Posturing Fire Supporters to Utilize Naval Surface Fire Support

A Monograph
by
Major John C. Goetz II
United States Army

School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas
AY 01-02

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major John C. Goetz II

Title of Monograph: Posturing Fire Supporters to Utilize Naval Surface Fire Support.

Approved by:

_____ Monograph Director
LTC(P) Jonathan Brockman

_____ Professor and Director
Robert H. Berlin, Ph.D. Academic Affairs,
School of Advanced
Military Studies

_____ Director, Graduate Degree
Philip J. Brookes, Ph.D. Program

Abstract

Posturing Fire Supporters to Utilize Naval Surface Fire Support by MAJ John C. Goetz II, US Army, 52 pages.

This monograph determines whether the US Army is sufficiently training, organizing, and equipping fire support elements to utilize naval surface fire support. Its scope is restricted to fire support elements in airborne, air assault and light infantry units. This study came as a result of the Marine Corps' decision to deactivate their ANGLICO units, which had habitually provided the expertise to Army forced and early entry units to utilize naval surface fire support. Without these units, the Army must rely on its organic fire supporters to request and control naval fires. To accomplish this, they must first be properly trained, organized, and equipped.

This topic becomes increasingly important as the Army moves to a force projection structure. The Army has put enormous strain on its own helicopter lift as well as the Air Force's strategic lift assets. To preclude having to use these assets to initially transport artillery and ammunition to support early ground maneuver, the Army must prepare to use naval fire support when available. The Navy is currently developing a suite of systems to provide naval fire support to support Marine Corps Operational Maneuver from the Sea doctrine. The Army must plan now to utilize these systems in the future.

The monograph studies the historical aspects of naval gunfire and the units that were created to request it. This leads into a study of training, organization, and equipment of both ANGLICO and Army fire support elements to determine critical variances between them that would limit the Army's ability to control naval surface fires.

Major findings show that while the Army is organized properly to perform this mission if manned at 100 percent strength, current equipping and training of fire support elements is inadequate. Equipment shortfalls are being addressed in the near term by installation of SINCGARS on Navy ships. In the long term, the future fielding of the Joint Tactical Radio System will ensure joint communications compatibility well into the future. Training shortfalls can be addressed by effectively using existing Marine Corps Schools and Mobile Training Teams to train personnel in key positions such as JRTC and BCTP O/Cs. In addition the resident Marine Corps Detachment at Fort Sill must continue to be utilized to instruct Army fire supporters in career progression schools.

TABLE OF CONTENTS

CHAPTER ONE

Introduction

Throughout history, militaries have used gunfire from naval ships to support ground troops attempting to gain footholds of land for follow on invasions. These naval ships have long provided timely, accurate, all-weather destruction of enemy defenses and close tactical support for friendly offensive maneuvers. Naval gunfire has successfully contributed to campaigns and operations from Gallipoli in World War One to Operation Chromite in the Korean Conflict. It has impacted operations as recently as the battle for the Falkland Islands and Operation Desert Storm and can be expected to continue to have positive impact on future campaigns and operations.

Both the Marine Corps and the Army have benefited from naval surface fire support. The methods used to request and provide naval surface fire support are evolving. The US Army must keep pace with this evolution and ensure its fire supporters are adequately trained, organized, and equipped to utilize naval surface fire support for future force projection operations. As the capability of naval surface fire support increases, the Army must posture itself for the future by taking advantage of the ever-expanding capabilities of this asset. This becomes even more important as the Army transitions from a forward deployed force to a force projection force.

Naval surface fire support provides the Army with an on-station, all weather fires capability to support forced or early entry operations. By utilizing this asset, the Army is able to utilize already strained lift assets more effectively to deploy maneuver forces in sufficient numbers to defeat a potential enemy's anti-access methods. This will in turn allow follow on forces, to include organic fire support assets, to flow into secure ports and staging areas using sea lift assets. As the evolution of land attack systems from naval ships continues, the Army must

posture its fire support elements to capitalize on improvements in naval surface fire support. This monograph answers the question: Are Army fire support elements trained, organized, and equipped to utilize naval surface fire support in forced or early entry operations?

The evolution of naval surface fire support has been driven both by technology and by several naval initiatives. The evolution of naval surface fire support has been a contentious issue for today's Navy/Marine Corps team. Much of the contention arose following the Navy's cost-cutting decision to deactivate the *Iowa* class battleships following the Persian Gulf War. These World War II-era ships were arguably considered too labor intensive to reasonably operate in today's fiscally constrained age of automation. The Navy continues to consider it more efficient to operate a modern automated ship that requires less crew than a *Iowa* class battleship. Furthermore, the Navy contends that these modern ships provide adequate fire support using five inch guns and guided missiles. Many Marine Corps and Navy personnel do not agree with this position.[1]

The lack of hull armament on these modern ships compared to battleships raises great concern over their ability to operate safely in littoral areas. This concern was highlighted in a tragic way, when the *USS Cole* was attacked and nearly sunk in a Yemeni harbor by the damage caused by a rubber boat full of explosives.[2] Advancements in, and continued proliferation of, surface-to-surface missiles capable of damaging modern vessels further fuels this concern.

Range is a critical factor for naval surface fire support. The farther a vessel must be off the coast for its own protection, the less area of land it can range with its fire support systems. The Navy is currently leveraging advances in technology and modern weaponry to overcome the loss

[1] John F Lehman, Jr. and William L. Stearman, "Keep the Big Guns," *Proceedings* 126, (January 2000): 47.
[2] Ibid, 46. See article for further examples of vulnerabilities of modern ships.

in firepower and protection that the loss of the battleship has caused. Many people, including former Secretary of the Navy John Lehman, think the Navy has done the land services a great disservice by deactivating the battleships and replacing them with smaller ships with advanced technology capabilities.[3] Regardless of the outcome of this debate, the Army must be prepared to utilize naval ships for fire support as it becomes more and more involved in force projection operations into areas within reach of the littorals.

The replacement of five-inch gun mounts with guided missile mounts on destroyers is another initiative in naval surface fire support. This initiative seeks to take advantage of advanced technology to improve the capability of attacking targets on the ground while negating the effect of having to position twenty-five nautical miles off shore for safety.[4] These mounts provide the Navy the ability to project US power to expanding regions outside of the littoral. This allows the US to have physical impact on a region without a physical presence. Long-range guided missiles have traditionally supported operational and strategic objectives. At current costs, missiles are unable to provide close naval fire support to troops on the ground. As seen in recent years, isolated strikes from sea-launched Tomahawk missiles are not enough to stop modern threats. Infantrymen on the ground are needed.

A physical presence of troops on the ground is necessary to maintain legitimacy and accomplish the mission at hand. These forces must be supported with joint fires from the air and sea. The Navy has sought to fill this void with the development of several long-range rounds, which will be used in a direct support role to troops on the ground. Once again, the Navy is relying on technology to fill the void of tactical support left by the departure of the battleship.

---

[3] Ibid, 43-47.

[4] William L. Stearman and Tracy A. Ralphs, *Response to Concept of Operations for Surface Combatant Land Attack Warfare 2005-2015 (Draft)* 10 May 2001, internet, http://www.usnfsa.com/articles/navy/index.htm, last accessed 22 March, 2002.

Once again, the Army must be postured to utilize these technological advances in future operations.

Until recently, the Army was well prepared to utilize whatever types of fire support the Navy could offer. This capability was possible because the Marine Corps provided Army contingency divisions with ANGLICO support.[5] ANGLICO units were trained experts in all facets of planning, requesting, and controlling naval surface fires and air support. These companies served as trained liaisons between Army ground units and naval gunfire and Navy and Marine Corps aviation assets. They facilitated the use of naval surface fire support. This service was similar to how Air Force tactical control parties plan and coordinate Air Force close air support for Army units.

In 1998, the Commandant of the Marine Corps eliminated ANGLICO from the battlefield. This decision severed the Army's access to naval surface fire support and Navy and Marine Corps air assets.[6] Previously, ANGLICO personnel were attached to Army maneuver units from company through division to provide the naval surface fire support link. ANGLICO teams were created because of the hard fought lessons learned in the Second World War's Pacific theater of operations.[7] In ANGLICO's absence, it is paramount that these lessons not have to be relearned on future battlefields. The Army must not hope for a replacement for ANGLICO. Instead, it is essential that Army fire support elements from company through division be postured through correct training, organization, and equipping to coordinate naval surface fire support.

The combination of the Navy's committal toward advanced fire support systems and the Marine Corps' elimination of ANGLICO, significantly impacts the Army as it transitions toward

---

[5] Zachary P. Hubbard, "The ANGLICO Edge," *Field Artillery*, April 1990, 22.
[6] Richard I. Neal, "Fires for Lean, Mean, Maneuverable Marines," interview by Patricia Slayden Hollis, *Field Artillery*, March-April 1998, 3.
[7] Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War: Its Theory, and its Practice in the Pacific* (Princeton: Princeton University Press, 1951) Passim.

the future. The future Objective Force is being designed to integrate into the joint force. The Army must look at what systems it possesses, or has access to, to support lightly armed units with forced or early entry capabilities. These units will be employed in an environment that will likely include real limitations on lift capability to provide ground based fire support simultaneously or near simultaneously with initial entry forces. Limited helicopter lift capability will prevent the introduction of indirect fire weapons and large amounts of ammunition until initial objectives have been secured. Light, airborne, and air assault units must be able to integrate Naval and Air Force fires and utilize on-station platforms to ease the burden of using limited helicopter assets for moving organic artillery and its ammunition ashore in forced or early entry operations.

