at the moment when it is needed most by the infantry, that is when they are actually going ashore. The Navy admit the close support they are able to give leaves much to be desired; support craft, while they will give a certain amount of support, I do not believe can give sufficient fire support to get us across those beaches; the air are very dubious about the help they will be able to give; all of which leaves us with totally inadequate fire support going across the beaches. Granting that no more support can be given by the above agencies, in this operation, which must be a combination ship to shore, and shore to shore, we still have the organic divisional field artillery, and I think we must study the possibility of using that artillery to aid us across the beaches. It is with this use of field artillery

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that I propose to deal today. I would further limit this talk somewhat to the employment of the light 105 mm artillery. However, with the new carriages that are being developed, it is very possible that 155 mm guns as well as 105s can be employed in the manner that will be proposed.

Cmdr Strauss has given us an outline of the possibility of supporting fires delivered by naval vessels. Naval supporting fires can be divided generally into two classes - prearranged shoots fired on schedule and supporting fires delivered on call by the observation aviation or forward troops and preferably adjusted by forward observers or air observers. If naval gunnery liaison parties accompany the landing waves, fire control is entirely a naval matter. The question should be considered whether, in the absence of naval personnel for any reason, artillery liaison officers or infantry commanders should call for or conduct naval fire. After the artillery is ashore it should take over the fire missions of naval supporting groups as rapidly as possible. Normally the first fire mission to be taken over will be that of close supporting fire as this is the type of fire most difficult for naval guns and for which light field artillery is best suited. Due to the fact that medium or heavy field artillery will probably not be available, particularly during the early stages, the light artillery may be limited in amount, naval guns may have to continue deep supporting fires, counter battery and interdiction, during the advance on shore. I think you will all agree that light artillery should be landed as early as possible and take over its normal duties from the Navy. The amount is another matter, open for discussion. There will be cases when it might well be augmented, and there remains the question of medium artillery. Will it be possible to land 155 howitzers with the assaulting landing units? I personally would like to see some of these 155 guns ashore as soon as possible, but they may have to wait a bit unless we can get self propelled guns mounted on the M3 chassis. I will show you pictures a little later of the latest artillery carriages.

If the self propelled mount is available in sufficient numbers at least the usual proportion of 155s seems highly to be desired.

Going to the agenda, first of all - What is the role of artillery in a landing assault? My opinion is there is no difference here to the normal role of artillery, to take over from the Navy the responsibility for supporting fires as soon as it is ashore and in position. The Navy is least able to execute efficiently close supporting fires. Light field artillery is best suited for this. Consequently, the close support role should be taken over first, as nothing but a normal field artillery role. As the field artillery ashore builds up it should take over gradually all the roles of normal supporting artillery; it should go on from close support to interdiction fires, counter battery fires, and so on. Light artillery, particularly if self propelled, is capable of assault missions, antitank missions, and to knock out enemy field and antitank guns firing on our landing craft and armored fighting vehicles. In the assault plan, certain guns can well be given definite missions, to be executed during the landing phase. Provision should be made for a reserve of other guns to execute missions of this type on targets of opportunity. I often question whether tank destroyers, if we take them ashore early, might not be well used to fulfill these missions. However, it must be remembered that the primary mission of the organic artillery is that of normal supporting artillery and every gun diverted to other missions is lost in centralized fire support. Neither the plan, nor the enthusiasm of the moment should be allowed to delay unduly their arrival at their missions for normal support.

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In other words the guns pass through a phase during a landing and march to position when some, even a large proportion, can very profitably execute assault and antitank missions, but they must not get involved in mopping up operations. They are not tanks.

To recapitulate, the ultimate and main role of field artillery in an assault landing is a normal role of delivering support fires to enable the infantry to advance. However, during the actual landings, and while on their way to their positions, field guns, particularly if self propelled, can be very useful on direct fire missions to facilitate their own landing and movement as well as the movement of landing craft and other troops.

The second question - What types of artillery are best suited to the landing assault? Organic infantry division artillery, armored field artillery, self propelled artillery, six gun batteries, tank destroyers, pack howitzers, are different types which might well be used during different phases of the operation. What types should be included in a battalion combat team landing group? In answer to that question (a) 75 mm pack howitzer. This is, as everyone knows, an excellent weapon. It can be very usefully employed in assault landings, particularly in support of small operations. If supplied with hollow charged projectiles on the Newman principle, it should do good work against tanks. However, it does not pack a big enough wallop. It is not in mass production and its ammunition is not in mass production. Due to the light projectile and low muzzle velocity, a different type of ammunition must be carried for antitank shooting. Personally I want something a little bigger if possible to get. As I will point out below, I also want my gun self propelled and armored, for the assault only. Always remember any statements I make here with reference to artillery are dealing with this specific problem, I am not an advocate necessarily for self propelled artillery, in all divisional artillery roles. I do not think there is good use for them over the beaches. Tank destroyers, particularly 3", high velocity gun on a Mark III medium tank chassis will be very valuable during an assault landing, during the formation of the bridgehead, and during subsequent operations. I would like to know more about the state of production of this model and the state of production of ammunition. Maybe some of the representatives from Washington can tell us more about this. (No data available from Washington people).

Any forced landing on a hostile shore should include these weapons if possible, because tank units will most certainly be used by the enemy when they counter attack with their mobile reserves and I do not believe any type of field artillery that we now have is the ideal antitank weapon. There is some question in my mind as to what proportion, if any, should be included with the battalion landing groups. Perhaps the 105 mm self propelled, can sufficiently augment the power of the 37 mm antitank guns carried by the infantry to take care of the antitank role in the early stages. I question this, but it is a possibility.

Organic infantry division field artillery: I do not feel the normal truck drawn 105s and 155s included organically in the infantry division are any too well suited for the early stages of an assault landing. Every vehicle that you put in craft to take ashore must give the full measure of support, or it is wasted. I am not exactly sure of the figures - maybe Colonel Langley can help us later - but a gun towed by a truck takes up just about the same space as two self propelled mounts, and beside that you have a towed load going in over the beaches. I do not believe there is any place in the actual assault on a beach where one

will be justified in taking in towed guns. 105s and 155s can be landed and well used if nothing better is available but I would much prefer to have self propelled mounts.

Armored field artillery: In general I feel the original landings up to the point of establishing a workable bridgehead should be made by specially organized, specially trained assault landing groups, whose role is to force a landing and establish a bridgehead to facilitate a passage inland of ordinary assault divisions. The artillery of these assault landing troops must also be specially trained and specially equipped. The 105 mm gun howitzer mounted on a Mark III tank chassis, the one the British call the "Priest" our standard armored division artillery weapon, appears to me to be the best available in quantity, and apparently they are making plenty of these at the present time. The British have used a 25 pounder on the ram (Canadian) carriage, which is practically the same carriage as our Mark III chassis, with excellent results. They do have certain advantages, particularly in the antitank role, their muzzle velocity shoots up to 2100, whereas the maximum we can get on the 105 self propelled or 105 howitzer is about 1500. Of course the additional muzzle velocity is a tremendous consideration when firing against not only tanks but against concrete emplacements. I doubt if either the 105 or 25 pounder would have the desired effect against concrete, but surely the one with the higher muzzle velocity would be the better if they were available. The British have also carried out experiments with the 25 pounder on the Valentine chassis. I personally do not care for it and I do not believe the British are particularly fond of it. It was a weapon that they had which they tested, and it does have more protection for the crew.

All in all, the gun I think we should consider is the 105 mm on the Mark III carriage, the self propelled 105. Losses we know are going to be heavy, we must count on it. Guns will be needed for antitank and assault roles as accompanying guns. An operational reserve immediately available is necessary. This all points to a six gun battery. We have such a battery now in existence. It does not involve any new tables of organization or new equipment. This is the armored field artillery battery. I will take that up later in connection with the plan I am proposing.

I have never felt that four 105s were enough to support the one battalion. As you all know, the British have, in their divisional field artillery, 72 guns as against our 36 lights plus 12 mediums. They have no heavy or medium artillery in the division itself. If all six guns actually get to the supporting position, no harm is done, the artillery support of the battalion is increased by 50% in volume.

Armored drtillery as used in the armored force is clearly indicated for the role of supporting artillery in an assault landing.

Question 3 - What types of landing craft are most desirable for landing artillery during various stages of the operation?

I believe there are only two types of craft, always considering shore to shore movement of artillery. I don't believe that we are going to see artillery unloaded from the ship in the middle of the channel into a lighter and taken ashore in this operation, when it is entirely feasible to move these guns in this particular operation from shore to shore in their own craft. There are only two types of landing craft that are suitable for this, one is the LCM and the other is the LCT. However, if ship to shore operations are contemplated it means

going to the means advocated in [illegible], that is take artillery off the bigger ships and put it into lighter vessels to be taken into shore. If that is the case I doubt whether we would want to use 105 mm self propelled mounts, they are too heavy to be handled in any kind of a sea at all. I think in that case we had better retain our standard organization.

