

The Missing Capability; Conduct Of The Amphibious Assault By Avoiding The Beach.

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**THE MISSING CAPABILITY;
CONDUCT OF THE AMPHIBIOUS ASSAULT BY AVOIDING THE
BEACH**

by

Robert J. Abblitt
LtCol. U.S. Marine Corps
School of Advanced Warfighting
Marine Corps University

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EXECUTIVE SUMMARY

Title: The Missing Capability; Conduct Of The Amphibious Assault
By Avoiding The Beach

Author: LtCol R. J. Abblitt, United States Marine Corps

Thesis: The design of a mobile barge-type transport platform with elevated **CAUSEWAY** may increase the forcible entry options along designated segments of enemy coastline that have historically been considered unsuitable for amphibious assaults due to prohibitive hydrographic and topographic characteristics restricting the landing of surfaceborne assets.

Background: The Marine Corps' concept for the projection of Naval power ashore entitled Operational-Maneuver-From-The-Sea (OMFTS) and its supporting concept Ship-To-Objective-Maneuver (STOM) fulfills two critical objectives: First, it provides a vision for innovation in the conduct of the amphibious assault. And second, it serves as an awakening to the Marine Corps that it must reemphasize its historical bond to the Navy by articulating a concept that also compliments the Navy's future vision for the 21st Century as outlined in "Forward From The Sea". Even with the enhanced capabilities of the OMFTS Triad family of equipment (e.g. MV-22, AAV, and LCAC); a significant portion of the combat power of the Landing Force must still move ashore via surfaceborne assault assets. Although the amphibious capability of the landing force has been increased through speed and mobility, OMFTS does not however fundamentally change the Marine Corps' current doctrinal principles for the conduct of the Amphibious Assault and fails to address the "Ship-To-Shore" dilemma which is dictated by limited capability in equipment to land at areas other than the traditional beach setting.

Recommendation: The Concept paper for OMFTS and its supporting tactical concept of STOM articulate a sound vision for the direction of the Corps; however, they are inexecutable when linked to the surface assault assets of the Triad of equipment slated for use in 2015 and beyond. OMFTS must be relinked to the capability of currently funded programs for the AAV by modifying existing off-the-shelf technology which will provide our AAV surface assault element the capability to bring their force unimpeded from Ship-To-Objective. A platform which can allow our surfaceborne force to transit to variable landing sites other than defended beaches will link our current capabilities with this future vision of maneuver. The requirement is to innovate with existing functional technology similar to the large oil type platforms used today in the commercial industry.

ASSESSMENT OVERVIEW OF FUTURE WAR; A DEMAND FOR
INNOVATION

Within our profession of Arms we are taught that we must know our enemy. The future will be different but human nature will not change. The threat will manifest itself in various forms, and even though we may be tempted to travel down a path which leads us into scenarios that portray events such as Somalia and Haiti, there is also another Inchon waiting to repeat itself. We must recognize that the high end of the spectrum may still exist in the 21st Century which may include fighting the conventional forces belonging to China, a reemerging Russia, or emerging powers in the Middle East. If a large conventional force armed even with unsophisticated technology believes that U.S. military power poses a threat to their operations, they will seek to protect their strategically important coastal areas.

A key element in amphibious planning is understanding a fundamental assumption: the enemy will defend only those areas in which amphibious forces can land due to the capability of our assets. The enemy will not allow us to by-pass them. However, if the enemy doesn't know where to defend because our forces are no longer restricted to the beaches, they become vulnerable to our maneuver. Regardless of what force we choose to put behind the enemy as posited

by Operational-Maneuver-From-The-Sea (OMFTS), the enemy must be faced with the additional dilemma of not knowing where to defend because our amphibious landing capability can deliver surfaceborne forces virtually anywhere along the enemy's coast. To this end, the United States Navy and Marine Corps must look at what can be done to expand the types of coastline in which to insert the surfaceborne element of the amphibious landing force and investigate what the implications of this might be.

This paper seeks to provide an innovative solution for increasing the potential landing sites available to the surfaceborne element of the amphibious assault force by employing innovative equipment which allows the amphibious landing force to exploit undefended gaps along an enemy's coastline in order to enhance success in movement from the sea to the assigned objective without having to transit to a defended beachhead. Innovative equipment which augments the Marine Corps' Advanced Amphibious Assault Vehicle (AAAV) as the new surfaceborne family of equipment for conducting Ship-To-Objective-Maneuver (STOM) is a mandate driven by the requirement to land a force where the enemy is not defending.

PAPER TRAIL; LINKAGE FOR CHANGE

Both the United States Navy and Marine Corps allowed our capability to conduct the amphibious assault to atrophy. It slipped from the Navy and Marine Corps due to the Cold War years which focused attention on blue water supremacy. With the fall of the Soviet Union came a review of the roles and missions. The resulting assessment was to develop From the Sea and Forward From the Sea. This was soon followed by the Marine Corps' OMFTS. In From the Sea, which was a Navy-Marine Corps White Letter, published in September 1992, the Navy stated the following: "...there are some traditional naval missions for which we must redouble our efforts to improve capability. Of particular importance, sea lift is an enduring mission for the Navy."¹ The Marine Corps should tailor this same type statement to the improvement of the surfaceborne assault lift capability. In particular the theme of the Corps' enduring mission should be to focus on getting the surfaceborne element ashore to the nontraditional beach. As the aforementioned documents sought to give relevancy to the Navy's amphibious role and recapturing its historic tie to Marine Corps, so must the Marine Corps seek to give greater relevancy to the amphibious assault by ensuring the successful delivery of the landing force ashore to those undefended or lightly defended areas above-the-beach.

To legitimize even our current doctrine let alone

OMFTS, the Marine Corps and Navy must ensure that the entire task force team trains to its amphibious mission and has the capability to perform the mission. OMFTS is relevant only to a future that is 20 years out from the realities of current existing capabilities and requirements. OMFTS is a vision to encourage innovation. The innovation required now is to enhance our landing capability with equipment that will put our surfaceborne element ashore at the nontraditional and seemingly impossible landing sites.