As future adversaries employ anti- access tactics at established aerial and seaports of debarkation, the likelihood of the Army having to fight on or near the coastline increases.[8] The Army will have to attack directly into an area to secure it before building up large numbers of forces to enable attacking out from the secure base. Being able to access timely, adequate close in fire support from the littoral greatly enhances the success of these operations. Naval surface fire support is the only all-weather, direct support artillery for these forces until their own artillery can be brought to bear in theater. Further, it is their only all-weather, general support artillery until corps artillery units can be introduced in the region.[9]

To fully answer the research question, the monograph uses the historical lineage of naval gunfire, and both the ANGLICO organization and Army Fire Support organizations to lay the foundations of how naval gunfire has been used by the Army in the past. Further, the future of ships capable of providing fire support is given attention. This is necessary due to several initiatives which impact on how the Army can use this support. Using the base data gathered

---

[8] Tracy Ralphs, "Where are the Battleships?" *Armed Forces Journal International* (April 1999) 46.
[9] Direct Support artillery is dedicated to a maneuver commander at battalion or brigade level. General Support artillery is dedicated to the division or corps commander to weight a fight at his discretion.

from the historical study, future initiatives, and the most recent training, organization, equipping, and use of ANGLICO, an assessment of Army fire support elements' current capability to adequately provide the link between Army maneuver units and naval surface fire support ships is made. This capability is measured using the criteria of training (to include doctrine available in Field Manuals), organization, and equipment compatibility.

The criterion of training analyzes the adequacy of individual soldier training for MOS 13F on naval surface fire support currently in the Program of Instruction at Fort Sill, Oklahoma in BNCOC, ANCOC, OBC, and OAC.[10] These courses are the mandatory career development courses used to develop and refine Non-Commissioned and Commissioned Officers' knowledge of fire support tactics, techniques, and procedures. This gives the baseline knowledge which all Army fire supporters equally possess as they progress through their career. This training is contrasted to the basic training given to Marine Corps ANGLICO personnel prior to their deactivation. If Army fire supporters are expected to assume ANGLICO duties, their training should be relatively equal.

The monograph also addresses additional training opportunities available as career enhancing training. These include specific Joint or Marine/Naval schools open to Army personnel. Field Manuals and Tactics, Techniques, and Procedures are also reviewed for adequacy in content for naval surface fire support. Additionally, the monograph looks at practical application available to fire supporters in simulation and field environments. This includes home station training and CTC rotations. These areas give additional opportunities which can augment basic training to equal the training which ANGLICO units received.

---

[10] MOS 13F is the Military Occupational Specialty designating enlisted fire support personnel for the Army.

The criterion of organization addresses the current manning of an Army fire support team and attempts to determine whether it is adequate to perform the duties of an ANGLICO in addition to its standard duties. The paper contrasts the standard duties and missions as performed by ANGLICO with the duties performed by a fire support team. This assists in determining what additional personnel at what levels are needed to adequately perform this mission. In doing this, the consideration of the habitual shortage of MOS 13F soldiers is taken into effect.

The criterion of equipment compatibility addresses communications equipment. The need to communicate between land and sea is paramount in coordinating and controlling naval gunfire.[11] This ability becomes increasingly important as the military moves towards a network-centric warfare model.[12] The monograph examines current communications equipment used by Army fire support teams and their compatibility to ship to shore radios on board naval surface fire support ships. It assesses what type of equipment is needed to communicate with the ship, if it is available to fire support teams, and if so at what levels of organization. This determines a reasonable expectation of whether the equipment procurement is feasible. Lastly, any future communications equipment proposed is assessed for compatibility.

The monograph concludes with a synthesis of the analysis of results from examining the training, organization, and equipping criteria. These results are examined in relation to future naval fire support ships. Recommendations are then proposed to correct any shortfalls discovered in the system.

---

[11] This ability is as crucial as a fire support element being able to communicate with a battalion fire direction center. Without this link, no indirect fires can be delivered by the firing battery to the fire supporter.

[12] Network-Centric Warfare is characterized by three overlapping grids linked by solid communications. These grids are the sensor grid, the information grid, and the transaction (shooter) grid. For a more in depth discussion of Network-Centric Warfare see Arthur Cebrowski and John Garstka, "Network Centric Warfare: Its Origin and Future," *Proceedings*, 124 no. 1 (1998): 28-35.

CHAPTER TWO

Historical Lineage

Naval Gunfire

Naval gunfire has shaped littoral and amphibious operations for centuries. Its lineage can be traced back to the Fifth Century B.C. when ancient Greek Triremes were equipped with catapults and contingents of archers whose purpose was to inflict damage and casualties on opposing ships.[13] These weapons' purpose was not to sink or significantly damage the ship, but to cause casualties to the crew to enable boarding operations and the takeover of the ship. Thus it is the sea borne equivalent of using indirect fire to support the capture of a land based objective.

The advent of gunpowder caused naval gunfire to evolve into being used almost exclusively for ship-to-ship direct fire engagements. The intent of these cannon systems was not just to damage and cause casualties, but to sink the opposing ship. If the situation mandated, a ship's guns would be used to bombard shore fortifications. This occurred on many occasions during the US Civil War during the struggle for control of southern waterways. This was the exception rather than the rule however.[14]

The battle for Gallipoli in the early stages of World War One could be considered the first attempt at using naval gunfire in direct support of amphibious assault against an entrenched enemy.[15] Unfortunately, during the initial allied assaults, the supporting naval gunfire had limited

---

[13] John Warry, *Warfare in the Classical World* (London: Salamander Press, 1980; reprint, New York: Barnes & Noble, Inc., 1993) 30-31.

[14] David Page, *Ship's versus Shore: Civil War Engagements along Southern Shores and Rivers*, (Nashville: Rutledge Hill Press, 1994), 241, Passim. Admiral David Dixon Porter used this tactic at Grand Gulf, Mississippi to support General Grant's Vicksburg campaign. This was in direct contradiction to Admiral Lord Nelson's long-standing dictum of "A ship's a fool to fight a fort".

[15] C.F. Aspinall-Oglander, *Military Operations in Gallipoli, Vol I, Inception of the Campaign to May 1915* (London: William Heinemann Ltd, 1929), v. This author lists it as the only example in history to that point. Gallipoli is studied by the Marine Corps as the event from which modern amphibious operations and their support evolved.

effect on the Turkish defenders who were well dug in and immune to the flat trajectory of the naval guns. The only initial advantage gained by naval gunfire was the morale boost given to the allied troops when they heard the thunder of the great guns. Other problems were discovered in getting support from the naval guns for the assault.

Support of ground troops was not a primary mission for these vessels. Consequently, their basic load of ammunition consisted of exclusively armor-piercing projectiles. These projectiles, while able to do great damage to opposing vessels, did little for the troops on the ground who needed high explosive rounds in their support.[16]

In addition, the system used to communicate the identification and spotting of targets between ground forces and naval ships was immature and ineffective.[17] This problem, in particular, was the cause of much confusion and delay in support. It was indicative of a lack of amphibious doctrine and joint training by land and sea services of that era.

Naval gunfire did contribute to the Gallipoli campaign in certain ways. Although ineffective at destroying dug in Turkish defenders, it was quite effective in breaking up Turkish counterattacks and could be said to have played a great role in the ability of allied forces to maintain the foothold of land which they possessed on the Gallipoli Peninsula.[18]

Following Gallipoli, popular opinion viewed amphibious operations as too costly in lives and equipment to consider for future use.[19] Naval gunfire support might have become a lost art due to this had it not been for the increasing concern over growth of Japanese military strength in the Pacific in the 1920s and 1930s.[20] This concern sparked the United States Marine Corps to begin

---

[16] Ibid, 222.
[17] Ibid, 194, 282. Delays of one to five hours were encountered in receiving naval gunfire support due to slow communications and inability to communicate current friendly positions. Communications were accomplished through signals, telephone, wireless telegraph, and messenger.
[18] Ibid, 292, 297. Also, Donald M. Weller, "Salvo-Splash! The Development of Naval Gunfire Support in World War II, Part I," *Proceedings* 80 (August 1954): 841.
[19] Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War: Its Theory, and its Practice in the Pacific* (Princeton: Princeton University Press, 1951), 5.
[20] Edward S. Miller, *War Plan Orange* (Annapolis: Naval Institute Press, 1991), Passim.

looking once again at the feasibility of conducting amphibious operations with the support of naval guns.

A Marine Lieutenant Colonel named Earl H. "Pete" Ellis initially founded this interest. His forethought and insight led to groundbreaking theories in *Advanced Base Operations in Micronesia.* These theories were later spearheaded by Major General John A. Lejeune, and evolved into the establishment of the Fleet Marine Force in 1933. Shortly thereafter, the Marine Corps published the *Tentative Manual For Landing Operations*, which included a chapter on utilizing naval gunfire.[21]

This development coincided with the Bureau of Ordnance developing a new round and gun system for naval vessels for defense against the newfound threat of aerial attack of naval vessels. This new gun and round had the benefits of increased trajectory capabilities of the gun and high fragmentation of the round in order to engage attacking aircraft effectively. These developments were an unplanned benefit to the naval gunfire community. It was now possible to get effective fire support for ground operations from naval vessels in the littoral.[22]

At the dawn of World War II, naval gunfire, although planned for, was hampered by three mandates. First, the primary purpose of the ship's guns was for defense of the ship. Therefore only a small percentage of its basic load of rounds was allocated for shore support. Second, due to air, sea-mine, and submarine threats, the movement of ships to littoral areas was considered hazardous and thus the time spent in these areas was to be limited to protect the ship. Third, to further counter the threat from shore defenses, ships would maintain a safe distance offshore and conduct swift erratic maneuvers to prevent engagement by shore batteries. These three practices combined to limit the effectiveness of any support given to troops ashore.[23]

---

[21] Donald M. Weller, "Salvo-Splash! The Development of Naval Gunfire Support in World War II, Part I," *Proceedings* 80 (August 1954): 841.