The LCM can just make the channel crossing, but they will only take one carriage, the gun cannot fire coming in and the LCM would not be able to return without refueling. The use of S.P. artillery in the assault wave is not recommended. Tanks can do the job much better, gun crews have a higher degree of protection than they will have with the self propelled mount. The crews while they do have armor in the S.P. mounts, are somewhat exposed. However, I do believe that S.P. mounts will permit artillery to get ashore much quicker than towed artillery. I believe that the British experiments have proven beyond much doubt that the 105s, or a gun of a similar characteristic, can be fired from an LCM. It is technically possible to do it, and without too much difficulty. Of course, remember that it is a smaller craft and ifyou get any kind of chop or rough sea it is going to be much harder to lay that gun. My answer to that question is that as far as the organic division field artillery is concerned in this operation it should be transported in LCT(5)s, for all cross channel operations. In other words shore to shore in LCT's. LCM's, however, would be well used in the first or second waves to take tanks in, or S.P. type of artillery if it is decided it is wanted in the assault waves.

Question 4 - Can artillery be fired effectively from landing craft? LCMs? LCTs? Barges? should it be so used, considering risk of loss?

I am going to answer the last part of this question first. I don't believe that the risk of the loss should be unduly considered in this case. Remember we are discussing the artillery of the assault divisions only. Their supporting fire will be of such value that risk of loss must be accepted. Further, I doubt whether they present a particularly valuable or vulnerable or profitable target when lying from 5 to 10,000 yards off shore in the middle of numberless other craft. I doubt if they are particularly vulnerable, that is that they would be singled out as a particular target. To answer the remainder of this question as to whether or not they can be fired from the various craft effectively, Col Langley will take that up later. I have asked him to come from Combined Operations where he has been in charge of the experiments that have been done along these lines, and he can, I think, convince you that it is highly possible to fire artillery from landing craft lying off shore. However I'll say no more about that, he can answer any questions you may have.

Question 5 - What considerations affect priority of landing artillery? Can artillery be landed before beaches are cleared of small arms fire? In reference to the BLG, at what time, or in what waves, should artillery be landed?

Landing priority is largely affected by conditions on the beach at the time of landing. If self propelled artillery is employed it can land far earlier than towed artillery, as we have said before. The crews have some protection, and the vehicles themselves are not as vulnerable as prime movers. It seems entirely possible to land self propelled artillery where there is still some small arms fire on the beaches. I think we have got to accept the fact that artillery will have to in while there is still some small arms fire on the beaches.

However, I believe that antitank fire and fire from other guns of that type, must be taken off the beaches before these guns can be landed. They can't be landed right in the face of direct fire.

Smoke should help in getting ashore. Smoke would be used for cover, so that antitank guns could not lay on the guns themselves as they come off the craft, or on the craft coming in. If necessary, artillery can be moved off the craft, put hull down in water and battery control immediately established. Control by craft will be necessary while artillery is lying off shore, so that is something to be considered. Smoke would definitely facilitate getting them off the craft properly and hull down in water.

As to what waves the artillery should come ashore there can be any amount of conjecture, I don't know, but I am coming more and more to the conclusion that they should not be assigned to any particular wave. That sounds a little peculiar, but from the explanation of the manner in which I would employ the artillery, I think you'll understand this statement. Div Arty will be lying off shore firing, and all their coming ashore amounts to is an ordinary artillery displacement. I don't believe they will be brought in, for example, as a battalion, they will probably come forward a few craft at a time, and as I would like to see these set up, Arty would be organized as a three gun battery in each craft. You can displace by platoons, or by batteries, just a normal displacement considering that they are out at sea, and when the time is right they are called ashore. The artillery battalion commander or the battery commanders would order the artillery to go ashore and assume their normal role. I'll cover this more fully later.

Question 6 - What coordination must be effected between naval guns and organic artillery in order to maintain close supporting fires of assault units?

I want to state that I know very little about this, I have thought a great deal about it, but Col Conrad has endeavored to answer the question.

"Relief of supporting ships by field artillery: After the artillery is ashore it should take over the prime missions of naval supporting groups as rapidly as possible. Normally the first prime mission to be taken over will be that of close supporting fires, as this is the type of fire most difficult for the naval guns, and for which light field artillery is best suited. Due to the fact that medium or heavy field artillery would probably not be available, particularly during the early phases, and light artillery might be limited in amount, the naval guns may have to continue deep supporting fires, counter battery, and interdiction during the attack on shore".

There must, of course, be the closest coordination between the fire support given by the Navy and that given by the artillery of the landing force. It is possible that naval fire support may come from either American or British ships. The British practice is to attach to artillery forward artillery observing officers, naval signal parties, with naval radio. The artillery forward observing officer functions in his normal manner, except that prior to the arrival in position of his own guns, he is observing and reporting fall of shot from the ship's battery. He reports fall of shot by a clock code, or with reference to any clearly defined unmistakeable terrain feature which shows clearly on the maps supplied the naval gunnery officers, in the control room afloat. Naturally as soon as his own guns were in position and firing he observes for them

Consequently there will be a period when the is observing for both field artillery ashore and ship's batteries afloat. This certainly should insure coordination as one man is doing both jobs. American practice is to send ashore a naval ship's fire control party from each ship to perform functions similar to the artillery forward observing officer or liaison officer. It is clearly indicated that there must be the closest coordination and cooperation between the ship's fire control parties ashore and the artillery forward observing officer. As has been outlined earlier artillery forward observing officers must go ashore in the early waves. With them must be naval gunnery officers with naval radio communication parties. While still afloat and approaching the shore the naval shore parties will probably be able to assist in the adjustment of naval fire. Artillery forward observation officers will also be able to bring the fire of the landing artillery to bear on shore area targets while the guns are still afloat, and as soon as the artillery forward observer officers are close enough to the shore to control their fire, both afloat and after landing the artillery forward observing officers and the naval shore gunnery party should be together in order to have complete liaison and understanding. As the first wave of landing craft approaches the shore, heavy caliber naval fire will have to be lifted. Dual purpose guns on modern cruisers and destroyers firing antiaircraft shell, if the shore parties are composed of well trained officers, should be capable of practically as accurate adjustment as F.A. weapons. I don't know, but I believe Col Conrad figures that this will be done by an adjustment "height of burst", in other words by raising your height of burst up and down rather than by ranging. Incidentally, I can imagine no more deadly antipersonnel weapon than 5" naval antiaircraft correctly adjusted, giving you airbursts just over the target.

Question 7 - How will night operations affect the landing of artillery and the effectiveness of its support.

I can see very little difference between landing artillery at night and any other vehicle of similar characteristics. If it is landed at night, it should be put ashore after the beaches are secured and all small arms fire removed. The same disadvantages are inherent in all night movements, confusion, loss of craft, guns, and so on. Night landing will require larger artillery parties in the early waves, to reconnoitre and mark routes and positions before the artillery arrives on the beaches, and someone will have to be there, (of course this is true in daytime also), to meet the guns as they come off the craft and take them into position. In other words, it goes back again to just a normal artillery displacement, part of which is made over water. Fire support from the craft at night, is, I believe, out of the question. In order to give fire support at night, all firing must be done by map and map substitutes. I believe most firing must be done by direct laying, while at sea; there is quite a bit of disagreement on that. The British are carrying out experiments with indirect laying, I don't know but I believe I am right in saying it has more or less been dictated by necessity due to their siting equipment and the fact that they have had to put standard towed guns in vehicles where they can't see over the sides. Our self propelled mounts permit us, to see out over the sides of the craft, and use direct firing more effectively. Indirect laying at night is out of the question. It might be done by flares or something similar, but I don't believe it is at all practicable. In any case the technique to be employed is one for the artillery technicians to work out. Fire support of some kind may be possible at night, but I doubt it very seriously. Of course somewhat the same conditions obtain in the use of smoke. However, I believe, if the G-2 people are able to get us any

kind of maps, that prepared fires might be worked out so that the artillery could fire just as quickly as they get to shore, supposing (a) they are predetermined battery positions, (b) that each battery would be able to get to its own position, again a very difficult thing at night and under smoke conditions.

Question 8 - What are the problems in connection with ammunition supply? How may they be overcome?

Artillery must go ashore with sufficient ammunition to carry on its mission, and until such time as ammunition dumps can be established ashore. The ammunition which they would fire in support while still afloat, could be stacked in the LCT's, so that they reach the beach fully loaded. I think they must do that under all conditions. Anything that they fire while they are afloat must, of course, be stacked in the vessels, and there is practically no limit to the amount of artillery ammunition that can be stacked in the LCT type to be used in carrying on shoots while afloat. In any operation where we use self propelled 105 mm guns the ammunition supply would likely become critical. They only carry 26 rounds as they are now designed. Therefore, some provision must be made to transport additional ammunition upon beaching. The way I see these guns used, there will be three in each craft, that means two craft per battery of six guns, and in addition to that they will have two of the ammunition carriers (the same carriage, but used just to carry ammunition). The British have a distinct advantage over us there in their 25 pounder self propelled on the ram carriage, they are able to carry 102 rounds of ammunition in the carriage itself, just about four times what we carry. I believe that these artillery outfits must take ashore at least one unit of fire when they go - FM 31-5 says two thirds of a unit, I believe in this operation more than that amount would be needed. We know there is going to be a fire fight when they beach, and I as an artillery man surely would want to have all the ammunition that I could possibly get, as I don't know how long it is going to be before some is brought up to me.