With respect to the acquisition of the Triad Family of Equipment (MV-22, AAV, LCAC); it was absolutely justified and long over due. To emphasize maneuver warfare "From the Sea" was the only logical concept that could be attached to the employment of these systems. Congress and the American people will not endorse a repeat of the Island Hopping Campaigns implemented during World War Two. Leaders, both civilian and military will never again accept the casualties incurred through attrition style frontal attacks. OMFTS seeks to avoid even the slightest hint of this ever occurring but this concept must be backed with a capability to augment this equipment.

Is the OMFTS concept therefore good? The answer is unequivocally yes! Is the concept executable with the newly developing Family of Equipment outlined in the TRIAD? Define the size of the force and the type of threat and the

answer is very apparent. For a large-scale conventional amphibious assault Task Force that seeks to implement this concept in a high to mid intensity setting the answer is a resounding no. If the Marine Corps is going to regain its capability to conduct amphibious assaults across the spectrum of conflict, it must include the capability to conduct a MEF level assault.

OMFTS presents a great concept that will work only with the next generation of equipment beyond that of the TRIAD currently slated for delivery and use within the next twenty years. The critical mistake in presenting OMFTS as a concept was not in the "vision" but rather taking that "vision" and associating it with the limited capabilities of the TRIAD within the concept of OMFTS. When specific equipment was tied to this concept, then the capabilities of the equipment automatically restrict the "vision" of actually being able to execute OMFTS.

Given the scenario of conducting a large-scale conventional amphibious operation in a high to mid intensity setting; the Amphibious Task Force that seeks to implement this concept will be precluded from doing so even with the OMFTS assault. If the amphibious assault of yesteryear is not the answer for how we want to conduct amphibious operations in the foreseeable future then we must seek to pursue innovation in equipment. The term "Amphibious

Assault" within our forthcoming "new" amphibious doctrine as outlined in OMFTS does not appear any longer as a compatible concept. We failed to be tenacious at guarding what many great men died in developing. To be good in this trade takes practice and we lost our practice time. We allowed our equipment to get old on us before we replaced it. We adopted "MEF as the warfighter" to be a philosophy for fighting and yet we can't even get a MEF size amphibious task force to the battlefield because of insufficient amphibious lift.

Amphibious innovation, has suffered from a period of stagnation in the 1990s & will continue into the early years of the 21st century, if we fail to advance our technology to deliver the surfaceborne force of a MEF to the non-traditional landing sites. There will never be a suitable replacement for the Marine who must land on and secure the terrain that allows his force to continue their maneuver. His value will continue and the means of protecting him and making him an even greater threat will be developed but we must get him ashore first at the least cost possible in terms of casualties.²

AMPHIBIOUS MILITARY LANDSCAPE OVERVIEW; REFLECTIONS ON THE PAST FOR IMPLICATIONS ON THE FUTURE

The Marine Corps' concept for the projection of Naval

power ashore through the amphibious assault must be enhanced by providing increased maneuver options for the amphibious landing force. Even with the improved capabilities of the OMFTS Triad of equipment (e.g. MV-22, AAV, and LCAC), a significant portion of the Landing Force combat power must still move towards land via surfaceborne assault assets. These assets are restricted to specific landing sites / beaches due to the technical limitations of their platform. By process of elimination, the enemy can determine those shore lines that are suitable for landing **our** surfaceborne forces and then defend them from seizure by ensuring that no gaps are vulnerable to exploitation by the surfaceborne element.

The amphibious assault is the Marine Corps' most important mission, but changes in technology have increased the vulnerability of our naval forces to potentially unacceptable levels of risk thereby making assaults against defended beaches almost impossible to carry out successfully.³ A survey of the military landscape throughout the world shows that potential conflict and crisis areas in the future are most likely to occur in the littorals. With this assessment, former Secretary of the Navy Dalton expressed that 85 percent of the strategic targets and cities on the globe are within a 200 mile range

from the areas in which our naval forces are present.⁴

The application of this naval power and its ability to project combat power ashore is guarded, however. As LtCol Jon T. Hoffman writes: "If our Nation has limited tolerance for expending lives and treasure in all but the most extreme situations of national danger, then we had better find ways to fight that will work within that strategic reality."⁵

JCS Pub. 3-02.1 states that an amphibious assault serves the purpose of: "... establishing a force on a hostile or potentially hostile shore."⁶ With the great successes of the island hopping campaigns conducted in the Pacific during World War II, we are also reminded of earlier lessons in executing amphibious operations against defended coastlines.

The defensive strategy at Gallipoli during World War I may serve as a key example. Here the enemy elected to defend only along terrain which supported the Allied forces capability to land and only along those areas where it was critical to blunt the landings. The commander responsible for the defense of Gallipoli, Liman von Sanders was quick to correct inadequacy of an existing defense put in place by Turkish forces, who employed a decentralized outpost concept which attempted to defend all the beaches. Prior to the allied invasion, von Sanders' estimate of the situation

concluded where the hostile landing should be expected and he set out to reorient the defense.⁷

In his assessment of the reoriented defense, General von Sanders stated: "All places practically available for landing had been wired with barb wire under water and defended by field artillery, machine-guns and trenches...The hostile landing expedition had selected those points which we ourselves had considered the most likely places and had especially prepared for defense."⁸

This type model of Gallipoli may repeat itself in the 21st century if the Navy and Marine Corps fail to look for ways in which to deliver the surfaceborne force to undefended coastal areas. As successful as the Pacific campaigns were during World War II, it is unlikely that the American public will permit the same magnitude of casualties incurred in these operations without knowing that all other options were explored and exhausted.

Although the Marine Corps' amphibious capability through the new line of equipment has increased its potential for speed and mobility, maneuver towards land from the sea does not fundamentally change the current doctrinal principles of the conduct of the amphibious assault. The surfaceborne element of the landing force can only land on specific terrain that supports the capability of the landing

vehicles. The old adage "Terrain Dictates" is true with regard to the amphibious assault. The tactical movement strategy as outlined in the new STOM concept is still faced with the dilemma of conducting the landing. Regardless of how much maneuvering the surfaceborne element attempts to do while transiting toward land, the vehicles will be driven to converge on only that portion of coastline that allows for them to touch down and exit.