[22] Ibid, 842. In 1935, fleet landing exercises the Navy and Marine Corps commenced on the Caribbean Island of Culebra. This gave the services the opportunity to develop the coordination needed between land and sea to make naval gunfire effective.

[23] Ibid, 844.

Even with these restrictions however, naval gunfire made a positive contribution to littoral operations in the Atlantic and Pacific Theaters. In the invasion of North Africa, naval gunfire, acting in a counter-battery role, was credited with destroying German artillery batteries opposing the landing.[24] As operations advanced in the Pacific, the coordination and trust continued to develop between the services that ultimately led to better synchronization and effects of naval gunfire support. The restrictions that were placed on ship movement close to shore would not be lifted until after Tarawa.[25]

The Japanese coastal defenses on Tarawa were so great that it was deemed necessary to destroy them prior to landing assault forces ashore. Airpower was tasked with destroying the coastal guns to allow the navy to close in and continue destruction of coastal defenses. The precision of aerial bombardment was not developed enough to accomplish this however, and the naval gunfire ships moved into the littoral without the batteries having been destroyed. With great surprise, the coastal guns had little to no effect on the naval ships, who were able to give effective sustained support for advancing ground forces. From this point forward, the only restriction for the ships was the amount of ammunition allocated for naval gunfire support.[26]

Naval gunfire continued to play important roles in amphibious and littoral operations in the Atlantic and the Pacific supporting the Marine Corps and the Army. The following intercepted transmission from Japanese forces on Guam to their headquarters in Tokyo is evidence of this role.

> The enemy assaulted various strong points with incessant night and day naval gunfire; the enemy is under cover of the warships near the coast; as soon as night attack units go forward the enemy points out targets by using the larger star shells which practically turn night into day-the enemy naval gunfire using mainly a shell with attached instantaneous fuse, has great destructive power. The call fire on land from ships is extremely quick and accurate.[27]

---

[24] Ibid, 845.
[25] Ibid, 845-846.
[26] Ibid, 846. The Navy considered Japanese coastal defenses on Tarawa so great that it was necessary to destroy them prior to landing assault forces ashore. The Navy tasked airpower with destroying the coastal guns to allow the Navy to close in and continue destruction of coastal defenses.
[27] Donald M. Weller, "Salvo-Splash! The Development of Naval Gunfire Support in World War II, Part

Naval gunfire had proven its value on the islands of the Pacific and the coastline of Europe and Africa. Although aircraft carriers had taken over the position of top importance within the fleet, the ability of battleships, cruisers, and destroyers to support ground operations ensured their relevance well into the future.

Naval gunfire continued to shape future conflicts. It was utilized in the amphibious invasion of Inchon in OPERATION CHROMITE for pre-assault bombardment. In Vietnam, discussion of reactivating the *Iowa* class battleships was prompted by requests from the fleet for their capabilities. However, the time needed to reactivate the battleships prompted other assets from within the fleet to be used.[28] Although effective, the use of naval gunfire in direct support of troops was disappearing due to the advancement of Close Air and attack helicopter support. The situation reversed itself once again in the Falkland Islands.

With the invasion of the Falkland Islands by Argentina in 1982, the British government had to deal with a military dilemma. It needed to respond to this act of aggression to maintain its status as a power. However, the overseas distance between Great Britain and the Falklands prevented the use of airpower other than that from its two aging aircraft carriers.[29] Once again, naval gunfire provided needed fire support for ground operations. The official British account of lessons learned states that "the infantry would not have been able to carry their objectives without the support they received from artillery and Naval bombardment."[30] Naval gunfire was used on numerous occasions to either augment existing firepower or make up for a lack of it. This was caused by numerous factors including a lack of lift assets to position artillery and mortars,

---

II," *Proceedings* 80 (September 1954): 1016.

[28] William H. Garzke, Jr. and Robert O. Dulin, Jr, *Battleships: United States Battleships, 1935-1992,* (rev. ed. Annapolis: Naval Institute Press, 1995), 212.

[29] Sir John Woodward and Patrick Robinson, *One Hundred Days* (Annapolis: Naval Institute Press, 1992), 71-72. To compound this, the carriers were on the verge of being de-commissioned and sold.

[30] Report of The Secretary of State for Defence: *The Falklands Campaign: The Lessons.* London: Her Majesty's Stationary Office, (1983), 17.

inclement weather which grounded air support, and lack of air superiority which caused British pilots to have other priorities when they were in the air.[31]

There was such a need for this asset that Rear Admiral Woodward, Commander of the Falklands Task Force, allocated one frigate in support of each engaged infantry battalion. This was in spite of the danger these ships were placed in by being in range of Argentine aircraft. Massive coordination was conducted to mitigate this danger by bringing ships into position from out of Argentine aircraft range only to directly support operations.[32] Even so, support was at times waning due to the scant number of guns available on each ship.

The attack on Goose Green was complicated by inadequate support from naval gunfire caused by a malfunction in the one 4.5 inch turret of the HMS *Arrow*, which had been assigned to support the attack. This resulted in artillery and mortar ammunition being used at a much greater rate to make up for the lack of naval gunfire support. Because of this, available artillery and mortar ammunition was depleted much quicker than expected. As a result, much of the final attack was completed with little to no fire support available due to lack of ammunition. Sadly, this lack of support was paid in infantrymen's lives, to include the battalion commander leading the attack.[33]

The lack of quantity of guns was somewhat compensated for by the effectiveness enabled by modern technology. The accuracy and timeliness of the support caused by the addition of modern fire control systems on ships increased the accuracy of rounds. In addition, the training and expertise of the British observers in requesting and adjusting this asset made sure every round was well spent. [34]

---

[31] Bruce W. Watson and Peter M. Dunn, ed. *Military Lessons of the Falkland Islands War: Views from the United States.* (Boulder: Westview Press, 1984), 70.
[32] Robert H. Scales, Jr., *Firepower in Limited War* (Washington D.C.: National Defense University Press, 1990) 218.
[33] Ibid, 199.
[34] Ibid, 208-212. Much like the ANGLICO units in the US Army, the observers from 148 Battery, 29th Commando were about three months from being deactivated due to a perceived lack of need by the Ministry of Defense. They were then given the call to go to the Falklands.

Overall, after action reports state that about 8000 rounds of naval gunfire were fired in support of ground operations in the Falklands.[35] This is compared to just over 17,000 rounds being fired by organic artillery during the operation. Naval gunfire support in the Falklands proved to be critical in the completion of the operation. One of the outcomes of this was a resurgence in thought by the United States on the need to use this available firepower in future conflicts.

The performance and limitations exhibited by British fire support vessels in the Falklands played a role in the effort to reactivate the US Navy's *Iowa* Class Battleships. The need for a well-armored naval fire support ship with multiple gun mounts was seen as a valuable capability to possess.[36] After many years in the reserve fleet, the four *Iowa* class battleships were put into reactivation status in September 1982. Their nine sixteen inch guns each gave the US a potent source of naval fire support, which was first called upon in Lebanon in September of 1983.[37]

During Operation Desert Storm, the *Iowa* class continued to prove itself, with the *Wisconsin* and the *Missouri* supporting operations from the Persian Gulf. The *Wisconsin* and *Missouri* were the only ships capable of supporting an amphibious assault with naval gunfire. They played a large role in tying down Iraqi forces to defend against such a possibility.[38] During the war, these two ships fired mainly at operational and strategic targets with Tomahawk missiles. They did record instances of destroying tactical targets with their sixteen inch guns using unmanned aerial vehicles as spotters. These targets were fired in support of Marine and US Army units advancing north to Kuwait City.[39]

---

[35] Bruce W. Watson and Peter M. Dunn, ed. *Military Lessons of the Falkland Islands War: Views from the United States.* (Boulder: Westview Press, 1984), 168.
[36] William H. Garzke, Jr. and Robert O. Dulin,Jr, *Battleships: United States Battleships, 1935-1992,* (rev. ed. Annapolis: Naval Institute Press, 1995), 214.
[37] Ibid, 234. Shore batteries had been firing on thinly skinned US destroyers and US aircraft had been downed by Syrian anti-aircraft guns. The well protected *New Jersey* was brought in to silence the opposing guns.
[38] Norman Friedman, *Desert Victory,* (Annapolis: Naval Institute Press, 1992), 208, 410-411. Other ships did not have adequate range with conventional munitions to effect shore defenses.
[39] William H. Garzke, Jr. and Robert O. Dulin,Jr, *Battleships: United States Battleships, 1935-1992,* (rev. ed. Annapolis: Naval Institute Press, 1995), 243.

Following Operation Desert Storm, the *Iowa* Class battleships were again deactivated. This has resulted in the five inch guns capable of land attack missions remaining on three separate classes of ships. These classes are the Ticonderoga class cruiser (CG47), the Arleigh Burke class destroyers (DDG51), and the Spruance class destroyers (DD963). These three classes currently constitute the only systems able to provide naval gunfire support to ground forces.[40] This has raised concerns in the Marine Corps over the adequacy of tactical naval fire support available to support their amphibious doctrine. Based on these concerns, the Navy, with Marine Corps support, is pursuing several initiatives to increase the naval fire support capabilities of its fleet. These initiatives will significantly increase the capability of naval fire support, and are addressed in Chapter Three of this monograph.