ASSAULT TRAINING CENTER
CONFERENCE
HQ ETOUSA

1 June 1943
KM

ADDRESS BY Col H. F. G. LANGLEY (Br) (Deputy Director of Experiments and Operational Requirements - Combined Operations Headquarters (Br).

ARTILLERY IN A LANDING ASSAULT

Col Brewster very kindly asked me to come here to tell you what little I know of the subject which you have been discussing. First and foremost I was most interested to hear what Colonel Brewster had to say and would add that I entirely agree with his remarks.

Now, if I may start by making one or two general remarks, I think it is interesting to find that after three or four years of war, both the Americans and British are facing the same problem.

I was very interested to hear Colonel Brewster read, from one of the American manuals, some remarks on the possibility of supporting assault landings by artillery fire. I think that these remarks showed that the Americans were less pessimistic than were the British, of finding a solution to this problem. The British studied this question continually, but as no special equipment was made available, it appears that the conclusions were that the problem of providing adequate fire support to cover an opposed landing was considered to be almost incapable of solution.

Necessity is, however, said to be the mother of invention and since we are faced with the problem of the invasion of the Continent of Europe and of Japan, a solution must be found.

Some months ago Combined Operations Hq commenced a detailed study of this problem and out of this study the following conclusions were come to and the necessary action taken by the Admiralty and War Office to provide the necessary equipment.

That the following equipment, if available and if means could be devised to handle it tactically in the assault, would provide the necessary fire power to cover a Brigade assaulting a strongly defended stretch of coast of approximately 2000 yards frontage.

a. Two Regiments of S.P. Artillery (48 guns - 25 pdr).
b. Two Rocket Craft armed with H.E. Rockets.
c. Ten gun craft each armed with two 25 pdr. or 17 pdr guns.
d. A number of small monitors armed with 6" guns to supplement cruisers, and destroyer in "off-shore" bombardment and counter battery fire.

The general roles of this equipment were intended to be the following:

a. S.P.Artillery (25 pdr) to be waterproofed to the greatest possible depth, to be capable of employing both direct and indirect fire from LCT when the craft were beached, to be capable of direct fire from LCT, while afloat and to be capable of direct and indirect fire when disembarked from a position "hull down" in water.

b. Rocket Craft to be capable of producing an area short of extremely high density close to which assault infantry could be landed. The conception of this craft envisaged the production of fire effect of a type which should go far to render the enemy incapable, at least temporarily, of offering serious resistance to the first wave of an assault.

c. Gun craft to be capable of direct fire while afloat and both direct and indirect fire when the craft are beached in order to provide covering fire during the first phase of the approach, close support fire during the first phase of the touch down of LCA and support fire during the period when the assault brigade is securing the covering positions.

d. Monitors to be capable of direct and indirect fire when afloat to supplement the Naval Forces which may be allocated to general bombardment and especially counter-battery tasks.

I now want to describe certain trials which have been carried out to confirm the views of Combined Operations Hq as to the methods by which the necessary fire power could be developed in the assault.

(a) Field Artillery - on Field Carriages

Trials were carried out to establish a tactically possible technique of using the ordinary equipment of the British Divisional Artillery when mounted in LCT for giving covering fire by day during the approach phase of an assault.

Six 25 pdrs on their field firing platforms were mounted in an LCT(3). They were lined up in the fore and aft line of the craft. Sandbags were used to avoid mutual blast interference. Line was obtained by directly steering craft on the target. Laying for elevation was done either by lining up on a GAP in the craft itself or after setting the range, by means of the bubble. Initial range was found by a 9 ft rangefinder mounted in the craft and the estimated range was kept approximately correct by means of a Coventry Range clock lined up with the speed of approach of the craft.
Trials were also carried out using four 25 pdrs similarly mounted in LCT(4). These trials, which were carefully analysed showed that the guns from one craft could produce an area shoot in which 80% of the rounds fired fell in an area 200 yards by 200 yards, at ranges varying from 11000 yards to 3000 yards. A similarly recorded shoot by a Regiment of 25 pdrs fired from four LCT(3) produced an area shoot 400 yards by 400 yards - the increase in size of the area being caused by the added difficulties of handling four separate craft each endeavouring to cover the same target area.

(b) Field Artillery S.P. Mountings (25 pdr)

Similar trials to these carried out with 25 pdrs on Field carriages were carried out with four S.P. mountings carried in an LCT(4) with similar results as regards the area covered by the shoot. Trials were also carried out with the guns not laid in the fore and aft line of the craft but using top travers. Such methods when used afloat bring in difficulties caused by rates of change of bearing and except at short ranges it seems probable that the method previously described of laying both for line and elevation will produce the most satisfactory results. Trials were carried out to demonstrate S.P. equipments firing from a position "hull down" in water. It is not suggested that S.P. Artillery should always be used in this way but if they are waterproofed so as to make this possible on a shallow beach,

the Commander may be able to handle the first wave of artillery ashore in such a manner as to give them a reasonable chance of survival if the assault beach is still under enemy fire. This suggestion arose from the experience gained at Dieppe when many tanks were immobilized on the foreshore as a result of damage to their tracks by short range fire from comparatively small caliber weapons. The value of "water protection" is clear when it is realized that at short ranges involving angles of descent of 15° or less, H.E. shell will probably burst and A.P. shot will probably ricochet on hitting water.

(c) Rocket Craft

Trials have been carried out with these craft which have the following characteristics:

1. They are converted LCT(2) each carrying 792 - 5" Rocket Projectors. The projectors are mounted in the fore and aft line of the craft at 45° elevation.

2. The round has a total weight of 60 lbs of which the head weighs 29 lbs with a 7 lb H.E. content. Future supplies of H.E. ammunition will probably have a higher charge/weight ratio and may contain 12/14 lbs of TNT. Smoke and incendiary ammunition is also available.

3. Range (fixed) is 3500 yards.

4. 90% spread of salvo with the ship stopped is 700 yards for line and 160 yards for range. The spread for range can be increased at the expense of density on the ground by varying the time of firing the salvo in relation to the speed of advance of the craft.

5. Density. The shell density on the ground of a full salvo of 792 rounds is one round in each 100 square yards (4 yards by 25 yards) over 75% of the area when the craft is stopped.

6. Craters Craters are approximately 5 feet diameter and 18/24 inches in soft ground.

7. Control - by night

(a) By means of RDF ranges to foreshore.
(b) By means of ranging salvoes using incendiary ammunition which burns on land and is drowned in water.

By day

(a) By means of RDF ranges to foreshore.
(b) By ranging salvoes.

8. RDF Equipment
(a) Can range on suitable foreshores with an accuracy of plus/minus 50 yards.
(b) Can follow assault LCA and so cover the assault wave by extremely heavy fire for a short period.

9. Salvoes Each consists of 33 rounds and can be fired at intervals of 2 seconds or longer as may be required.

10. General If these craft can be used at night, as has been shown to be possible in the preliminary trials, they are probably the only craft that can be used at night. Their

use in a daylight assault should be comparatively easy.
They enable the assault infantry to be proceeded by a storm of fire that cannot at that time and in such volume be produced by any other means.

Naval Bombardment I am not qualified to speak on the problems arising in "off-shore" naval bombardment but I can say that I think it is generally recognized that this type of fire can only produce neutralizing fire over an area and cannot be expected to destroy enemy batteries especially those emplaced in fully protected coast defense positions.

Smoke The use of smoke in an assault landing involves many complicated problems. One point should however be stressed and that is that the intended use of smoke makes the production of an adequate fire plan difficult if not impossible. It is probable therefore that any attempt to combine these two forms of attack will benefit the defenders more than the attackers.

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2 June 1943

REVIEW OF DISCUSSION FOLLOWING THE LECTURE,
"ARTILLERY IN A LANDING-ASSAULT", BY COL M.W. BREWSTER

1. What is the role of artillery in a landing-assault.

Conclusions reached:

Organic Divisional Artillery should get ashore and resume its normal role as quickly as possible in the interim it may fire from landing craft.

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2. What types of artillery are best suited to a landing-assault? Organic Inf Div FA? Armd FA (SPs, 6 gun batteries)? Tank destroyers? 75mm pack Hows? Might different types well be used during different phases of the operation? What type should be included in a Bn CT landing group (BLG)?

Conclusions reached:

TBA Organic artillery is not suited for early landing stage. SP 105 mm Hows, 6 gun batteries are desirable. 75 mm pack Hows assigned to assault forces as accompanying weapons should be considered.