The dilemma STOM faces is no different than that posed to our amphibious forces during World War Two. It is imbedded within the limited capability of the surfaceborne equipment. STOM is a legitimate maneuver issue; however it addresses only the aspect of the enemy while disregarding the magnitude for which terrain impacts the landings suitability. Our surfaceborne force can only conduct true maneuver by having the capability to go to those areas or gaps where the enemy believes it impossible for us to land our amphibious forces.

HISTORICAL PRECEDENT; THE NONTRADITIONAL BEACH

An example from history which may serve us well on how we must look at our amphibious capability today for execution in the future is the amphibious assault conducted during the Korean conflict. General Omar Bradley, when serving as the Chairman of the Joint Chiefs of Staff, stated

in testimony before the Congress in 1949 that he did not expect that the United States would ever again conduct a large amphibious landing. Less than one year later, the Navy and Marine corps conducted a large scale and critically important amphibious assault at Inchon.⁹

This landing was conducted at a place where the enemy believed it impossible to bring surfaceborne forces ashore due to extremely restrictive hydrographic and topographic conditions. To execute this landing required innovation in equipment and a willingness to put in a force where the enemy believed it impossible to land an amphibious unit. The enemy's perception appeared as a valid assumption due to the characteristics imposed by hydrography and terrain which would normally deny a force this area as a feasible option. General MacArthur recognized this perception and allowed the Marine Corps an opportunity in history to prove the true value of the amphibious assault. By striking operationally deep, the Marine Corps as MacArthur's landing force did the allegedly impossible. They accomplished their assigned mission by enhancing their limited amphibious capability through the modification of existing equipment. This equipment merely enhanced and augmented their amphibious assault craft. Although simplistic in design, nonetheless this improved capability allowed the Marines to breach the

geographic and topographic features of the nontraditional beach.

Through this innovation and the conduct of "true" amphibious maneuver, the ground war was reversed. MacArthur planned and executed a deep amphibious envelopment at Inchon. His plan seemed inordinately risky to every senior military officer who reviewed it. Yet, MacArthur had correctly assessed the weak North Korean resistance. And with this assessment, the Navy-Marine Team used their innovation with MacArthur's boldness to overcome the physical perils of Inchon harbor, which was dominated by narrow channels, seawalls, and sharp tidal changes.¹⁰

FORCIBLE ENTRY; THE AMPHIBIOUS ASSAULT

Joint Chiefs of Staff (JCS) Publication 1, defines doctrine as: "Fundamental principles by which forces guide their actions in support of national objectives. Doctrine is authoritative but requires judgment in application."¹¹ By this definition, the operation of "forcible entry" will continue to serve as the backbone of United States Marine Corps doctrine in the planning, embarkation, rehearsal, and movement of the amphibious assault. This paper will show that the traditional amphibious assault and its principles are still very much alive and are in fact imbedded within the culture of the United States Marine Corps. However, it will also show that the measures taken to increase the speed

gained through improved capabilities in the forthcoming Advanced Amphibious Assault Vehicle (AAAV) does not alter the fundamental dilemma of successfully getting the Landing Force ashore with a rapid buildup of combat power due to the missing capability.

Forcible entry requires the combined assets of the Commander of the Amphibious Task Force (CATF) and the Commander of the Landing Force (CLF) as well as the command and control mechanism for accomplishing the "How" to one of the most complex and high risk operations a force may be tasked to undertake.

The Marine Corps has reemphasized its historical bond to the Navy by articulating a concept of innovation in OMFTS that also compliments the Navy's future vision for power projection in the 21st Century as outlined in "Forward From The Sea". Each service through these two documents have redoubled their efforts to prove that they are each inextricably linked to the other through their distinct, mutually supporting role in amphibious operations. In an ever increasing encroachment of the "purple" environment there were no other options. However, both services must use these documents to develop strategic and operational relevancy of the large scale amphibious assault to augment the extremely limited capability of the ARG / MEU (SOC) team. This type of focus should exist simultaneously with

the advance warfighting experimental efforts ongoing with Urban Warrior and the forthcoming Capable Warrior experiment.

THE THREAT; AT THE WATERS EDGE

The second largest amphibious landing of the Second World War launched the Sicilian campaign of July-August 1943. It was an assault that almost became untenable when the American 7th Army under General Patton was nearly driven back into the Sea by German-Italian defenders who were not inclined to give up their coastline without a well prepared and determined counter attack fight. Nothing will change for our forces in the future in this regard when and if we employ the amphibious option.¹²

Opposing forces in the distant future may likely employ former Soviet-style anti-amphibious landing doctrine. Even though equipment densities and operational capabilities will vary as a function of the particular threat force culture, little will change with how anti-amphibious tactics are employed. In preparation for countering the threat intending to defeat our amphibious forces at the waters edge, our planning assumptions should anticipate an enemy division level mobile defense. This division force will most likely be assigned a coastal zone of approximately 200 kilometers in which beaches within this zone are defended at the shoreline.¹³

Superior land mobility is a prerequisite for defense of shorelines in order to introduce large-scale mechanized counterattacks at landing sites. These counterattack forces will attempt to do exactly what the German-Italian forces did to Patton during the Sicily campaign only with much more lethal and massed artillery. With accurate advanced warning of our assault, the enemy will emphasize a defense in depth similar to that used by German-Turk forces on Gallipoli, while simultaneously seeking the early destruction of the landing force before it can consolidate on shore.¹⁴

Deliberate defenses will be established on key landing sites. If a landing site supports a large scale landing, it will be considered not only key but a decisive point. The delivery of intense, massed fires from artillery battalions will reinforce Mechanized/motorized infantry units in order to cover any gaps in the defense.¹⁵

In conjunction with coordinated covering fire and well emplaced obstacle belts, mines will be used in liberal quantity to inflict maximum casualties while containing the landing force as they seek to get a toe hold. As the landing force gets bogged down on shore, the enemy will launch a highly mobile counterattack force similar to what almost drove Patton back into the sea at Sicily, in order to counter our landing force's penetration of the beachhead.¹⁶