The Army must also be able to utilize these future systems. This must now be done without ANGLICO expertise. To understand the abilities that ANGLICO provided, a review of their history and development is warranted.

ANGLICO

The origins of ANGLICO can be traced back to the original Shore Fire Control Parties which were established in World War II to control naval gunfire during amphibious assaults.[41] These original organizations were a rather ad hoc group of naval personnel tasked with going ashore with assaulting forces to coordinate and control naval gunfire.

In 1941 a Joint Army, Marine Corps, and Navy organization was formed as the Amphibious Corps, Atlantic Fleet under the command of Marine Major General Holland M. Smith. This organization established training programs at Quantico, Parris Island, and Fort Bragg with the

---

[40] US Navy, Land Attack Warfare Department, *Concept of Operations for Surface Combatant Land Attack Warfare 2005-2015,* (Draft) 10 May, 2001, internet, http://www.usnfsa.com/articles/navy/index.htm, last accessed 22 March, 2002.

[41] Jeter A. Isely and Philip A. Crowl, *The U.S. Marines and Amphibious War: Its Theory, and its Practice in the Pacific* (Princeton: Princeton University Press, 1951), 69.

explicit intent of training personnel from all three services in the duties of Naval Gunfire Officers in charge of shore fire control parties. During this training, and concurrent landing exercises, it was determined that the Naval Gunfire Officer should be assigned to the assault force instead of the ship to allow him to concentrate on his duties of leading and training the shore fire control party.[42]

The year 1942 concluded with Bloodsworth Island in Chesapeake Bay being purchased for the sole intent of training Naval Gunfire Officers in the art of controlling and coordinating fire during amphibious assaults.[43] On the west coast, improvements were also being made in the ability to train naval gunfire officers and their crews. In September of 1943 naval gunfire ranges were established in the Hawaiian Islands under the direction of the Fifth Amphibious Corps.[44] Methods of calling and adjusting naval gunfire were now being trained in both theatres of war.

In October 1943, in order to further coordinate the supporting arms needed in an amphibious assault, the Joint Chiefs of Staff activated the 1st Joint Assault Signal Company (JASCO). at Camp Pendleton California.[45] The activation of this unit was an attempt to place the Shore Fire Control Section, the Air Liaison Section and the Shore Party Communications Section in a single package. During the remainder of World War II, JASCO, or ASCO as it was known in the Marine Corps, continued to significantly contribute to Army and Marine Corps operations by coordinating and controlling all naval gunfire and air support, as well as coordinating the activities of all shore party communications.

Following World War II, the JASCOs were deactivated and a very similar organization under the new name of ANGLICO was activated in1947. These companies were distributed one per Marine division with one being held directly under Fleet Marine Force Headquarters to attach

---

[42] Ibid, 70.
[43] Ibid, 67-71.
[44] Ibid, 219.
[45] ANGLICO Association website, internet, http://www.anglicoassociation.org, last accessed 23 Jan, 2002.

directly to Army or allied divisions as needed for amphibious operations.[46] This organization served the Marine Corps and the Army throughout the Cold War with the following changes in designation and organization. In 1951, the ANGLICO under Fleet Marine Force was redesignated the 2d ANGLICO and came under the control of the 2d Marine Division. In 1962, the 3rd and 4th ANGLICOs were activated as part of the Marine Corps Reserve.[47] ANGLICO units continued to support operations and training through the Vietnam War where ANGLICO units served from 1965 to 1973.

In September of 1983 elements of 2d ANGLICO were alerted and deployed with the 82d Airborne Division as part of Operation URGENT FURY. This deployment exposed several shortcomings in joint training of ANGLICO and Army units. This caused the Army to rely on AC-130 fires rather than naval gunfire.[48]

The Joint Readiness Training Center was established in 1986. Here, coordination and integration issues were refined during regular training between ANGLICO and the Army's Airborne, Air Assault, and Light Infantry brigades. In 1998, the 1st and 2d ANGLICOs were deactivated as part of a restructuring based on the Quadrennial Defense Review. In their place, a much smaller Marine Liaison Group (MLG) was activated.[49] The mission of this new organization is to provide linguistic, cultural, and military support to commanders dealing with foreign militaries and governmental agencies. They no longer retain any mission, nor do they have the qualified personnel, to support Army units with any type of fire support control.

Currently, the 3rd and 4th ANGLICO are scheduled to transition to the MLG structure and mission. When complete, the Army will no longer have access to trained experts on the use of

---

[46] Ibid.
[47] Ibid.
[48] Jay F Grandin, "After Grenada: Joint Operations in the 82d Airborne Division," *Field Artillery*, February 1988, 45. The ANGLICO team was late arriving, missing crucial pre-deployment planning, and deployed without the necessary communications security data to communicate with other naval elements. A workaround was established, however the CJTF in command had lost enough confidence in the system to restrict the use of naval fires without his approval. See also Scott R. McMichael, "Urgent Fury: Looking Back and Looking Forward," *Field Artillery*, March-April 1985, 10-12.
[49] Richard I. Neal, "Fires for Lean, Mean, Maneuverable Marines," interview by Patricia Slayden Hollis,

naval gunfire for amphibious and littoral operations. US Army fire support teams organic to each division are to provide this expertise. To determine the capabilities of Army fire support teams to accomplish this, an understanding of their background is necessary.

US Army Fire Support Teams

The need for forward observation for indirect fire on the battlefield did not appear until the Russo-Japanese War of 1904-1905. At the Battle of Sha-ho in September of 1904, Japanese gunners surprised their Russian adversaries by positioning their batteries on the reverse side of slopes and firing their guns indirectly at targets which they could not visually see from the gun positions.[50] This tactic revolutionized the use of artillery, as a battery which could not be seen by the enemy also could not be counter-fired upon. This technique was noted by observers from Europe and America and soon caused a revolution in artillery pieces and how they were used. By 1905 the War Department had standardized the use of indirect fire for the US Field Artillery.[51]

By firing at targets which they could not see, gunners of the early 1900s needed assistance to make adjustments to their rounds for accuracy in hitting their targets. The forward observer was given this role and became an integral member of the gunnery team.[52] A German Colonel by the name of Georg Bruchmuller refined the duties of the forward observer in World War One. He insisted on forward observers and artillery commanders coordinating with the infantrymen they were supporting to ensure fires were well-integrated and coordinated with their movement.[53]

In the interwar years, the role of the forward observer changed little. Improvements in communications brought about the use of wireless radio to communicate. A revolution in fire

---

Field Artillery March-April 1998, 3.
[50] Boyd L. Dastrup, *King of Battle: A Branch History of the U.S. Army's Field Artillery* (Fort Monroe: TRADOC Branch History Series, 1992), 148.
[51] Ibid,149.
[52] Ibid,150.
[53] David T. Zabecki, *Steel Wind: Colonel Georg Bruchmuller and the Birth of the Modern Artillery,* (Westport: Praeger Publishers, 1994) 45.

direction procedures brought about the ability to mass timely fires from decentralized batteries. This resulted in the forward observer sending his calls for fire back to a battalion fire direction center rather than a battery.[54] In World War II forward observers were, for the first time, attached to maneuver units, which served to create a more responsive combined arms team.[55]

Through the year 1977, forward observers observed for a specific indirect fire system. Mortar observers worked with mortars and field artillery observers worked with field artillery. There was little organization or coordination between them. As artillery ranges increased, and other means to provide supporting fires developed such as CAS and attack helicopters, a reorganization of the forward observer system was needed.

In 1975, Fort Sill organized a Close Support Study Group to determine what changes could be made to "optimize observed fire support for maneuver forces".[56] One of the conclusions this study reached was that forward observer teams needed reorganization.[57] The observers needed to be organized as a single team using all indirect assets to support a maneuver unit. In doing this, the team, led by a Fire Support Team Chief (FIST), would be responsible for all fire support requested by their supported maneuver unit. This would improve overall coordination and control of all assets available to the unit. It also meant that members of the team must be trained to call for and adjust all types of fire support available to them.

The FIST concept was approved by the Army in 1977.[58] With minor modifications being made in name and organization in the early 1980s, this concept has served the Army through present day. While fire support team organization varies between heavy and light divisions, their

---

[54] Boyd L. Dastrup, *King of Battle: A Branch History of the U.S. Army's Field Artillery* (Fort Monroe: TRADOC Branch History Series, 1992), 197. A battalion fire direction center allowed the artillery to mass in a timely and efficient manner by creating a clearinghouse which could prioritize missions and assign firing units based on target description and commander's intent.
[55] Ibid, 220.
[56] Paul F. Pearson, "FIST!", *Field Artillery Journal*, (May-June 1976), 7.
[57] Ibid.
[58] Boyd L. Dastrup, *King of Battle: A Branch History of the U.S. Army's Field Artillery* (Fort Monroe: TRADOC Branch History Series, 1992), 295-296.

mission remains to coordinate and integrate all supporting arms fires into the maneuver commander's plan.

CHAPTER THREE

Naval Surface Fire Support Present and Future

Naval surface fire support to the Army is currently limited to the *Ticonderoga* class of cruisers and the *Spruance* class destroyers with 2 guns each, and the *Arleigh Burke* class destroyer with 1 gun each.[59] These guns can operate fully independently, servicing two separate targets simultaneously at a range of twenty-three kilometers. Each gun has a maximum rate of fire of sixteen rounds per minute.[60]

With the current number of the aforementioned ships in the inventory, the Navy does not have adequate naval fire support capability to meet the current demands of the Marine Corps and the Army. To remedy this situation, the Navy has developed a comprehensive improvement and modernization plan for its surface fire support fleet.[61] This plan gives the Navy the capability it needs to support future Marine Corps and Army operations. It must be reviewed and understood to fully examine the Army's ability to get support from future naval fire support ships.