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3. What types of landing craft are most desirable for landing party during various stages of the operation?

Conclusions reached:

For shore-to-shore LCT will be used.
If landing-ship carriers are used LCM.

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4. Can arty be fired effectively from landing craft? LCMs? LCTs? Barges? Should it be so used, considering risk of loss.

Conclusions reached:

Area concentrations can be fired from landing craft. The capacility of this fire should be considered in planning.

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5. What considerations affect priority of landing arty? (Can arty be landed before beaches are cleared of direct small arms fire)? In reference to the BLG, at what time or in what waves should arty be landed?

Conclusions reached:

Organic artillery should be landed at the earliest moment, consistent with the general situation, even in the face of some small arms fire; the direct or observed fire of heavier weapons, however, should be eliminated before the landing.

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6. What conditions must be affected between naval guns and organic artillery in order to maintain close supporting fires of assault units?

Conclusions reached:

Joint training for forward observation officers, naval gunnery officers and signal parties is essential. They must operate together.

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7. How will night operations affect the landing of artillery and the effecriveness of its support?

Conclusions reached:

Artillery fire support is ineffective until daylight of the first day.

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8. What are the problems in connection with ammunition supply? How may they be overcome?

Conclusions reached:

All artillery carriages should go ashore with full loads of ammunition. It is considered that one unit of fire is the minimum that should be carried ashore.

INFANTRY

ASSAULT TRAINING CENTER
CONFERENCE
HQ. ETOUSA

ADDRESS BY
BRIG. GEN. N. D. COTA
CHIEF OF COMBINED OPERATIONS - ETOUSA
INFANTRY IN A LANDING ASSAULT

2 June 1943

Throughout my discussion of this subject, please keep constantly in mind the two means of action available to Infantry; namely: FIRE and MOVEMENT, or as some prefer to say - FIRE and MANEUVER. All infantry action on water or on land, is based on the proper application of FIRE and MANEUVER, to insure accomplishment of its mission. MANEUVER is employed to advance FIRE POWER to positions where it can be used with maximum effective results. To do this requires that Infantrymen must have:

1st - a thorough knowledge of their weapons. Every infantry soldier must know the capabilities and limitations of his weapons, and he must know the technique of how to hit targets, both individually and collectively.

2nd - a thorough appreciation of how to use terrain to facilitate their advance and selection of firing positions.

3rd - a thorough knowledge of formations to employ under various situations, in order to reduce casualties during an advance and thus bring maximum fire power and shock action at the decisive point.

It goes without saying, that this knowledge must be combined with high morale and leadership.

Successful infantry combat, therefore, depends on a high state of morale, leadership and training supported by proper organization for the task allotted. By far the greatest majority of decisions that an Infantry Commander, from the squad leader to the division commander has to make, concern:

What scheme of maneuver to adopt (the mixing in proper proportion of FIRE and MANEUVER).

What formations to adopt to carry out a scheme of maneuver.

I now read from paragraph 75, Chapter 4, of FM 31-5. I know of no better way of expressing the action of Infantry in an assault landing.

READ
Par. 75, Chapter 4 of FM 31-5.

Turning now to the Agenda for today's discussion, the first topic is -

Should a special infantry organization be used for a landing assault on heavily defended hostile shores? If so, can it be formed from within a normal regimental combat team? What should it consist of?

A study of reports and other official documents prepared and submitted by commanders, combined commanders, joint staffs, planning groups, training center staffs, and observers, after recently completed combined operations and exercises, show that the same errors are made and the same criticisms are voiced after each succeeding operation or exercise.

The common errors and criticisms are:

a. Confusion during the planning stage
b. Confusion as to command
c. Faulty distribution of orders and other instructions
d. Faulty combat loading
e. Faulty beachhead organization and maintenance
f. Lack of flexibility of military landing plan
g. Lack of early availability ashore of an integrated, controlled fighting team, prepared for prompt exploitation of success
h. Assault troops landed overloaded with equipment thereby reducing their combat effectiveness
i. Lack of provisions for protecting beachhead, especially anti-aircraft weapons
j. Lack of adequate fire support
k. Lack of training, especially of landing craft crews, communication personnel, and beach maintenance personnel.

The above stated errors and criticisms fall under three main classifications:

a. Those due to lack of proper organization for the task assigned.

b. Those due to lack of proper equipment for the task assigned.

c. Those due to lack of training.

Why do these same errors occur time after time?

Present combat divisions are organized and equipped to fight normal land campaigns of fire and maneuver, over an extended period of time. They are powerful combat formations with considerable depth. Their training is based on the premise that they will be employed accordingly.

Suddenly a decision is made to organize a Task Force to make an opposed landing. A Task Force Commander is designated and is given an Outline Plan of a Proposed Operation, and an Order of Battle. The Task Force Commander finds that:

a. His mission requires two types of operations, namely:

(1) An assault against a beach and the establishment and maintenance of a beachhead.

(2) A rapid exploitation to secure an objective usually located at some distance from where the landing is to take place.

b. A Combined Operation is required to carry out the first

part of his mission. Units of all three components (Air-Ground-Naval) must be organized and trained together in order to:

(1) Get to the beaches where landings can take place
(2) Provide the necessary means of FIRE and MANEUVER to overcome beach defenses and seize a beachhead
(3) Provide for the security and maintenance of the beachhead.

If existing divisions are to be used as Assault Divisions, this requires the superimposing up on such divisions of the many special detachments and units required in an operation of this nature, and the acquirement of considerable special equipment, together with training personnel in its use. The result is an unwieldy division with too much equipment.

c. An assault landing should be made on a broad front. The broader the front the more quickly can troops be landed and "soft spots" found for the employment of the so-called infiltration tactics to reduce strong beach defenses. For the exploitation phase a formation in depth is most desirable as it provides for the maximum power of maneuver and continuous action.

d. The usual scheme of maneuver employed to reduce strong defensive localities is to combine a frontal attack with an envelopment around a flank to secure vital terrain well withinor even in rear of the organized position. It is practically certain that desirable landing beaches for a landing on the Continent will be strongly defended. Other locations are usually well defended by Mother Nature. The usual scheme of maneuver cannot be accomplished - there is no flank to envelop. A vertical envelopment with airborne units can be made, however, and if successful, accomplish the same result. Use of airborne units has many difficulties that must be considered, such as weather and space for landing. The success of a landing assault cannot, therefore, depend entirely on the success of an airborne operation.

After a thorough study of the means available to carry out his two missions, a Task Force Commander finds himself forced to compromise measures. The organization finally accepted is neither ideally suited for carrying out the assault landing nor for carrying out the exploitation phase. The results are the errors and criticisms stated in Par. II above.

It may be argued that the Madagascar, Guadalcanal and North Africa operations showed that our regularly organized divisions can make successful landings and conduct successful exploitations. Let us not forget that in none of these instances did the attacking troops encounter:

a. A well organized and prepared beach defense
b. A well organized and trained air force
c. A well organized and trained mobile military force.

As a result, heavy casualties in personnel and equipment were not received during the initial stages of the operations. Certainly all of these defenses can be expected in an opposed landing on the Continent of Europe. Even without encountering

these items, the errors and criticisms stated in par II above occurred. To anyone who saw the North Africa operation these errors and criticisms appear well founded. The picture even the afternoon of the first day was none too rosy, and if serious and well planned counter attack has been launched, the picture would have been a whole lot worse. Also, it must be remembered that the assault Divisions in the operation mentioned werespecially organized and equipped in a hasty and compromising fashion. Compromises were made in an endeavor to have units that could do two distinct jobs. These compromises resulted in the weakening of the combat efficiency of the units to a degree where it is probable neither job could have been accomplished against a determined opposition and well organized beach defense.

The DIEPPE operation is more nearly the type of operation on a small scale with which we will be faced with in the landing assault we are considering.

To what conclusions can we come? I can only give you a few at which I have reluctantly arrived. I say reluctantly, as heretofore, I have always been opposed to the creation of special units. In this situation I see no other way out. However, that is a subject for the conference to discuss and determine. Here are the conclusions of one person:

1. In any operation involving an assault landing, four distinct phases must be envisaged and so demarked in planning, organization and assignment of troops,and equipping and training of forces involved. These phases are:

a. Securing the beaches - overcoming hostile shore defenses and taking an objective far enough inland to prevent small-arms fire and fire of coast defense guns on landing beaches.

b. Establishment of a beachhead - determined by terrain and mission, but must be at least such as to insure continuous landing of troops and material and to secure the terrain features and maneuver space requisite for the projected operations on shore. Whenever practicable, it should include an airfield, or at least a landing strip.

c. Exploitation - to continue advance inland from beachhead to accomplish mission.

d. Beach Maintenance - to provide for movement of troops, equipment and supplies over the beach in order to maintain all the forces involved at a particular beach from a few days up to possibly ninety days.