As mentioned above the enemy, if not preempted will

saturate the waters and beaches with mines. Should this occur, the assault force will most likely be unable to go ashore in AAVs because of another missing capability which we call mine breaching. When integrated together with the military aspects of geography, the forcible entry capability of the United States Marine Corps as advertised in OMFTS remains incertitude.¹⁷

The employment of a well planned, integrated mine defense will cripple the landing force's ability to conduct a successful landing, thus negating our ability to perform forcible entry from the sea. One of the best force multipliers and least expensive defensive systems readily available to any Third World nation today is mines and obstacles. This won't change in the future and therefore many of our potential adversaries will implement mine warfare. It will serve as a cornerstone to their coastal defense concept. Amphibious planners must assume that threat forces will employ mines.¹⁸

The use of modern amphibious maneuver warfare tactics will be precluded if there is a possibility these barriers are present and well integrated into critical obstacles.¹⁹ A tenet of modern amphibious operations should be the avoidance of enemy defenses on the beach as well as mined waters protecting access to the coastal areas. Our amphibious capability is currently unable to clear and

breach barriers in-stride during the ship-to-shore movement phase. This deficiency coupled with the lack of accurate, real time reconnaissance capability, makes our interest in looking elsewhere to land all the more compelling.²⁰

THE AMPHIBIOUS DECISIVE POINT; A CRITICAL OBSTACLE

The decisive point for both belligerents in the defensive or offensive aspects of an amphibious incursion is the physical aspects of geography. An amphibious force conducting the attack can not close with the defending enemy force until it has subdued the specific landing area of the coastline. And a defending force will have no impact on denying an amphibious force its quest for seizing objectives if it has failed to possess the full measure of the specific landing area of the coastline which may permit an incursion.

It is reasonable to conclude that the force which controls the military aspects of geography also controls and holds a decisive point when we consider a nations coastline as potentially a key physical aspect of its tactical, operational, and in certain instances its strategic strength. A coastline is a geographic obstacle which is clearly a force multiplier to a physical COG such as an Amphibious Assault Task Force which has the capability to subdue it.²¹

The enemy will defend only those areas he believes we can land at and we will only select sites that can be landed

on; therefore the decisive point to a forcible entry operation is the military effects of geography which permit a beachhead or lodgment. If the coastal area doesn't support our force because the critical capability resident in our capacity to transit from sea to shore is limited to obviously prescriptive sites, then the enemy will reach the same logical conclusion and not needlessly misemploy their forces elsewhere.

The current doctrine of amphibious warfare holds the ship-to-shore movement phase in an amphibious assault as the most critical due to susceptibility. Planners may have to start thinking in a new way about how our critical capability applies in the OMFTS amphibious assault. It may no longer be an honest approach to solving this problem by talking in generalities about the "threat", but rather talk about the nature of physical geography and its implications on our operations. In the future as in the past, geography will ultimately impact all aspects of our forces success at landing ashore to engage and create a vulnerable flank, not the enemy. We must do more than look for this flank but rather endeavor to create the vulnerable flank by enhancing our capability.

The amphibious assault as we know it, may no longer be a viable option if we fail to properly identify the true decisive point for this type of operation. Our greatest

threat to the conduct of forcible entry options is not the enemy force. As in time past, an assaulting force will most likely meet an opposing force that will seek to eject any landing on their coast line. The Landing Force will always be the most susceptible to enemy weapon systems during the Ship-To-Shore movement phase, and this is the dilemma.

Generating combat power from zero to full capability while establishing a foot hold (Lodgment) is a significant undertaking by itself without having to introduce a hardened enemy force that has selected the best ground based on their intelligence preparation of the battlespace and their correct identification of this area as the true decisive point.

Although this decisive point argument does not address "how" we accomplish the fundamental objective of getting the preponderance of our amphibious force safely to the shore line, it does provide a rational focus to get our capability options improved.

The conceptual vision brought forward by OMFTS can be brought to fruition only when we explore this type of geographical analysis and further when the generalities of STOM are brought into alignment with what we want from our amphibious landing capability. We cannot allow ourselves as planners and future commanders not to address our greatest susceptibility in what modern history will concede as one of

the most complex and difficult operations a military force must undertake.

OVER-THE-HORIZON; A QUANDARY OF MOBILITY

With OMFTS, we have done very little to change our current amphibious doctrine other than make it far more difficult to accomplish. OMFTS seeks a prudent solution to dealing with the increased lethality of those weapons systems that can cause a catastrophic loss of our Amphibious shipping. It does this by complimenting the Navy's insistence of seeking greater standoff through Over-The-Horizon (OTH) power projection.

The dilemma still exists for the Landing Force, however because it must still transit the waters to the shore. If we protect our Naval shipping but have failed to do likewise with the Landing Force then we have gained nothing other than to place both our Amphibious Task Force and Landing Force in a much more difficult situation. The Landing Force must still do things in very much the same traditional manner except that with OMFTS we discard the centralized control mechanism for success.

As OMFTS seeks to transition from deep maneuver to the reality of the visually distant but still tactically close enemy coastline there is an absence of equipment to allow the benefits of deep maneuver to be exploited. An excerpt from a concept paper on STOM states the following:

"...Maneuver warfare depends on commanders of landing units having the authority and ability, within prescribed parameters, to control their own movement. This authority must include diverting through alternate penetration points and/or to alternate landing sites as the situation dictates. There is no room for haphazard or gratuitous maneuver in an arena in which the coordinated application of combined arms is our principle strength. Thus, there remains a requirement for centralized awareness and coordination if this freedom of maneuver is to work for, rather than against us."²²

The above statement serves to reinforce the criticality of understanding the impact of physical geography on amphibious operations, its linkage to the decisive point concept, and why we must look harder at improving our critical capability to expand the types of coastlines our forces can land at to avoid those sites typically viewed inside the traditional beach characteristics.