Following the end of the Cold War, the Navy realized that with the demise of the Soviet Navy, it no longer had a peer threat in blue water naval operations. Because of this, the Navy started re-looking the way it operated and turned its attention to littoral operations where a less-than-peer competitor could challenge its capabilities. This process resulted in new Navy doctrinal

---

[59] US Army Field Artillery School Captain's Career Course website, internet, http://sill-www.army.mil-/FACCC/SOURCE14/FACAPTAINSCAREERCOURSE/JointApplication/JC-NSFS/, last accessed 22 March, 2002. These guns are classified as the 5"/54 Mark 45. This equates to the caliber and length of the gun. Thus, these ships have a five inch diameter gun with a 54 caliber or 22.5 foot barrel ((5x54)/12). The Mark 45 is the gun mount, which is fully automated.

[60] Ibid.

[61] United States General Accounting Office, *Report on the Evaluation of the Navy's 1999 Naval surface Fire Support Assessment, September 1999*, GAO/NSIAD-99-225 Defense Acquisitions.

papers in 1992 called *From the Sea*, and later in 1994 a revised version called *Forward…From the Sea.*

In response to the Navy's adoption of *From the Sea* and *Forward…From the Sea* as their operational doctrine, the Marine Corps, under General Charles Krulak, also refined how it conducts future amphibious operations. This resulted in the Marine Corps doctrine of Operational Maneuver From The Sea.[62] Operational Maneuver from the Sea (OMFTS) espouses the use of the sea as an operational maneuver area to allow force to be applied against enemy weaknesses or vulnerabilities instead of strengths thereby using surprise and shock to defeat an enemy's ability and will to continue the struggle.

To enable the OMFTS doctrine, the Marine Corps is developing a Surface To Objective Maneuver capability which enables a force to attack an objective from "over the horizon" to exploit the principle of surprise as well as protect the fleet from shore fires. These attacks have the capability to be launched against targets well inland using vertical envelopment techniques. No longer will forces be used to assault a beach and gain a foothold for follow on forces as was the practice with past amphibious operations. The distance this creates from ship to objective negates the ability to support operations with current naval gunfire platforms.[63] Therefore, the Navy, under the guidance of the Surface Warfare Division has designated Land Attack as a Warfare Mission Area for the Navy. To support this, it is currently developing a wide array of equipment and methods to provide extended range support in the future. In doing this, the Navy is developing a system of ships capable of long range fire support which the Army must utilize in future Joint contingency operations.

The Navy's plan consists of two phases. The first phase consists of augmenting and reengineering current systems to take advantage of existing technology. These systems will be

---

[62] Charles C. Krulak,"Operational Maneuver From the Sea," *Joint Forces Quarterly*, Spring 1999, 78-86. Gen Krulak gives his personal description of OMFTS.

[63] United States General Accounting Office, *Report on the Evaluation of the Navy's 1999 Naval surface Fire Support Assessment, September 1999,* GAO/NSIAD-99-225 Defense Acquisitions.

retrofitted to many of today's current class of ships. The second phase is a completely new set of weapons designed around the futuristic DD-X, a planned replacement for the *Spruance* and *Arleigh Burke* class destroyers.[64]

The first initiative the Navy is developing is the Extended Range Guided Munition (ERGM). This rocket assisted munition is a five inch projectile fired from a recently developed 5"/62 gun which is already being retrofitted to the Navy's cruisers and destroyers. The munition is GPS guided, carries 72 Dual Purpose Improved Conventional (DPICM) munitions, and has a maximum range of 63 nautical miles, compared to 13 nautical miles for a standard five inch round. This munition is currently being tested and has an Initial Operating Capability of 2004.[65]

A second development in the first phase is the Tactical Tomahawk and Land-Attack Standard Missile (LASM). These systems are precision strike missiles which are guided by GPS to targets at a range of up to 150 nautical miles. They can be utilized in tactical engagements, but are more likely reserved for operational level fires due to their cost. These systems are also currently being tested and have an Initial Operating Capability of 2003.[66]

The second phase of the Navy's upgrade revolves around a land attack destroyer, the DD-X, formerly known as DD-21. This futuristic ship will employ stealth technology combined with advanced mine warning and sensing systems to enable it to operate safely in the littorals. Its advanced systems will allow it to operate with a crew of about ninety-five sailors. It will be equipped with two firing systems which are being developed concurrently.[67]

The DD-X will employ two Advanced Gun System(AGS) mounts which will each house a 155mm cannon with a magazine capacity of 750 rounds. This system is designed to fire twelve GPS guided 155mm ERGM rounds per minute to a maximum range of 100 nautical miles. These

---

[64] James E. Wise,"Fire Mission!: Naval Surface Fire Support in the 21st Century," *Surface Warfare* 25 (May/June 2000): 6.
[65] Ibid.
[66] Ibid.
[67] Brian G. Schires, "Land Attack Warfare: A View From a Fresh Set of Eyes," *Surface Warfare* 25 (May/June 2000): 10-14.

rounds will possess all the capabilities of the current family of 155mm munitions the Army possesses, therefore maximizing their employment at the tactical level.[68]

The Navy also is pursuing several armament initiatives to address legitimate concerns about responsiveness in its future systems. Concerns developed over their ability to provide responsive fire support based on the long time of flight required to support operations at distances of sixty-three nautical miles or greater. Using advanced technologies, the navy is pursuing an Advanced Technology Demonstration known as Best Buy. This five inch round carries 130 submunitions to a range of sixty nautical miles in three minutes and 100 nautical miles in eight minutes. The Navy is also involved in a research and development program known as Barrage Round. This GPS guided round delivers 7000 seven-grain steel flechettes to a predicted range of fifty nautical miles in three minutes at a rate of twenty rounds per minute.[69]

These initiatives will give the Navy a credible, potent, and responsive fire support capability with which it can provide tremendous capability to army forces in forced or early entry operations. As these initiatives mature and are fielded, the Army must be prepared to operate jointly in order to effectively mass effects from all available indirect systems.

---

[68] Ibid, 12.

[69] US Navy, Land Attack Warfare Department, *Concept of Operations for Surface Combatant Land Attack Warfare 2005-2015,* (Draft) 10 May, 2001, internet, http://www.usnfsa.com/articles/navy/index.htm, last accessed 22 March, 2002.

CHAPTER FOUR

Training

The Foundation

Soldiers and Marines training to become fire supporters all begin their training at Fort Sill, Oklahoma, the home of the US Army Field Artillery. This training concentrates on controlling fires from mortars and field artillery. Instruction is currently inadequate to give any more than a cursory knowledge of naval fire support.

Fire support training begins with Advanced Individual Training for soldiers holding the 13F MOS, and the Officer Basic Course for newly commissioned Field Artillery lieutenants. 13F soldiers receive two other schooling opportunities specific to their MOS as they progress through the ranks. These are the Basic Non-commissioned Officer's Course (BNCOC) and the Advanced Non-commissioned Officer's Course (ANCOC).

BNCOC is a three week course which NCOs usually attend after they have reached the grade of E-5. It is a resident course taught at Fort Sill, Oklahoma throughout the year. The scope of the course is a refresher and enhancement of the fire support skills initially learned during Advanced Individual Training. During this course, ten hours is allocated for the combined training of naval gunfire support and close air support. This training is conducted in the classroom with no live fire involved.[70]

ANCOC is a six week resident course taught at Fort Sill, Oklahoma. It is attended by board-selected individuals who have demonstrated the potential to continue on in service at grades of higher responsibility. Once again, this course is designed to enhance those fire support skills that have previously been encountered in schools and field environments. This course

[70] US Army Field Artillery School Non-commissioned Officer's Academy website, internet, http://sill-www.army.mil/usancoa, last accessed 23 March, 2002.

currently allocates three hours of classroom time to naval gunfire procedures. No field time or live fire time is allocated for naval gunfire.[71]

The Officer Basic Course is a six month resident course at Fort Sill for all newly commissioned field artillery officers.[72] During OBC, officers are exposed to all elements of the field artillery and fire support communities. Emphasis is placed on the two positions which most lieutenants will first serve, that is fire direction and fire support officers at the battery and company level. During the training received in preparation for fire support officer duties, an hour long overview of naval gunfire is the only exposure to naval gunfire they receive. This overview consists of basic capability, limitation, and characteristic data. No live fire or practical exercise includes the use of naval surface fire support.[73]

The Captain's Career Course, formerly the Officer Advance Course, is a career progression course which field artillery officers attend as senior first lieutenants or junior captains in preparation for a tour as a battery commander. This course further enhances gunnery and fire support lessons learned during OBC while preparing these officers for duty as battalion staff officers and battery level commanders. Naval gunfire employment and techniques also receives very little attention in this course. The main formal training given on this subject is a six hour block of instruction on the capabilities and characteristics of naval surface fire support.[74] The instruction concludes with a classroom practical exercise. In addition, naval surface fire support is included in Janus based practical exercises during the course.