2. From the nature of the action anticipated,at least three groups of forces are called for: namely: Assault Force, Beach Maintenance Force, and Exploitation Force.

3. The Beach Maintenance Force should be organized as a Brigade of the Assault Force during the journey and landing. It is far easier and simpler to have these units organized under one command for training and operations than to endeavor to marry them up at the last minute. I can say from experience that any

other plan will only add to the chaos and confusion that exists on a beach during the initial stages of a landing operation.

4. The actual assault units must consist of troops in excellent physical condition. All assault units must have special training in Combined Operations, both basic and in conjunction with naval and air components that are to take part in an operation. Training must include embarkation and debarkation exercises: destruction of obstacles; capture of coast defense batteries, machine gun and artillery emplacements; and exercises in prompt seizure of a beachhead line and holding of same against hostile ground and air attacks. Special equipment must be furnished the Assault Force to enable them to carry out their mission. However, the Assault Force must go ashoreready to fight, and must NOT be overburdened with excess equipment. This means a big scaling down of normal T/BA equipment. The British call this "Assault Scale Equipment".

5. The Beach Maintenance Brigade or Shore Party should consist of all troops and equipment required for the establishment and maintenance of a beachhead after its seizure by leading assault elements. This brigade must be organized to handle the movement of all personnel, vehicles and supplies across the beach; establish and maintain supply dumps and perform all administrative functions within the Beach Maintenance Area. It must necessarily include:

a. Engineers - concerned with the improvement of roads and beach exits, and clearing obstacles. Also establishment of water points.

b. Medical Units - care of wounded.

c. Signal Units - communications

d. QM Units - establishment and operation of supply dumps, gas and oil dumps and water supply points.

e. Transportation Units - provide transportation for supplies across the beach,at least as far forward as dumps.

f. Air Service Units - provide for air supplies, gas and oil

g. Ordnance Units - provide for supply of ammunition and maintenance of weapons,and motor transportation.

h. Labor Units - provide for loading and unloading of supplies and equipment, and labor involvedin operation of dumps.

i. Naval Detachments - marking beaches- handling and maintenance of landing craft at the beach. All the above must be controlled by a proper headquarters. The composition of this force will be gone into in detail at a later conference.

6. The Exploitation Force require normal combat training, with a minimum of special amphibious training, since it will pass through the beachhead after its establishment and continue the advance inland. Equipment must be on a scale to allow this force to conduct extended operations against a well equipped enemy. It will not normally be possible to land all T/BA equipment of this

force across the beaches before the force is committed. The build-up of necessary equipment, especially transportation, will be a continuing process with a high priority. (The British call this "Light Scale Equipment").

I suggest consideration be given to organizing, equipping and training special Assault Divisions for landing assault operations against a heavily defended hostile shore. A suggested Assault Division Organization is as follows (see Organization Chart attached).

We do not want to disrupt our present type organizations any more than is necessary, and I do not think that we have to do so to any great degree. The Assault Division that I submit for consideration retains the Division Headquarters and the three infantry regiments. The only change made in the infantry regiments is that the first battalion in each infantry regiment be organized on the Ranger type, lightly equipped. These battalions should be organized into platoons and companies so as to enable them to get through beach obstacles and assault beach defenses. It might be well to consider organizing two battalions along these lines. If two battalions were organized thusly, the third battalion would be the normal rifle battalion. If but one battalion is organized along the lines of the Ranger type, the other two battalions would be normal rifle battalions. The Division Artillery still has a Hq. Battery, three battalions of 75's and a battalion of 105's. Whether you use pack, self-propelled or towed artillery will have to be decided by the artillerymen. There must be a battalion to support each infantry regiment, and there should be a battalion for general support.

We discussed the matter of weapons yesterday. I have added to the proposed division two anti-aircraft battalions. Any Task Force Commander is going to fight for anti-aircraft weapons on the beach when dawn comes. These AA battalions should be trained right with the division, and we should not try to marry them up on the beach. Where the anti-aircraft commander does not know his division commander and has not worked with the division staff, there will be confusion and poor results. The anti-aircraft commander should be part of the division staff in training. Only in this way will the whole thing work as a team.

Reconnaissance Troops I keep in the division. Anybody who has the job of establishing a beachhead will want some reconnaissance out to the front as soon as he can get it. The Engineer Battalion I keep. The rest of the division consists of a second brigade, consisting of beach maintenance troops under a Brigadier General. All the troops necessary for maintaining the beach are brought into this brigade and trained right with the division with which they are going ashore.

How can we employ this division to carry out its mission?

There is lots of talk about whether a landing should be made in the dark or whether it should be made in daylight. It is granted that strategical surprise will be impossible to attain. Tactical surprise is another thing however. General Montgomery says you can always get tactical surprise. I feel that we should always strive for tactical surprise, for there is no question but that tactical surprise is one of the most powerful factors in determing success. I, therefore, favor the night landing. I do not believe the daylight assault can succeed.

The organization I have suggested for consideration, with the exception of the Beach Maintenance Brigade, can be formed easily from existing units. The organization of the Beach Maintenance Brigade would be more difficult. The Division Signal Company and the Medical Battalion could be used as a nucleus. Also, the Quartermaster and Ordnance Companies. Provided the Assault Divisions are given limited objectives, the functions performed by present Division Service Troops can be performed just as well by including them in the Beach Maintenance Brigade. I want to impress on everybody the fact that the early organization of these Beach Maintenance Brigades, Groups, or whatever you want to call them, is IMPERATIVE. These troops must be trained with the assault troops. I believe they should be an integral part of the Assault Division under one commander. They will, or at least they should, then get the proper training.

What advantage does it give to organize the first battalion of an infantry regiment on the Ranger type? It gives us a small unit, lightly equipped, for the job of moving over very difficult terrain. The first wave can go in carrying the special equipment that is needed to get through obstacles and reduce beach defenses. It can be specially organized to do the job. The first battalion can then be followed by a normal infantry battalion with another normal infantry battalion behind, to go through to the beachhead objective. Once on the beachhead line the job then is to hold this line against counter-attacks that are bound to come. At this time anti-tank weapons and cannon Company weapons come in to provide protection against the enemy armor. The beachhead line must be carefully selected. It should be a line that can be held with a minimum number of troops and weapons. It should take advantage of natural tank obstacles. It should control vital road communication centers. Road junctions are most important today. Control them and you have gone a long way toward providing protection against the enemy's armor. The beachhead line must be far enough inland to provide room for the beach maintenance area, and also room for the assembly of follow-up divisions.

With the type of Assault Division described, and by giving this division the mission of securing a beachhead line (limited objective), you can put it in on a broad front. Behind this division will be another normal division ready to land and conduct the exploitation. If the Assault Division does not

succeed in reaching the objective set, the follow-up division may have to be used to obtain the beachhead.

If the situation demands, tanks and tank destroyer units can be attached to the Assault Division.

Does a division organized along these lines answer any of the common criticisms I mentioned at the beginning? I believe it does. With the Beach Maintenance Group organized as a regular component part of the division, there should be no doubt as to where responsibility for command and training lies. A lot of confusion during the planning stage would be eliminated; confusion as to who commands what would be removed; distribution of orders and instructions would be simplified since there would be one chain of command and not a whole lot of little groups situated all over the country until the time for embarkation arrives. By organizing a Beach Maintenance Brigade as an integral part of the Assault Division, faulty beach organization and maintenance should be avoided. By being able to land on a broad front, knowing that where success was obtained the immediate follow-up division could land, more flexibility is given to the tactical plan and the loading plans. The Assault Division could land with a minimum amount of organizational and individual equipment, thereby increasing their combat effectiveness for accomplishing the limited mission assigned them.

When we first had an amphibious force, we had a Corps that was made up of a Marine Division and an Army Division. We had the lightly equipped Marine Division organized and trained to seize a beachhead, but not organized for exploitation. We had an Army Division organized and trained as an exploitation force. We used them wrong at that time, in my opinion. We put these two divisions ashore abreast. They should have gone ashore in column; the light Marine Division being given the limited objective of seizing and maintaining a beachhead; the heavy Army Division following up and conducting the exploitation phase. However, I believe we were on the right track at that time with the Task Force containing one light division, and one heavy division. We just did not know how to employ them properly.

You have been given a mimeograph showing the comparison in personnel strength and weapon strength of an Assault Division, such as I have suggested, and the regularly organized triangular infantry division. The difference in personnel in the two divisions is due to the fact that, in the Assault Division suggested, the service elements have been included in the Beach Maintenance Brigade. I believe this Beach Maintenance Brigade can carry out the administrative junctions necessary to supply the remaining combat elements of the Assault Division, as well as to maintain a beachhead for the follow-up divisions. Of course, this is all predicated on the assumption that a limited objective will be set for the Assault Division. The difference in weapons is chiefly due to the substitution of the Ranger type battalion for the leading battalion of each combatteam (regimental).