The surfaceborne mobility found in the AAV's and LCAC's greatly expands the beach front area now open to an amphibious force. In most cases due to its inherent lack of protection, the LCAC should not be considered to have a forcible entry capability. This limitation will not change under the OMFTS concept. Whether the LCAC when used together with the AAVs, lands behind the initial assault force or is placed out on a flank, it has the potential to funnel significant numbers of forces through very small beach front areas providing that the risk to this asset does not preclude its employment.²³

However, in order to exploit the advantages of this

potential capability, a restructuring of present R&S organizations may be required. This requirement is an outgrowth of significant increases in the amount of time and resources necessary to conduct future coastal surveys compared to the traditional amphibious operation.²⁴

In most cases, almost two-thirds of the combat power resident in an amphibious assault is currently restricted by the capability of the surfaceborne mobility assets of the landing force to maneuver to undefended areas of the coastline. The surfaceborne forces will have to transit through cleared lanes because the enemy will use mines. These mines are severe obstacles that if not neutralized will bring the Amphibious Task Force to a sudden halt. Even under the presumption that our amphibious task force can clear lanes and corridors, with OMFTS the assault element would have to clear an inexhaustible number of lanes and corridors in order to provide the type of flexibility called for in choosing operationally designated maneuver objectives during the ship-to-shore transit.

As mentioned earlier, the current reality in our surfaceborne capability however is that the AAV does not possess an instride breaching capability, and without this it can not execute STOM under the OMFTS operational concept. The AAVs over-the-beach mobility will remain similar to the current AAV despite its range, speed, and maneuverability.

The AAV can cross only a limited number of beaches, and enemy forces can reasonably establish obstacles and barriers to defend against an AAV surfaceborne assault.²⁵

The increase of both sea and land mines and most importantly the enemy's knowledge of our "From-the-Sea" capabilities make it highly likely that defensive operations on those beaches most susceptible to amphibious operations will curtail our landings. Forcible entry over a single penetration point will require an in-stride breaching capability. Until the AAV is made with the capability to transverse 70 percent of the world's beaches similar to that capability resident in the LCAC, an obstacle barrier will stop the surfaceborne assault.²⁶

The anticipated delivery of the AAV to replace the current AAV7A1 family of assault amphibious vehicles is projected during the 2008 to 2030 time frame. New technology for increased capability of the AAV will not likely be seen until after the equipment life cycle has run its course.²⁷ This means that innovation in equipment must focus on what we can do to enhance the existing limited capability.

Even with the advantage of maneuver, due to increased range, the AAV will fail to accomplish its mission if it arrives at the shoreline without enough fuel to reach the objective. As a planning figure based on each vehicle having an estimated 300 gallon fuel capacity for the

assault; to make a 40 NM transit shore-to-shore or 25 NM ship-to-shore transit to the beach will consume over one half of the AAV's fuel capacity.²⁸

Trying to follow through with the attack to designated deep objectives well inland from the beach may very likely cause the landing force to reach a "culminating point" at its most vulnerable stage. Considerations must include whether AAVs will have enough fuel to reach the deep maneuver objectives. Specifically critical is having enough after completing the high-speed over water transit for adequate combat reserve, or enough fuel to conduct a retrograde.²⁹ Logistics as always is the honest broker in defining the realities of the tactics and in this case, an operational concept.

Much of the standoff that we have seen in OTH tactics is driven by the notion that attacking from ships at a distance of about 25 to 50 miles from the coastline helps protect ships from attacks by coastal defense forces with missiles.³⁰ The adverse impact is significant with respect to AAV capability because fuel will be the linchpin in whether or not these vehicles can reach their assigned objectives following this maneuver "from the sea".

With the amphibious ship's combat mission placing it in the most susceptible position of any of the naval ships in relation to enemy coastal defensive capabilities the reality

of any gained advantage through distance remains suspect. Even when ships are positioned 20 or more miles off the coast, their susceptibility from anti-ship missiles remains slightly unchanged mainly because of their extensive profile. This susceptibility due to size of the amphibious ship makes it a "High-Value" and easily hit target that requires us to look at different options for getting a force ashore while also reducing risk to the force as it transits ashore.³¹

Two possible amphibious assault profiles exist according to Navy studies. This determination is based on the number of spots for helicopters and landing craft required for the surfaceborne and helicopterborne assault echelons of either the Marine Expeditionary Force or a somewhat smaller size force found in a Special Purpose Marine Air Ground Task Force (SPMAGTF). The first option is: two-thirds of the troops, vehicles, and equipment is transported inland via assault support assets. The second option: two-thirds of the force is transported to the beach via surfaceborne assault. The latter option is the most widely used as well as most difficult and obviously demands the greater number of landing craft in order to accomplish the ship-to-shore movement.³²

If we as the attacking force seek to take an amphibious objective which is heavily defended and mined, and we cannot

get our force ashore in mass, then we stand to fail. Even in OMFTS, approximately two thirds of the force is surfaceborne. This force breakdown is the same method used in the traditional post Korean War era amphibious assault less helicopterborne forces. The balance of about one third the landing force is being brought ashore via assault support assets and emplaced behind the front lines or beachhead if feasible in order to strike at the OMFTS designated deep objective. Although not for discussion in this paper, the MV-22 force, if and when inserted, is extremely vulnerable and in effect has an enemy threat to its rear as well as front and flank. The surfaceborne force in AAV's and LCAC will seek to ram an assault through both nature and man-made defenses that by the laws of nature and our lack of capability in equipment will force our landing units to converge on the best defended ground.