The instruction given during both the Officer Basic Course and the Captain's Career Course utilizes both large group instruction and the small group technique of instruction, which breaks the class down into groups of no more than twenty. The instruction is led, or at least

---

[71] Ibid.
[72] The Army officers attend this course directly out of their commissioning source. Marine Corps officers come to Fort Sill following their post commissioning introductory course known as The Basic School.
[73] CPT Elvis Coronado, FAOBC Instructor, interview by author, 14 March, 2002.
[74] MAJ John Watson, FACCC Instructor, interview by author, 14 March, 2002.

monitored, by a field grade officer. This gives the perfect opportunity to utilize the Marine Corps Detachment, which is stationed at Fort Sill, for instructional purposes on the use of naval gunfire. This opportunity has been formalized to take advantage of the expertise resident within the Marine Corps faculty.[75]

Certain schools were required as standard training for all ANGLICO personnel above what was given to their Army counterparts. They consisted of Basic Airborne, the Tactical Air Control Party Course, the Naval Gunfire Liaison Officer's Course, the Naval Gunfire Spotter's Course, the Amphibious Reconnaissance Course, and the Mountain Leader Course.[76] Attendance at the Naval Gunfire Liaison Officer's Course and the Naval Gunfire Spotter's Course gave ANGLICO personnel a definite edge on their Army fire support counterparts in knowledge of naval gunfire. While these courses are open to Army personnel as career progression courses, they are not mandatory and are underutilized.

Career Enhancement Training

The Marine Corps currently operates two training facilities for training personnel on all aspects of Amphibious Warfare. The Expeditionary Warfare Training Group (EWTG) Atlantic operates their Naval Expeditionary Warfare Training Department out of Little Creek, Virginia. The Expeditionary Warfare Training Group Pacific operates their Naval Expeditionary Warfare Training Department out of Coronado, California.[77] These departments each have a Supporting Arms Division which operate several courses designed to enhance general knowledge of all fire

---

[75] Ibid.

[76] Zachary P. Hubbard, "The ANGLICO Edge," *Field Artillery*, April 1990, 23. ANGLICO personnel had career enhancement opportunities available to them to assist in developing their skills and versatility. These schools were all US Army run schools, and consisted of the Jumpmaster Course, the Pathfinder Course, Ranger School, and the Military Free Fall Parachutist Course.[76] All of these courses are geared towards methods of entry or operations that ANGLICO personnel might have needed if attached to certain types of Army units. Except for the Special Operations run Free Fall course, they are available to Army fire support personnel. None of these courses provide any form of advanced techniques in controlling naval surface fires.

[77] US Navy Expeditionary Warfare Training Group-Pacific website, internet, http://www.ewtgpac.navy.mil/internet/catalog/chap2.htm, last accessed 23 Jan, 2002.

support procedures. The EWTG-Pacific currently operates three courses specifically designed to train personnel on different aspects of utilizing naval gunfire. All three courses are open to Army personnel who meet specific rank criteria. Army fire supporters currently do not utilize any of these courses with any regularity.[78]

The Fire Support Man course is a twelve day resident or MTT course which serves as an immediate follow on for Marine enlisted forward observers with MOS 0861 trained at Fort Sill, Oklahoma. Its purpose is to prepare these individuals for duty as a naval gunfire spotter in a shore fire control party. Actual live fire exercises are utilized for training depending on ship availability. The class is offered six times throughout the year in residence with a maximum class size of thirty personnel. Marines coming from Advanced Individual Training at Fort Sill have priority over all other students. Additional MTT classes can be scheduled based on instructor availability.[79] This course is an excellent opportunity for junior fire supporters to gain solid knowledge of naval surface fire.

The Naval Gunfire Liaison Officer Course is a thirty-five day resident course designed to train officers and NCOs for duty as Naval Gunfire Liaison Officers in Marine Corps Divisions. This is an advanced course requiring students to demonstrate proficiency in fire support techniques prior to enrollment. The course utilizes classroom and field training to teach naval gunfire spotting techniques as well as naval gunfire planning for amphibious operations. Live fires are conducted on San Clemente Island when naval vessels are available to support them. If naval gunfire ships are unavailable, the school will use field artillery weapons to simulate naval gunfire, although this is not preferred. This class is offered twice during a fiscal year, and has a maximum capacity of twenty students per class. It is open to all Army officers and NCOs above the rank of Sergeant who require knowledge of naval gunfire procedures in the performance of

---

[78] Lieutenant David Williams, NSFS course scheduler, interview with author, 28 March, 2002.
[79] US Navy Expeditionary Warfare Training Group-Pacific website, internet, http://www.ewtgpac.navy.mil/internet/catalog/chap2.htm, last accessed 23 Jan, 2002.

their MOS duties.[80] This course should be utilized by mid-grade fire supporters to increase their base knowledge of naval fire support.

The Small Unit Leaders Supporting Arms Orientation course is a five-day course taught both in residence at Naval Base Coronado or via MTT at home station. This is an orientation course designed for company and below sized leaders requiring knowledge in the control and coordination of all supporting arms firepower to include mortars, artillery, naval gunfire, and close air support. It utilizes classroom instruction with the ability to conduct live fires as assets are available. Each class has a maximum capacity of thirty personnel.[81] This class should be utilized by junior enlisted fire supporters to refresh their knowledge of all fire support systems.

The live fire range on San Clemente Island is currently the only range suitable for naval gunfire training on the west coast of the United States. Vieques Island, Puerto Rico is the dedicated naval gunfire live fire range for the east coast of the United States.[82] The environmental and political situations that confront both east and west coast training areas for naval gunfire support restrict their use for any live fire training using naval guns. In the future, both the Army and Marine Corps must look for alternative ways to train on the use of this asset.

One of the most promising training methods for fire supporters is the use of simulations. Until recently, the Army fire support community used an antiquated system known as the Training Set, Fire Observation (TSFO). This system had been utilized for training fire supporters in both school and tactical commands. In addition, many maneuver units took advantage of the TSFO at their home stations to train their soldiers on call for fire procedures. This system not only replicated artillery and mortar calls for fire, but also naval gunfire. It therefore provided an

---

[80] Ibid.
[81] Ibid.
[82] William J. Fallon, *Statement to Congress, Committee on Government Reform on Constraints on Military Training*, 9 May, 2001, internet, http://www.chinfo.navy.mil/navpalib/testimony/readiness/fall10509.text , p. 4-7, last accessed 8 Nov, 2001. Although San Clemente is wholly owned by the US Navy, the presence of the Loggerhead Shrike, a bird listed as endangered under the Endangered Species Act, has caused training to be restricted both in space and time. Recent political developments between the government of Puerto Rico and the government of the United States have caused the US Navy to suspend all operations on Vieques indefinitely.

inexpensive, convenient method of training available to all fire supporters. This system is in the process of being replaced by the Guard Unit Armory Device, Full Crew Interactive Simulation Trainer (GUARDFIST II). GUARDFIST II has the same capabilities, to include naval gunfire support replication, as TSFO, with more advanced software and hardware. GUARDFIST II had a First Unit Equipped date of December 2001. It also is a component of another system on the horizon known as the Fire Support Combined Arms Tactical Trainer (FSCATT).

FSCATT is being developed as a system of systems. When fully fielded, this completely computerized system will consist of GUARDFIST II, a Fire Direction Crew Trainer, and a M109A5/A6 Howitzer Crew Trainer. The GUARDFIST II component will retain the ability to replicate the procedures and effects of naval fires.[83] This system will enable a division artillery to train its fire supporters on the basics of calling for and controlling all fires.

Field Opportunities

Field opportunities to train naval gunfire control procedures are virtually non-existent. Most units are not geographically positioned to take advantage of the few opportunities there are to participate in actual live fires at San Clemente or Vieques. Further, increased use of attack aviation has caused a lack of emphasis on naval gunfire training that places it well down the priority list of assets to be trained with. It is simply much more cost and time effective to train fire supporters at home station on systems they are assured of using in future operations than to send them TDY at the unit's expense to train with a system that may only be used in littoral areas.

Army units that have the highest probability of using naval gunfire assets are units with forced entry or early entry capabilities. These consist of Special Forces Groups, the 75th Ranger Regiment, the 82nd Airborne Division, the 101st Airborne Division (Air Assault), the 10th Mountain Division (Light Infantry), the 25th Division (Light Infantry), the 172nd Separate Infantry Brigade, and the 173rd Separate Airborne Brigade. Of these units, the first three have the highest

[83] FSCATT Ph II Operational Requirements Document, internet,

probability of using naval fire support. All three have trained in the past with naval gunfire platforms in live fire exercises.[84] Although the first two are Special Operations units which are allowed greater access and higher priority to train with joint assets such as naval surface fire platforms, the 82nd Airborne Division does not get this luxury. They do have the benefit over the rest of the conventional units mentioned of having a true forced entry capability warranting the use of naval fire support, and of being geographically located in proximity to Camp LeJeune Marine Base. This affords them the opportunity to foster a cooperative working relationship with Marine fire supporters and take advantage of "piggyback" training opportunities with the Navy/Marine Corps team. They also have the benefit of the Marine Corps and Army Fire Support Officer exchange program.[85]

Of the conventional forces listed above, the 82nd Airborne Division and the 101st Airborne Division (Air Assault) historically had more training opportunities with ANGLICO. The 82nd has taken advantage of their proximity to Camp Lejeune in the past to schedule training opportunities with naval surface fire support assets. These assets are included, at least notionally, in many training exercises. Naval gunfire control is also included as part of the division fire support certification program.[86]

Even though live fire opportunities may be limited, all of these units get the opportunity to train with replicated naval gunfire several times a year at several of the Army's Combat Training Centers (CTC). Premiere among the CTCs in this area is the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana. The JRTC currently conducts eight rotations per year for

---

http://www.stricom.army.mil/PRODUCTS/GUARDFISTII/fscatt.html, last accessed 28 March, 2002.

[84] Zachary P. Hubbard, "The ANGLICO Edge," *Field Artillery*, April 1990, 22.