For embarkation and landing the Assault Division would consist of:

Division Headquarters

3 Regimental Combat Teams

Division Artillery (including anti-aircraft artillery) (less Combat Team Detachments)

Reconnaissance Troops (less Combat Team Detachments)

Engineer Battalion (less Combat Team Detachments)

Beach Maintenance Brigade

Regimental Combat Teams would consist of:

Infantry Regiment

Field Artillery Battalion

Two Batteries of Anti-aircraft Artillery

One Platoon Reconnaissance Troop

Regimental Component of Beach Maintenance Brigade, Including:

- Signal Detachment
- Medical Collecting Company
- Ordnance Detachment
- Special Communication and Liaison groups for naval and air support.

Regimental Combat Teams would be broken down into Battalion Landing Teams consisting of:

Battalion of Infantry

Battery of Field Artillery

Engineer Platoon

Battalion Section Transportation Platoon

Service Company

Battery Anti-aircraft Artillery

Battalion Component of Beach Maintenance Brigade.

If the situation was such that it was desirable to attach a Tank Battalion or a Tank Destroyer Battalion to the Assault Division, these elements would be broken down and attached to Regimental Combat Teams and Battalion Landing Teams for embarkation and landings. As soon as the situation permits, it is always advisable to get the Division Artillery, Tanks, Tank Destroyer Battalions and Engineer Battalions back under centralized division control.

A question was brought up, a very vital question. If we put this beach maintenance brigade in and another division is put through, to go inland, is there a certain limit to what the Beach Party can do? The pick-and-shovel people working on it have to come to a conclusion [redacted] as to how big a group it takes to handle a division. If you are going to have two divisions go through a beachhead, then you have to provide sufficient labour and supplies in those dumps to take care of two divisions. If you are going to have parachutists, they have to be supplied too. The number of beach brigades will depend upon the job you have to do. I think that the British have two beach groups to handle a division. Each beach group is around 2400-2500 men. Depending on the number of divisions you have to put through, studies would have to be made as to how many beach groups, or beach brigades would be needed to handle the problem with which you are faced.

It is generally conceded that, in a landing on the Continent -

(1) The initial assault will be made under cover of darkness, and will be opposed with determination.

(2) A co-ordinated system of coast and beach defenses will have been constructed in each assault area.

(3) The landing force will have a considerable degree of air superiority before the operation is launched, or alternatively, the enemy threat from the air will be slight.

(4) On D day, the landing force must be prepared to meet counter-attacks by the enemy's mobile reserves, probably including armour, from about two hours after dawn. The force landed in the initial stages of the assault must therefore be capable of withstanding such attacks.

(5) There is always the possibility that, owing to an unfavorable change in the weather or to attacks by submarine, surface craft or aircraft, it might become necessary to interrupt, or even to cease unloading shortly after dawn on D day. In this event, the military situation ashore would present an acute problem unless the original plan had covered such an eventuality. The plan must, therefore, prepare for the landing, in the first flights, of a self contained military force, capable of seizing and holding without further reinforcement during daylight on D day, the minimum vital objective in its area.

The minimum vital objective, as its name implies, is that which must be achieved by the assaulting formations early on D day, if the assault is to be exploited. It might include an airfield, if one were situated sufficiently near the coast. Coast defenses that bear on the beaches will certainly have to be dealt with, though they may not ultimately remain within the limits of the minimum vital objective.

Under the circumstances enumerated above:

[redacted]

a. Military forces landed by say, one or two hours after dawn on D day, must be sufficiently strong in infantry supporting arms and vehicles, to defeat the expected enemy counter-attacks and to hold the minimum vital objective without reinforcement during the daylight hours of that day.

b. Sufficient LST and LCT must be provided as an integral part of each assault, to ensure that supporting arms and vehicles are landed in sufficient time to meet the essential requirements of the military forces.

c. LCT are preferable to LST, provided the conditions under which the operation is mounted are suitable for their use.

d. Due to their slow speed, the position of LST and LCT at dusk on D-1 day may lead to loss of surprise.

e. The total number of initial assaults which can be made will be governed by the need to provide, in time, sufficiently strong naval, military and air forces to seize and hold the minimum vital objective in each assault area.

It is my opinion that with Assault Divisions organized as I have suggested, and equipped on an "Assault Scale", and with the special training required, we can successfully meet the conditions that will exist with the means that will be available to us; that is provided the infantry landing is adequately supported by fire by all available means, especially naval and air bombardment.

You have already heard the many means being tried to provide overwhelming fire support for the infantry landing. From the "Doughboy's Standpoint" the following should be considered:

a. The great difficulty involved in getting special craft under cover of darkness over 70-80 miles of water and in proper position to give support.

b. The handicaps in getting these special craft.

c. It is my opinion that as in the past, we must rely chiefly on naval gunfire and air bombardment for preparatory and initial fire support. Air support should be more pronounced than ever before; and, I believe, naval gunfire support can be made much more effective if combined training of naval gunfire liaison parties can be begun early, and effective communication can be provided.

In a landing assault, the Infantry must depend on the Navy and the Air Force to bring them to the assaulting point with the maximum effective available fire power and power of maneuver. The striking power of Infantry at the decisive point will depend on:

a. Thorough training of naval landing craft crews, since the approach phase of the battle is their responsibility.

b. Ability of the Air Force to provide adequate cover for the convoy during the approach. It has been shown, in the Far East, that the most decisive way to prevent an assault landing is to

[redacted]

[redacted]

destroy the convoy by air attack, while it is en route. We must assume that the utmost weight of the Axis air force will be thrown full out against us. The convoy will be the focus of their activities and, since 360 degree approach is possible, the convoy must have close fighter escort and fighter cover. This does not preclude distant air action. We must have sufficient fighters to do both jobs. Just as the number of landing craft available is considered a limiting factor under certain circumstances, so must the number of fighters available be viewed in the same light.

c. Ability of the Air Force and Navy to provide fire support until such time as the supporting artillery can be landed and gotten into action.

d. Ability of the Air Support Command to support closely the infantry during the first twenty-four hours of the assault.

Once the Infantry is on shore, there is nothing new to Infantry fighting. Active reconnaissance, effective security, prompt supporting fires and the proper use of FIRE and MOVEMENT are essential for offensive action; and we are going to be offensive in all that the word implies. All commanders and all units must be imbued with an aggressive offensive spirit. Surprise will be attained by quickness in formulating and executing tactical decisions, by rapidity of maneuver, by skillful use of cover and concealment, and by deception as to direction of attack.

A word in reference to the planning for a task such as we are considering. The planning of an operation of this nature cannot be accomplished successfully until a competent and comprehensive planning organization is provided. All three branches (Army, Air, Navy) must be under one roof; and at their respective levels in one room or in adjacent rooms during the planning stage. The Combined Operations Headquarters, and Norfolk House here in London provide a good example of organization for planning. They are based on the following mottoes -

"United we Conquer"
"One Foe, One Fight, One Force".

Planning starts from the top down. No worth while plans can be made until the planners know:

a. Mission
b. Objectives

Once these are known, a tactical plan can be made. Then, and not until then, can the "Bill of Goods" required be computed. I mean by a Bill of Goods:

a. The strength, organization and composition of participating units.

b. Type and quantity of equipment necessary
c. Special equipment needed
d. Initial and reserve supplies required

I hope that before this conference is concluded, this group can make definite recommendations to the Commanding General as to part, at least, of the "Bill of Goods" required in a landing assault, especially -

[redacted]

[redacted]

a. Strength, organization and composition of participating units.

b. Special training required.

The officers of the Assault Training Center have set up for us an assumed situation, and will give us a Mission and Objective. From these, I consider it our duty to make definite recommendations on what is required to accomplish the assigned mission.

One word of warning from an Infantryman. Nothing can grow like a Combined Operation. Nothing can move so fast from the SIMPLE to the COMPLEX as a Combined Operation.

Confusion and chaos are inherent in the very nature of the operation. Our every aim must be to overcome these inherent difficulties by careful, honest and simple planning.