As mentioned earlier in this paper, the most critical phase of an amphibious assault is the Ship-To-Shore transit. Movement during the Ship-to-Shore phase may be executed as strictly a waterborne evolution involving landing craft, ships, and amphibious vehicles or it could also be strictly helicopterborne in nature. Most amphibious assaults are planned as a combination of both.³³

LIMITATIONS; A CAPABILITY ISSUE

The AAV on-plane, will travel at speeds over 20 knots

and create a wake turbulence that will preclude close formations (no closer than 230 feet behind). During high speed over water transit, formation integrity will be difficult to maintain. For example, for a battalion-size lift, a column formation could result in a AAV tactical formation between 1.5 and 2 miles long. Although the AAV column could transition to a line-abreast formation quite easily as it approached a wide beach frontage it would have negative consequences if forced to passing through a narrow breach or channel. As the lead AAVS came off-plane, an accordion effect would most likely congest the AAVs near the surf zone or coastal site.³⁴

With this potential limitation identified regarding the AAVs, planners must consider the same type of potential impact on the design and modification of the delivery platform proposed in this paper. The focus on platform design should be on enhancing the transition of these surfaceborne assets from amphibious shipping, to sea, to the mobile barge-type platform for delivery to locations above-the-beach.

Advance Force personnel such as SEAL teams and other reconnaissance personnel are going to be critical for providing the AAV formation commander real-time information pertaining to the pre planned penetration point in order to

exploit the AAVs high speed capability. The AAVs range and endurance must be treated as limiting factors at this juncture. Integrated C2 communications network available in 2015 must permit the AAVs to change penetration points based on the tactical situation if maneuver tactics are to work.³⁵

Effects on personnel inside the AAV will be a key consideration in planning maneuver from the sea. From the initial launch to landing ashore, a two hour transit will be the upper limit for embarked infantry in terms of their physical effectiveness. Beyond two hours time spent inside the closed AAV, their fighting capability will diminish rapidly due to fatigue and illness.³⁶

Marine Corps planners anticipate that an amphibious task force located 400 nautical miles from the coastline will be able to launch an amphibious assault against any point along more than 1,000 miles of potential enemy frontage within 24 hours. Although an enemy force will have to concentrate its efforts to defeat an amphibious assault as discussed earlier, they will select the logical place based upon our landing capability. Determining our landing criteria by the enemy will not be as difficult as will his ability to mobilize against our assault if he has misjudged.

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THE MODEL: THE FORCE

The lift requirement for the assault echelon (AE) of a MEF is quoted from the 1987 DON Lift Study Validation and is listed as a summary in the following table:³⁸

Notional AE Lift Requirements

	<u>TROOPS</u>	<u>VEHICLE SQUARE FT</u>	<u>CARGO</u>
<u>CUBIC FT</u>			
<u>MEF USMC</u>	34,090	746,000	1,647,000
MEF NSE	3,680	38,000	146,008
<u>total</u>	37,770	704,000	1,793,000

In line with this, a notional AAV unit which might be fielded in the future to support the above listed assault echelon would be organized into 230 vehicle AAV battalions designed to lift the surfaceborne element of a MEF.³⁹ This notional model is important because of its impact on lift, as well as its impact on designing the type of innovative equipment which will enhance the capability of landing this number of vehicles.

One must recognize that under the umbrella of amphibious operations we currently do not have the naval assets to conduct forcible entry at the MEF level. Amphibious shipping is virtually nonexistent to deliver the type of force with the requisite mass and support to decisively take on a well trained and well emplaced enemy threat defending a traditional beachhead or littoral area. This may have an effect on the parameters set forth in the

future military landscape of the three block war as posited by the Commandant of the Marine Corps, General Krulak.

NATURE; THE EFFECTS OF GEOGRAPHY ON BATTLESPACE

The nature of the amphibious battlespace is unique. In this battlespace, the ship-to-shore advance to contact against the threat involves specialized training, tactics, procedures and equipment to deal with both the sea and land simultaneously to enable the projection of combat power ashore with the critical aspect of rapid buildup. This is a technically demanding area of study where exact knowledge of physical geography is essential and will mean the difference between taking a prudent risk or placing all on a potential gamble with its likely devastating results. Gambles when wrong are unrecoverable.⁴⁰

Terrain as referred to earlier in this paper under the decisive point discussion must be viewed as the first line of contention which must be conquered and subjected to our will. The threat with respect to combatants becomes a secondary effort until that time that the landing force has subjected the obstacles of terrain that have historically except for a few instances defied our ingenuity and boldness to take on the risk of an Inchon type assault. Instead we have taken the expedient and simple way out by selecting the suitable beaches based on our equipment capability.

In order for any force to come from the sea during an

amphibious operation, it must have a geographical area that will accommodate its landing ashore. In the amphibious planning process, one of the first considerations following the initiating directive is the determination of "Basic decisions." The realities brought to this forum more so than any other operation is not the enemy but rather the geography and its impact on even the feasibility of the operation.

Regardless of a commander's greatness, personal boldness, or skill, the ultimate decision of where the force is going to land will rest largely in part with "Mother Nature." The threat will merely attempt to help nature by tying in to the already existing obstacles or better yet use economy of force operations in those areas which are remote for successful landings and concentrate on those critical areas where a force can land because they are conducive for the capability of the equipment.

If any reader of this paper were to sketch a diagram that delineates the dimensions of the operating environment of an amphibious objective area (AOA) with the superimposed parameters of the OMFTS /STOM battlespace geometry on top of this; this sketch will show that the concept cannot be executed when the current capability of the equipment is pitted against the physical geography of the military landscape. The issue is limited capability. The basic

planning factors of METT-TSL will disprove the model without even introducing an enemy force. The reason is simple; the concept does not take into account the limitations imposed by the capability of the equipment.

The capability (although a huge improvement to what we have) neither provides impunity from the effects of the military aspects of geography nor from the increased lethality and effects of the enemy's weapons system. Although not new to Amphibious operations, the critical vulnerability to the Amphibious Task Force and in particular to the landing force is the delivery means of getting the force ashore. Another words; it is the capability of the equipment.

The dilemma is once again very clear, regardless of the force coming from OTH and regardless of the speed and surprise the force will use; at some point in time this same attacking force will converge on only that area in which mother nature and geography dictate it can land at. The traditional 4,000 yard line will eventually become the same reality it always has been, and the enemy will be there to greet our force if we have failed to properly bring to bear the full compliment of our joint fire support capability to literally annihilate this threat before we transit to land or we altogether avoid this area by landing elsewhere. This paper suggests that we pursue the latter course.