[85] This program places a branch qualified Army Field Artillery Major in the Fire Support Coordination Center of II Marine Expeditionary Force in exchange for a Marine Field Artilleryman who is assigned to the XVIII Airborne Corps Fire Support Element, which is collocated at Fort Bragg with the 82nd and serves as their higher headquarters.

[86] CPT Elvis Coronado, former 82nd Abn company FSO, interview with author, 14 March, 2002.

brigade sized units from the Army's Light and Special Operations forces which includes all of the previously mentioned divisional units.[87]

While ANGLICO units were still active, a detachment would accompany the player brigade on most rotations, with priority going to the 75th Ranger Regiment, the 82d, and the 101st. This enabled the unit to utilize this asset and develop TTPs on better integrating it into its maneuver plan using the inherent expertise provided by ANGLICO personnel. In many cases, especially for the standard light divisions, this was the only opportunity the unit's fire supporters received to actually train with ANGLICO and integrate them into the plan. When ANGLICO was deactivated, the player brigades still received their allocation of naval gunfire, but their expertise to plan it, their link to request it, and their expertise to control it were gone.[88]

Another major degradation in training as a result of the loss of ANGLICO was the loss of the augmentee observer/controllers (O/Cs) which the ANGLICO unit provided to give the JRTC permanent party O/Cs a foundation of expertise in naval gunfire utilization. Their absence during rotations, robbed the focus which they provided on the use of naval gunfire which further resulted in a lack of emphasis on including this asset in the overall fire support plan.[89]

---

[87] Author's experience. The author was assigned to JRTC from 1997-2000. Duties included the Fire Support Planner for all rotations from 1999-2000. Included was operating the naval gunfire cell with and without Marine ANGLICO assistance. These units typically spend twelve days fighting in a low to mid-intensity environment on a notional island in the Atlantic Ocean consisting of the host nation of Cortina, the aggressor nation of The People's Democratic Republic of Atlantica, and the neutral nation of Victoria. Because the land mass is an island, the units are habitually supported by two notional Spruance Class Destroyers. These are the *USS John Hancock* and the *USS Spruance*, each providing two 5"/54 gun mounts in support. These assets are controlled by replicated higher headquarters in the Exercise and Maneuver Control Center (EMCC) of JRTC. Typically they will be placed in a General Support role to the 21st Infantry Division which is the player unit's higher headquarters. The Fire Support Element of the 21st Infantry Division allocates each of its subordinate brigades a number of rounds of naval gunfire per twenty-four hour period. It is the player unit's responsibility to then correctly plan, request and control this asset.

[88] Ibid. This absence resulted in numerous attempted workaround solutions such as utilizing the attached Air Liaison Officer's (ALO) High Frequency (HF) radios to request fires through the ship cell in the EMCC. This gave the unit the connectivity needed, but prevented them from controlling Close Air Support (CAS) and naval gunfire simultaneously. As a last resort, units began requesting the fires via the unit's organic Very High Frequency (VHF) radios to the 21st Infantry Division who in turn relayed the request to the notional ship cell collocated with them. Although this method gave them access to the asset, the training did not at all replicate actual procedures which would be used in a real operation. All of these workarounds result in poor training in properly utilizing the asset and lack of timeliness in receiving the fires which results in lack of effectiveness and confidence in the asset.

[89] Ibid.

Because of the above, what once was a great opportunity for units to gain valuable experience in working with joint assets and personnel, has become minimal training using methods which probably will never be utilized in actual combat situations. A recent trends report from the observer controllers at JRTC states that fire supporters come into rotations untrained to plan, integrate , and utilize naval gunfire to support the maneuver commander's plan. Furthermore, many are not aware of the unique characteristics of controlling naval gunfire in close proximity to soldiers on the ground.[90] Thus although it still provides exposure to naval gunfire, the actual benefit received by Army fire supporters during rotations at JRTC in utilizing this asset is slight at best.

The Battle Command Training Program (BCTP) headquartered at Fort Leavenworth, Kansas provides another opportunity to utilize naval gunfire in training. BCTP is the Chief of Staff of the Army's program to provide intense command and control training opportunities for corps, division, and brigade level commanders and their battlestaffs.[91] The program is executed using computer simulations. It does not include troops maneuvering on the ground. It does not exercise Tactical Operation Centers (TOC) below brigade level. For this reason, the training achieved with this program is mainly centered on the planning and integration of this asset into the overall division and corps fire support plans. The requesting and control of these fires is not trained at any level during these exercises. Effects are achieved through the computer simulation and the player units can obtain Battle Damage Assessment (BDA) resulting from naval gunfire.

This program also uses many different scenarios based on specific desires of corps and division commanders. Because of this, the geographical location of the exercise scenario may not support use of naval gunfire assets. In these cases, naval gunfire is not included in the planning process and no training with this asset is realized. In scenarios such as the Prairie Warrior 2001

---

[90] US Army, Joint Readiness Training Center, Observations From JRTC Doctrine Review, 21-24 Feb, 2000, internet, http://155.219.39.98/doctrine/JRTCDocRev.doc, last accessed 8 Nov, 2001.
[91] US Army, Battle Command Training Program website, internet, http://www.BCTP.leavenworth.army.mil, last accessed 22 March, 2001.

exercise, which is the exercise that supported the Command and General Staff College class of 2001, naval surface fire support was fully integrated to support ground operations on the Philippine Islands.[92]

The National Training Center (NTC) is a heavy mechanized force training center located in the California desert surrounding Fort Irwin, California. This training center provides a high intensity maneuver scenario for mechanized and armored brigade sized task forces. Fire supporters involved in the training receive opportunities to plan and conduct artillery and mortar live fires. The scenario used at NTC does not support the use of naval gunfire support due to geographical location. For this reason, no training is afforded with this asset at NTC.[93]

The Combat Maneuver Training Center (CMTC) is a mechanized force training center based in Hohenfels Training Area in the Federal Republic of Germany. This training center offers scenarios for heavy mechanized and armored brigade and battalion task forces based in Europe. The scenario is designed around Central European and Balkans geography. Because of this, the scenarios used at CMTC do not support the use of naval gunfire assets. Therefore, no naval gunfire training is conducted at CMTC.[94]

In addition to standard CTC rotations, more joint exercises are being conducted both at CTCs and in training areas across the US and overseas. These exercises range from annual events such as Exercise Ulchi Focus Lens in Korea, to special one-time events such as the upcoming Exercise Millennium Challenge being held in the summer of 2002. These exercises are crucial in exercising command and control and coordination between headquarters operating in a joint environment. Joint Forces Command, headquartered in Norfolk, Virginia, has taken the lead for planning the majority of joint exercises now conducted. Most of these exercises are conducted at higher levels that preclude tactical training on utilizing naval surface fires. An

---

[92] The author's experience as a participant in three BCTP exercises to include Prairie Warrior 2001.
[93] US Army, National Training Center website, http://www.irwin.army.mil/OPSGRP/Default.htm, last accessed 22 March, 2002.
[94] MAJ Kevin Hudie, Former CMTC Fire Support O/C, interview by author, 14 MAR, 2002.

exception was the Joint Contingency Force Advanced Warfighting Experiment held in August of 2000 at JRTC.[95]

Self Study and Doctrinal Manuals

The 6-20 series of Army Field Manuals have been the Army's doctrinal source for fire support training for many years. This series is broken down by echelon and type organization supported. The content of each of these manuals is written for the type of operations that can be expected to be conducted and the level of expertise inherent to different echelons.

The fire support manuals that support battalion task force, brigade, and division operations all have small sections that give a general overview of naval surface fire and its characteristics. None of these manuals goes into the detail necessary to give adequate knowledge to control naval surface fires. Currently one manual, FM 6-30, *Observed Fire,* provides Army fire supporters with an in depth discussion of specific methods of control for naval surface fires. This discussion includes special missions, such as illumination and commands and reports specific to naval surface fires. This manual was last updated in 1991.

Marine Corps Fleet Marine Force Force Manual 6-8, *Supporting Arms Observer, Spotter, and Controller*, is a pocket-sized manual which also provides good detail in the techniques of controlling naval surface fires. This manual is a convenient, ready resource for all fire supporters. It was last updated in 1994.

Army Field Manual 90-20, *J-Fire, Multi-Service Procedures for the Joint Application of Firepower* is another pocket-sized manual which provides in clear and concise techniques for controlling all joint fires, to include naval surface fires. This manual was written in 1994. This manual, along with FM 6-30, and FMFM 6-8 can provide Army fire supporters with adequate self study material to become proficient in naval surface fire control procedures at a basic level.