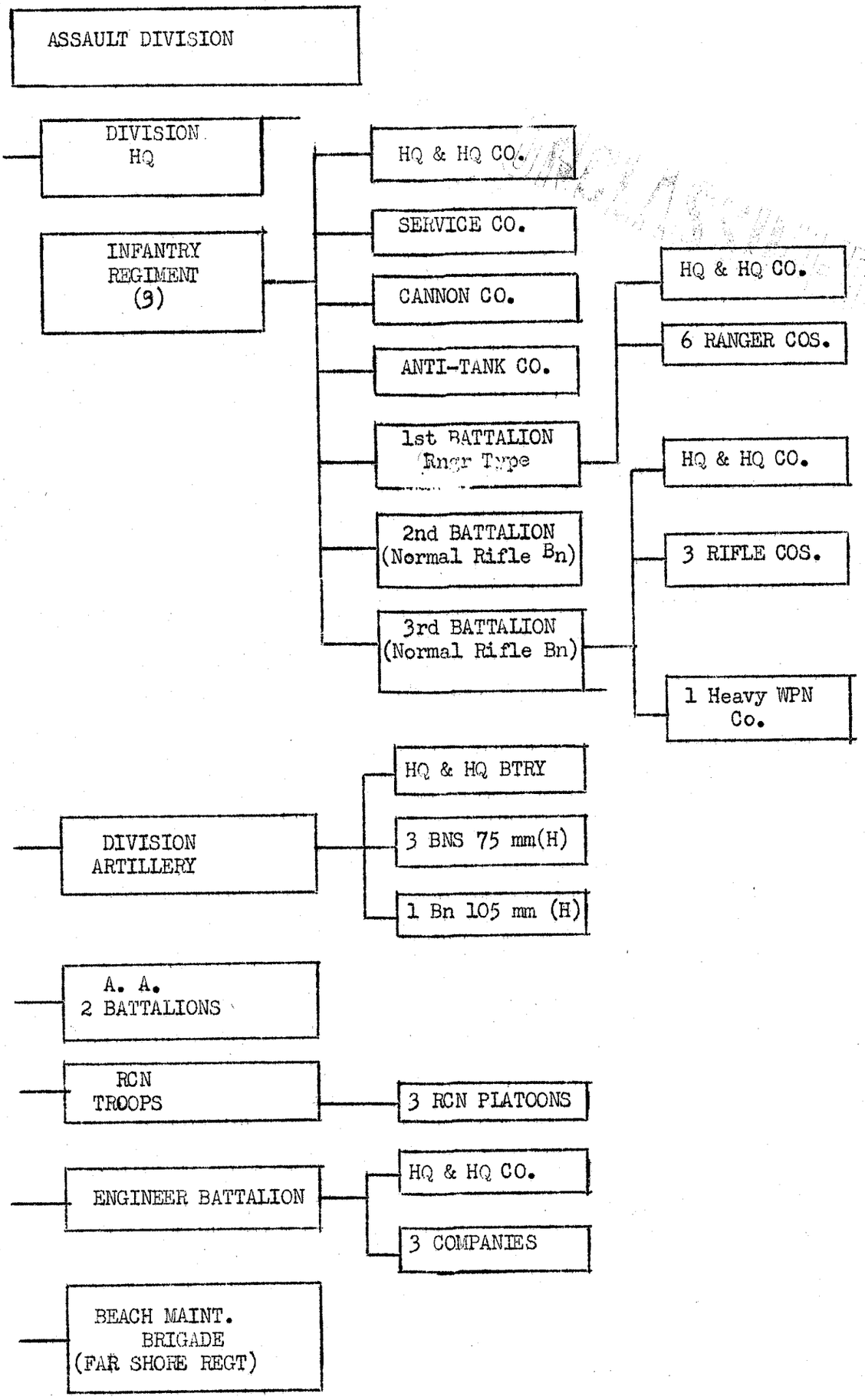
In an operation of the kind we are considering, our Infantrymen, before they can match their skill against the Infantrymen of the foe, must compete against all the elements of Mother Nature (weather, tides, fog, impassable terrain). If these are conquered, they must then pass through man-made obstacles, covered by expertly conceived concentrations of steel, smoke and fire. To overcome these handicaps, we must be thoroughly HONEST and SIMPLE in all of our calculations and planning. Figures alone will not suffice.

Plans must be based on the experience of those who have tried this thing before, as well as on figures. These experiences show that -

a. Errors will be made in navigation
b. There will be confusion during the landing
c. There will be interruptions in the landing program.

Plans must, therefore, allow for Factors of Safety, over and above arithmetical calculations; we must consider the capabilities and limitations of the human soldier; we must provide for full cooperation and coordination of all available means of support; and, above all, we must be SIMPLE.

[redacted]


ASSAULT DIVISION
DIVISION HQ
INFANTRY REGIMENT (3)
HQ & HQ CO.
SERVICE CO.
CANNON CO.
ANTI-TANK CO.
1st BATTALION Rngr Type
2nd BATTALION (Normal Rifle Bn)
3rd BATTALION (Normal Rifle Bn)
HQ & HQ CO.
6 RANGER COS.
HQ & HQ CO.
3 RIFLE COS.
1 Heavy WPN Co.
DIVISION ARTILLERY
HQ & HQ BTRY
3 BNS 75 mm(H)
1 Bn 105 mm (H)
A. A. 2 BATTALIONS
RCN TROOPS
3 RCN PLATOONS
ENGINEER BATTALION
HQ & HQ CO.
3 COMPANIES
BEACH MAINT. BRIGADE (FAR SHORE REGT)

24 May 1943
km

COMPARISON OF PERSONNEL AND EQUIPMENT

		Assault Div.	Triang. Inf.Div.	Remarks
Div Hq & Hq Co	O EM	60 228	60 228	Strength based on T/O strength. Attached Medical and Chaplains not included.
MP Platoon	O EM	- -	3 77	
Rcn Troop	O EM	7 194	7 194	
Signal Co	O EM	- -	11 311	
3 Inf Regt (each)	O EM	129 2,758	136 3,197	
Div. Arty.	O EM	99 1,726	134 2,424	Artillery of Assault Division 1 Bn. 105 mm How. 3 Bns 75 mm How.
2 A.A. Bn. (each)	O EM	35 784	- -	Air Borne Bn. 75 mm How. used as basis
Engr Bn.	O EM	27 718	27 718	*The personnel of both Divisions may be reduced by eliminating non-essential personnel, i.e. Bands, drivers of vehicles left at Port of Embarkation, excess motorcyclists, basics and reduction of Rifle Squads where necessary. The following are approximate strengths of the reduced Divisions:
Med. Bn.	O EM	- -	34 470	
Q.M. Bn.	O EM	- -	19 325	
Ord. Co.	O EM	- -	10 137	
TOTAL	O EM	645 12,693	713 14,475	Triangular Div: O-602; EM-11,205 Total: 11,807 Assault Div: O-490; EM- 9,245 Total: 9,735
AGGREGATE		13,338*	15,188*	

Item	Assault Div.	Triang. Div.	Item	Assault Div.	Triang. Div.	Remarks
Rifle M1	* 4,221	* 4,800	105 mm (Inf)	6	6	*Inf. only
Rifle M1903	** 505	** 685	M.G.cal .50	61	61	** For Rifle grenades & snipers
BAR	*** 384	567	75 mm (H)Arty	36	-	*** Decrease due to substitution of 1 Ranger Bn
SMG cal .45	56	-	105 mm (H) Arty	12	36	
LMG	* 129	75	155 mm (H)	-	12	
HMG	*** 48	72	37 or 40 mm (AA)	64	-	↓Greater no. in Ranger Bn
AT Rifle	60	-	cal .50 MG (AA)	64	-	
60 mm Mtr	↓ 108	81	Bayonets	2,700	2,835	↓↓ Less due to substitution of 1 Ranger Bn and 75 mm (H) Bns
81 mm Mtr	57	57				
37 mm AT	↓↓ 79	109				
75 mm (Inf)	18	18				

ASSAULT TRAINING CENTER
CONFERENCE
HQ ETOUSA

2 June 1943
KM

Discussion following talk by Brig Gen N. D. COTA

Following the address by Gen Cota a discussion was engaged in by members of the conference about the organization, equipment, and tactics of the assault type divisions. The type assault division as proposed, and shown on the chart accompanying Gen Cota's lecture consists of one Ranger Type and two normal rifle battalions instead of the usual three normal rifle battalions. The question was raised as to the possibility of organizing a four battalion regiment, the additional battalion being of the Ranger Type. This was apparently accepted as being a good idea, as it would make available to the regiment an extra Ranger Type Battalion for employment on the flanks. The point was brought up that the British do not use Commandos on a frontal assault of this type, but employ them on the flanks.

A more detailed discussion of this Ranger Type Battalion, which would include six Ranger Companies, set forth the differences between it and the normal rifle battalions. The Ranger Type Battalion is more lightly armed and equipped than the normal type battalion, and it also requires special training for its particular function.

A discussion of how the Ranger Type Battalion should be armed brought out the following pros and cons for various weapons:

(1) The M-1 Rifle, although considerably heavier for the assault troops than the carbine, has several distinct advantages. It has greater range, greater striking power, and does not preclude the use of the bayonet as would be the case with the carbine.
(2) The employment of too many varied types of arms complicates the supply problem.
(3) The necessity for arming the assault units with considerably more than the normal requirement of grenades was indicated.
(4) More high angle fire weapons should be made available to units where the terrain dictates.
(5) Carbines might well be carried by the leading assault troops where the weight of special equipment indicates the elimination of as much other weight as possible.

A description of a proposed assault platoon organization was given. This type platoon, which would be found in the Ranger Type Battalion, would be broken down into two sections, the assault section and the support section. The assault section, consisting of 16 specially equipped and trained men would comprise the "striking force" of the platoon and the remaining 20 men, normally equipped and armed, would comprise the support. The assault group of the platoon would be equipped with a special set of equipment for their particular task. Thus a total of 27 sets of this special equipment would be found in the assault division.