The transfer of surfaceborne forces to the land has always been marked by continuing efforts to facilitate its rapid transition. Innovation brought about the use of landing craft for this purpose but capability limited the choice of landing sites. Even though the introduction of amphibian vehicles multiplied the landing site options, the landing itself remained susceptible to adverse weather as well as an enemy who could readily although not always obvious, deduce from a study of the coastal frontage available, those sites where landings were possible. Breaking the constraints of the coastal environment was not gained until the innovative capability of the helicopter was introduced.⁴¹

The landing sites physical features must be carefully understood. Variables such as hydrographic conditions will limit the timing and location of the attack, and coastal terrain will slow the critical aspect of rapid build up of combat power necessary for success. Recognizing these factors, though complex, are predictable. Some of the most critical factors for consideration in developing new or modifying existing surfaceborne platforms are wave energy, tidal range and height, nearshore currents, coastline characteristics, and nearshore bathymetry. These factors make up the amphibious military landscape of the coastal battlespace.⁴² Without the shoreline conquered, or more

appropriate to this paper the above-the-beach area is conquered, the enemy becomes a moot objective.

Oceanographic considerations in the amphibious assault influence the type of ship-to-shore transit which is possible. Specific oceanographic considerations are:

1. Hydrographic features of the offshore environment, particularly out to the 3.5 fathom curve.
2. Magnitude of mineable waters.
3. Above-the-Beach capacity for landing troops, equipment, and supplies even with the notion of sea-based logistics.
4. Above-The-Beach suitability for causeways, advanced amphibious assault vehicles (AAAVs), and other vehicles under anticipated weather & tidal conditions.⁴³

Figure 1 on the next page depicts an example of the most common type of coastal landform complexes for the "above-the-beach" assault concept proposed in this paper.

It reflects three interdependent components; the wave-cut cliff, wave-cut bench, and wave-built terrace.⁴⁴ The characteristics offered by this type of coastal landform are the focal point for how we can increase our forcible entry options.

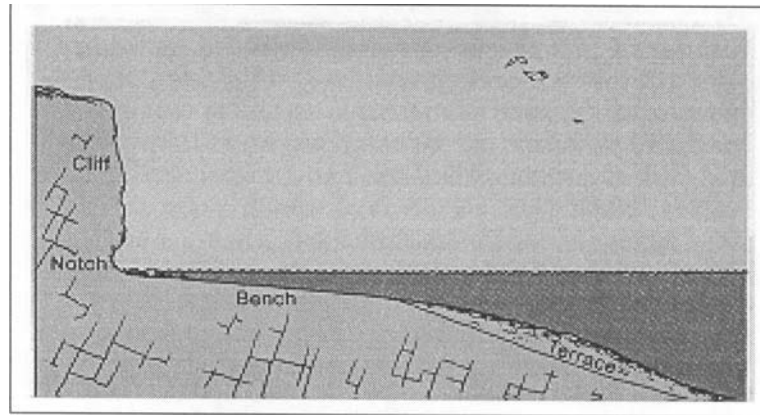


FIGURE 1

Just as Inchon showed us the impact of deep maneuver, history further shows forcible entry operations poised to take on the specific hydrographic and topographic challenges associated with Figure 1. It was because of the inability of surfaceborne assault forces to land and exit from a specific geographical area that drew the introduction of special forces at Point du Hoc for action in Normandy. These Rangers were the force of choice to seize the cliffs because the surfaceborne force had a missing capability.

The Ranger's mission presented a myriad of special difficulties. The coastal landing point only provided a 25-yard strip and was dominated by a sheer cliff 85 to 100 feet high.⁴⁵ The cliff was their first objective. It was not only a decisive point to the operation but was a critical obstacle⁴⁶ that if fully exploitable by a surfaceborne assault force the size of which were being landed on the US zones of action at Omaha and Utah Beach may

have become the enemy's vulnerable flank. Point du Hoc serves as a visual example of the type of terrain we want to make available for exploitation in the future where the enemy is not heavily defending because they presume that our force can not land at such places. It serves to show a tangible segment of coastline that is currently beyond our amphibious capability to land a large scale force from the sea.

RELEVANCY; OPTIONS THROUGH INNOVATION

The amphibious assault may cease to be a relevant option in the future conduct of amphibious operations unless the unresolved dilemma of providing maneuver options to the Landing Force are available. Other options through modified off-the-shelf type equipment platforms that enhance our existing and limited capability will enable the force to land where the hydrography and topography dictate the location of an amphibious landing in the eyes of the threat is not probable. Even though there exists a paradox in that once a force has this capability to make such a landing; the landing now becomes probable, it will still not negate the enemy's dilemma of being stretched beyond his reasonable capability to defend all potentialities of a landing. The attacking force gains the edge on the strength of the defense and creates a new paradigm.

The design of a mobile barge-type transport platform

with elevated causeway using modified off-the-shelf technology currently employed in oil drilling platforms today may increase the forcible entry options along designated segments of enemy coastline that have historically been considered unsuitable for amphibious assaults due to prohibitive hydrographic and topographic characteristics.

The "Bread & and Butter" of the Navy and Marine Corps team is Amphibious Operations". By its very nature, the Amphibious capability of this team has always been expeditionary and always will be expeditionary so long as this capability remains relevant to the battlespace of the future. The theme of this paper has been two fold: first address the issue of our missing capability and second, identifying the relevancy of a new concept that looks at the amphibious assault from a more concentrated view dealing with physical geography while using this to measure the capability in equipment which might be developed to implement the concept.

Should the concept of platforms proposed in this paper be further refined, the concept might explore the development of equipment which will create an artificial Bay in order to counter the impact and effects of hydrographic conditions in much harsher sea-state areas thereby creating the conditions in which to launch the barge type platform

for lifting amphibious vehicles to those topographic features above-the-beaches along designated coastlines. Similar to the Mulberry Harbors designed during World War Two by allied forces to support Operation Overlord "the invasion of Normandy", the artificial Bay would be emplaced during traditional Advance Force Operations in lieu of extensive MCM operations since forces are landing at areas not threatened by heavily defended enemy emplacements.