It was noted that an equipment set-up has been worked out for this type organization and is based on three scales, assault scale, light scale, and full scale.

The present trend is to authorize organization of additional Ranger Type Battalions and a fractional part, approximately 1/3, of units now undergoing training are being trained and equipped especially for assault missions.

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A discussion of the ways in which an assault landing operation might differ in tactics from a normal land operation was held. The initial phase of the operation, the over-water phase, presents problems due to the difficulties of control within units, the absence of cover, and the absence of supporting fires by the organic supporting weapons. After the landing and until the various units can be reorganized and brought under centralized control, practically all of the fighting will be by small groups, sometimes separated from those on their flanks for some time. This type of action requires well trained and forceful leadership of small units, the squad and platoon.

The cannon platoons, in the opinion of most conferees, should be landed just prior to the Reserve Battalion of the RCT. There was some question as to whether the 75 mm Howitzer should not be replaced by the 105 mm Howitzer, (both SP mounts). It was agreed that the 75 mm Pack-How. (at least one 4 gun battery), should be included in each RCT.

Generally it was agreed, after discussing the possibility of firing organic infantry mortars from landing craft, that mortars could not fire with any reasonable degree of accuracy from craft, and should not be so used. They should, however, be put ashore early in the operations, and support the riflemen as quickly as possible. Other means of high angle fire support should be provided to support the operations prior to the touching down of the troops. In this connection rocket craft and other means were discussed.

The discussion of the type and maximum weight of equipment, arms, ammunition, rations, and water that each man should carry ashore produced a number of opinions. In general it was agreed that the men in the leading assault units should go ashore with a very minimum of equipment and should carry only what would be essential to the accomplishment of their mission. Progressively, the later incoming troops could carry ashore more equipment until the follow-up units would be going ashore with full field equipment.

It was unanimously the opinion that heretofore the troops engaging in operations of this nature had been overburdened with equipment and that these landing assault troops with the mission of clearing the beach of small arms fire and observed fire, and of breaching the defenses, should carry nothing but the minimum weight of equipment ashore.

The known water situation that will be faced after going ashore will determine the amount of water to be carried by the individual. The season, climatic conditions, and similar factors will govern this, but a maximum of 2 quarts per man should be carried. It was pointed out that 48 hours emergency rations would suffice and it was also pointed out that during the hard fighting in the critical stages of the operations, experience has shown that men have in many cases not used what few rations they had.

A discussion of motor transportation requirements for landing-assault operations brought out many ideas of the number and type of vehicles that would be required, when they should be landed, etc. The assault battalions will require comparatively little motor transport and this will consist of the lighter vehicles. The follow-up divisions will require a larger scale of 2½ ton trucks for hauling of supplies and ammunition.

The British have worked out a schedule of vehicle landings and requirements which merits study. The 1st Division figures for a BLG were given as follows:

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21	¼ ton trucks
1	3/4 ton trucks
5	weapons carriers
3	2½ ton cargo trucks
25	¼ ton trailers
12	2½ ton trucks (to come in later)

It was indicated that a definite scale should be worked out specifically for unit requirements. Dukws, bulldozers, and ¼ ton trucks, are essential for beach maintenance and activities connected therewith.

Beaches must be cleared of aimed small-arms fire and registered mortar fire before the landing of motor transport may be attempted.

It was unanimously agreed that unit integrity must be preserved as much as possible. Platoons should be transported in one craft instead of being split between several craft. Boat capacities will influence this to some extent but details must provide for as little violation of unit integrity as is possible. The loading of infantry will be determined by their contemplated employment in the operation.

The same tactical considerations that pertain to other operations in general pertain to landing assaults. There must be fire support, in this case delivered initially by Naval supporting vessels and aircraft, in order to cover the debarking from the landing craft and the advance across the beach. The means for providing this supporting fire was discussed briefly. The Naval aspect was covered in a prior lecture, as were the air and artillery aspects. It was decided that if the assault took place in daylight tanks and other armored vehicles must be in the leading waves. The non-availability of cover for the over-water phase, except that provided by darkness and smoke, makes the need for strong supporting fires more pronounced. The assault of the defenses in this case will require that a larger component of engineer troops, or troops specially trained in demolition and assault work, will be employed in the leading waves. In the contemplated Ranger Type Battalion, provision is made for this type organization. From the Infantry standpoint, it was conceded that the most favorable time for the over-water approach phase would be under cover of darkness, but taking into consideration the limitations imposed on other aspects of the operations, air, naval, etc, this time may not be possible.

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3 June 1943
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Review of the discussion following the address:
"INFANTRY IN A LANDING-ASSAULT" by Brig Gen N.D.COTA

Question 1 - Should a special infantry organization be used for a landing assault on heavily defended hostile shores? If so, can it be formed from within a normal infantry regimental combat team? What should it consist of?

Conclusions reached: a. A specially organized and specially equipped infantry organization should be used for the assault and seizure of a beachhead.

b. This special type organization can be formed from within a normal infantry regimental combat team by giving a certain portion of the units special training and equipment for this duty. Modifications in the type of equipment carried and in training of these assault groups can be made as required.

c. This organization should consist of the normally armed and equipped infantry component, the specially trained and equipped assault detachments within the organization, plus any modifications that the mission, terrain, and objective require.

d. Divisions to be used in the assault should be designated without delay. The reorganization, equipment and training of such divisions should be started as soon as practicable.

Question 2 - How should infantry be armed for a landing-assault? Should more automatic weapons be provided? Should more grenades be provided?

Conclusions reached: a. Present infantry weapons are well suited for a landing-assault.

b. Present Tables of Basic Allowances provide ample automatic weapons in infantry units.

c. Hand grenades are essential and should be provided on a scale considerably in excess of normal, but not less than four (4) per man.

Question 3 - How will tactics of assaulting infantry differ from normal minor tactics?

Conclusions reached: a. Infantry tactics in a landing assault differ from normal infantry tactics in that all phases of the attack up to the final assault will usually take place while the attackers are on the water. This will limit the number of formations and the amount of maneuver that can be employed during the approach phase due to:

a. Types of small craft employed.
b. Difficulties of control.
c. Absence of cover.
d. Absence of supporting fires by infantry organic weapons.

b. The outcome of the final assault on beach defenses will depend on small unit leadership and thorough training and

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determination of individual soldiers and small groups to a much larger extent than is normally the case.

Question 4 - How should Cannon Platoons be employed?

Conclusions reached: a. The Cannon Platoons of the infantry regiments cannot be depended on to support the assault on the forward beach defenses.

b. They should be landed immediately prior to or with the Reserve Battalion of the RCT.

Question 5 - How should mortars be employed? Can they be fired from landing craft?

Conclusions reached: a. Mortars should be put ashore as soon as possible with the tactical units.

b. Organic infantry mortars can be employed in a supporting fire role by firing them from landing craft, but in view of a. this is usually inadvisable.

Question 6 - What equipment should each man carry? What maximum weight?

Conclusions reached: a. Leading assault troops should carry ashore only the equipment essential to their assault mission, other personal equipment should be brought in later.

b. Later follow-up units can come ashore with normal equipment.

c. Maximum weight will vary with special weapons and equipment that are carried by the leading units ashore. The maximum amounts of weight that an average man can carry and still accomplish his task should be the subject of further tests.

Question 7 - What rations should be carried by individuals in a landing force with a mission of securing a beachhead? For how long a time should each man be self-sufficient?

Conclusion reached: a. Forty-eight (48) hours emergency ration should be carried by each man.

Question 8 - How much extra ammunition in boxes will be carried ashore by a BLG?

Conclusions reached: a. Only what can be manhandled from the craft to the beach by troops going ashore.

Question 9 - How much water will be carried ashore?

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Conclusions reached: a. Two canteens per individual where required.

b. Factors such as climate, season, availability of water ashore, etc. will influence each case.

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Question 10 - What motor transport will be included in the assaulting BLGs? RLFs? How early and under what conditions will it be landed?

Conclusions reached: a. A definite figure of requirement must be arrived at prior to planning a specific operation.

b. Beaches must be cleared of aimed small arms fire and registered mortar fire prior to landing of vehicles.

Question 11 - What factors govern the loading of infantry in landing craft? To what extent must unit integrity be preserved?

Conclusions reached: a. Boat capacities.

b. Tactical employment intended.

c. Unit integrity must be preserved.

Question 12 - What are the tactical considerations in connection with the following:

a. Debarking from landing craft?
b. Advance across beach?
c. Assault of defenses?

Conclusions reached: a. In general the same tactical consideration as pertain to other operations such as fire support, cover and concealment, fire and movement, etc.

b. If landing takes place in daylight, tanks and armored vehicles must be well to the front.

c. Land under cover of darkness if possible.

d. The assault of the defenses must be covered by supporting fire from every source available.

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