This concept paper seeks to investigate the notion of converting assets that are currently being used commercially by the oil companies for drilling but modified in an innovative manner to lift our surfaceborne forces above-the-beach. This type of modification may allow a force today to attack an objective similar to the cliffs of Point du Hoc as conducted during the Normandy invasion with a conventional amphibious surfaceborne element vice special operation forces scaling the cliffs as the Rangers were used in this situation.

By using off-the-shelf technology, the Marine Corps may avoid years & years of R&D and associated funding approval by simply modifying existing equipment vice starting from scratch. This approach is similar to what the Marines did during the inter-war years with the Higgins Boat as well as other examples.

In the future, and under the concept of innovation

proposed in this paper, the surfaceborne force of the MEF will transit through unmined waters because the enemy will be unable to effectively mine their entire coastal area. This paper suggests the innovation which will break the paradigm of landing on beaches by enhancing our surfaceborne landing capability to be lifted above-the-beach.

As stated by the former commandant of the Marine Corps, General Gray; under the MAGTF warfighting goals of maneuver and mobility: Pursue technology to provide the capability to detect, clear, or avoid obstacles, barriers, and minefields.⁴⁷ In the case of this paper, we must pursue existing platform technology and modify it through innovation to enhance our limited capability.

THE CAUSEWAY

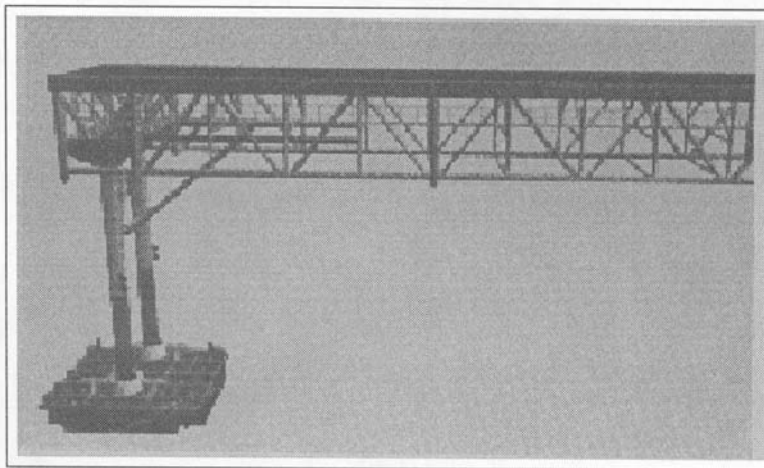


Figure 2

The figure above reflects an experimental concept design which was developed by Brown & Root. The causeway is moved to the objective area on its parent platform. However, the

envisioned prototype platform for this system is a logistics ship vice rig. Certain criteria for its employment with regards to coastal placement from the shoreline and proximity of depth to seafloor are used for consideration as follows:⁴⁸ [] The causeway with platform is ballasted to rest on seafloor in 50 feet of water.

 [] The causeway section could extend up to 7,500 feet with 3,000 feet of causeway deployable in less than 72 hours by 82 personnnel.

 [] Parent platform would provide for installation and operation in weather conditions up to Sea State 5.

 [] Overall system would accomodate the full range of military equipment.

 [] Each causeway section is 153 feet long, 33 feet wide, and 21 feet deep.

 [] Deployable columns with footings have adjustable length.

THE PLATFORM

Platform technology abounds in the private sector such as Shell Oil's 31 story Mars oil rig which was designed to operate while floating nearly 3,000 feet above the Gulf of Mexico floor. Of particular interest to this paper is the technology and innovation that allows these type rigs to operate in hostile environments like the North Sea.

Innovation like this has allowed western oil companies to pump oil from ocean areas that previously have been avoided because these areas were viewed as impossible environments to operate in. Although the scale of this rig is far too big for what this paper proposes, it does however support the capability concept.⁴⁹

The table shown in Figure 3 on the following page provides notional parameters for platform design capability. It is based on criteria that attempts to focus on proximate distances such as platform height above the water line and length of causeway required to bridge to above-the-beach coastal landing site operations. In all systems, simplicity is a key to marketing as well as fiscal considerations.

This paper makes no attempt to fix or project costs for the innovative project design. The major theme in this paper is that commercial industry is out there developing technology for increasing their capability and we must do the same. The military simply cannot afford to go it alone with the reductions in budget. Business can help us today as they helped the Marine Corps during the early days of amphibious warfare innovation.

Figure # 3

		meters	feet
Distance from cliff base to craft		920	2,990
Cliff height		33	107.25
Platform Height		8	26
Causeway length		920.3	2,991.1
Slope	degrees	1.6	1.6
Slope		0	0
weight	tons		2,991
		meters	feet
Distance from cliff base to craft		100	325
Cliff height		33	107.25
Platform Height		8	26
Causeway length		103	335
Slope	degrees	14	14
Slope		0.2	0.2
weight	tons		335
		meters	feet
Distance from cliff base to craft		100	325
Cliff height		33	107.25
Platform Height		8	26
Causeway length		103	335
Slope	degrees	14	14
Slope		0.2	0.2
weight	tons		335

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Addendum to Notes: 48 & 49

The Figure shown on page 44 along with accompanying text are subject to U.S. copy right laws. This paper incorporated the picture in order to provide a visual depiction of possible technology that is being used or has been studied as strictly project designs.

Note 48: The source of the causeway system (Figure 2) is a project design produced by Brown & Root, A Halliburton Company with graphics by Advanced Marine Enterprises, Inc, Modeling and Simulation Division Images. It was released to me on 3 December 1997, by Mr.Charles E. Dominy, Vice President of Brown & Root, Inc.,1150 18th Street, N.W.,Suit 200, Washington, D.C. 20036

Note 49: The source of the oil platform was taken from an article published in the Washington Times by Dirk Beveridge (Associated Press)showing the Mars Oil Rig built by Shell Oil.

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⁴⁸ A.M. Gray, Marine Corps Long-Range Plan (MLRP), 28 Jan 1991, p 8-2