---

[95] The Author helped plan this exercise while at JRTC. The 1/10th Mountain Division was exercised at the tactical level in the field. Simultaneously, integrated in the scenario was the Navy's Fleet Battle Experiment Hotel, the Air Force's Joint Expeditionary Force Experiment 00, and the Marine Corps'

CHAPTER FIVE

Organization

ANGLICO

The organization of ANGLICO was based more on an Army battalion structure than on a company structure. Tactically, it was broken down into separate liaison teams to provide expertise from the division to the company level of Army organizations. At the Division level, the ANGLICO commander, a Marine lieutenant colonel, led a staff composed of twenty-six personnel, which included a communications section, an air liaison section led by a Marine aviator, and a naval gunfire liaison section led by a Navy lieutenant commander. Their purpose was to coordinate all naval gunfire and naval/marine air support for the division as well as provide communications connectivity to coordination centers afloat or ashore depending on the operation. The ANGLICO commander provided liaison and expertise for all naval/marine assets to the division fire support coordinator.[96]

Subordinate to the division cell, there were three brigade teams to provide liaison to the maneuver brigade headquarters of the Army division. These cells consisted of two officers, one naval officer and one marine, and seven enlisted men. Their purpose was to assist the brigade fire support element in integrating naval gunfire and CAS into the brigade maneuver plan.[97]

Supporting Arms Liaison Teams (SALT) provided support to the maneuver battalion headquarters of a division. ANGLICO was only organized to provide two SALT cells to each brigade, consequently one maneuver battalion was left with no expertise. A SALT cell consisted of two officers, one Marine aviator, and one fire support coordinator course qualified captain, and

---

Millennium Dragon Experiment. Also see internet http://www.nwdc.navy.mil/Products/FBE.
[96] Zachary P. Hubbard, "The ANGLICO Edge," *Field Artillery,* April 1990, 24.
[97] Ibid.

six enlisted men. Once again, their purpose was to plan and integrate naval fires and CAS, under the direction of the battalion fire support officer, into the maneuver battalion commander's plan.[98]

Firepower Control Teams (FCT) were the lowest echelon of support provided by the ANGLICO. Two teams were attached to each SALT to provide interface at the maneuver company level. Once again one maneuver company was left uncovered due to lack of numbers. The FCT consisted of one Marine artillery lieutenant and five enlisted soldiers. The purpose of the FCT was to control all naval fires and CAS for the maneuver company commander.

With only two active ANGLICO units being in the force, support for Army division operations was minimal at best. This was compounded by the fact that a brigade team from ANGLICO was habitually supporting each Marine Expeditionary Unit (MEU) afloat to facilitate operations with allied nations. Assuming one MEU was afloat from each coast, this restricted the support available to Army divisions from each ANGLICO to two brigade teams instead of three.[99] This simply was not adequate to support all the training and operational mission requirements desired by the Army.

Army Fire Support Team

Army fire support teams in Airborne, Air Assault and Light divisions recently have been operating at under strength levels. This problem has been recognized as a major shortcoming in fire support to the maneuver forces training at the Joint Readiness Training Center at Fort Polk, Louisiana.[100] When operating at full strength under current modified tables of equipment, fire support teams at all levels have the manpower necessary to call for and coordinate fires from separate fire support systems.

At the maneuver brigade, battalion, and company level in airborne, air assault, and light divisions, fire support team structure is identical. At the brigade level, units are authorized two

---

[98] Ibid.
[99] Ibid.
[100] US Army, Joint Readiness Training Center, Observations From JRTC Doctrine Review, 21-24 Feb,

officers, one non-commissioned officer, and two enlisted men. At battalion level, units are authorized one officer, one non-commissioned officer, and two enlisted men. At company level, units are authorized one officer, four non-commissioned officers, and five enlisted men. This authorization allows coverage at the company headquarters level by one officer, one noncommissioned officer, and two enlisted men while one non-commissioned officer and one enlisted man support each platoon in the company.[101]

At 100 percent authorization, fire supporters currently have the capability to control two separate fire support systems simultaneously at the company and platoon level. This allows the ability to control both organic mortars and naval surface fires during forced or initial entry operations. This capability requires full manning. Fire support elements are unable to control and coordinate naval surface fires simultaneously with other indirect systems unless manned to 100 percent authorization.

CHAPTER SIX

Equipping

An army can be extremely well trained and organized to execute operations, but if they are not adequately equipped to perform those operations, they will fail. The Army has prided itself on being able to provide the best equipment available to its soldiers to enable them to defeat adversaries at the minimum cost to the unit in lives. Although this is the case, the separate services have not done an adequate job of procuring equipment that crosses over service lines and provides the joint interoperability that is now demanded to execute joint operations as increasingly envisioned in the future. The lack of interoperability in communications equipment is devastating when a unit needs joint fires at a critical time and place on the battlefield.

2000, internet, http://155.219.39.98/doctrine/JRTCDocRev.doc, last accessed 8 Nov, 2001.

[101] US Army, *TOE Handbook 06700L-CTH,* (Washington D.C.: Department of the Army, 20 Dec 1991) 166-168.

Following the deactivation of ANGLICO, US Army fire supporters find themselves in the disadvantaged position of not being able to communicate with naval ships. A lack of communications gear that is interoperable with naval ship's communications gear has effectively severed the necessary link to employ this asset. This results in workarounds that teach poor habits or an altogether ignoring of the asset because the doctrinal link is unavailable.

Doctrinally, the communications flow for naval surface fire support links the forward observer team both to their higher fire support element and directly to the ship. This is to provide immediate coordination and prioritization with higher headquarters when requesting naval surface fires, as well as direct control over the fires with the ship once they have been approved. To accomplish this, the forward observer must be equipped with compatible systems to talk with both the higher headquarters and the ship. In the past, the FCTs subordinate to ANGLICO provided the link to the ship, while the fire support element they were attached to had coordinated the fires through the higher headquarters. With the deactivation of ANGLICO, fire support elements must provide the connectivity to communicate with both agencies.

Ship to Shore Communications

Currently, naval fire support platforms rely exclusively on High Frequency (HF) communications to communicate with supported forces on the ground. This limits their ability to provide support to army forces conducting operations as they are not habitually equipped with HF communications systems. To ensure communications with army forces is available, the single channel ground and airborne radio system (SINCGARS) is in the process of being installed on all surface combatants equipped with the Naval Fire Control System (NFCS). NFCS is a digital communications system used to plan and coordinate naval fires. It is able to interface with AFATDS and is able to perform the same function as AFATDS for sea based fires.[102] When

[102] US Navy, Land Attack Warfare Department, *Concept of Operations for Surface Combatant Land Attack Warfare 2005-2015*, (Draft) 10 May, 2001, internet, http://www.usnfsa.com/articles/navy/index.htm, last accessed 22 March, 2002.

installation of SINCGARS is complete, an interim solution to the current communications gap between the army and the navy will be bridged.

Army Fire Support Communications

US Army fire supporters are currently utilizing various configurations of the SINCGARS family of radios. These systems are operated on very high frequency (VHF) bands. This makes them capable of communicating only with naval surface fire support vessels that have been equipped with the NFCS and SINCGARS communications systems. The Army does have HF radio systems in its inventory that are compatible with various joint fire support assets, however they are not fielded to conventional fire support teams as part of their standard modified table of equipment. The current digital communications system used by Army fire supporters is the Advanced Field Artillery Tactical Data System (AFATDS). This system allows digital control and coordination between naval fire support vessels equipped with NFCS and AFATDS equipped army fire support elements.

Future Communications Links

Future systems currently being developed will remedy the current gap which exists between Army fire supporters and joint fire support assets. Of these, the Joint Tactical Radio System (JTRS) seems to hold the most promise. JTRS will capitalize on technology to combine the features and capabilities of the single channel ground and airborne radio system, the enhanced position location reporting system, the near term digital radio, mobile subscriber equipment, and satellite communications into one system that will have various configurations to support all Battlefield Operating Systems and types of units.[103] Its wide range of capabilities in providing communications over a wide range of waveforms make it the ideal system for Army fire

[103] Steven T. Wall, "Joint Tactical Radio System: Volume, Distance, and Speed," *Field Artillery*, January-February 2000, 45.

supporters. It is currently being developed in man-pack, vehicular, air-based, and sea-based configurations. With this system, fire support teams will have the connectivity to coordinate fires from all joint platforms available to include naval surface fire support systems. The Raytheon Corporation, a major US defense contractor, is currently developing the system. It has a scheduled fielding date of 2005, starting with units from the 82nd Airborne Division at Fort Bragg, North Carolina.[104]

CHAPTER SEVEN

Conclusions and Recommendations

The adoption of the doctrine of Operational Maneuver From the Sea by the US Marine Corps has committed the US Navy to developing more advanced and effective systems for providing naval surface fires to support operations well inland from the littorals. The US Army must support the development of these systems and posture its fire support teams at the tactical level through proper training, organization, and equipment to utilize these systems effectively in future forced or early entry operations. These systems, if used effectively, will allow the army to utilize strained lift assets to insert more maneuver forces in the first lifts rather than having to expend these resources to lift supporting artillery systems and associated ammunition. This allows massing of forces on initial objectives while still allowing massing of effects by sea based indirect fires and organic maneuver indirect systems. In this way, a commander can practice the principles of war of Mass and Economy of Force at the same time.[105] Once initial objectives have been secured, and lift assets are under less strain, supporting artillery can be lifted in to support operations and free naval ships for replenishment and support of future operations.

---

[104] Ibid.

[105] Paul Murdock, "Principles of War on the Network-Centric Battlefield: Mass and Economy of Force" *Parameters* 32 (Spring 2002): 88.

The fire support community in forced or early entry capable units currently does not give adequate attention to naval fire support capabilities and training. Fire supporters must report to their units with a basic appreciation for the capabilities and methods of controlling naval surface fires. The doctrinal foundation of knowledge must be laid prior to assignment to these units. This foundation will enable self study and formal training by senior fire supporters during future assignments. This foundation must be built at OBC and BNCOC, utilizing resident expertise from the Marine Corps Detachment of instructors at Fort Sill and Army personnel trained at Marine Corps schools.

In addition, units must better utilize current advanced schooling available at Marine Corps schools to ensure senior non-commissioned officers have the advanced knowledge necessary to adequately train their teams in the utilization of naval fire support. The fact that current Marine Courses are available, but not utilized, to train senior fire supporters is indicative of one of the reasons there is a lack of knowledge of naval surface fires.

The availability of actual live fire training with naval surface systems is limited and will most likely decrease in the future based on environmental and political restrictions and restraints. For this reason, the Army must continue to pursue and utilize advanced simulations such as GUARDFISTII to effectively train its fire supporters. These systems will continue to become more advanced and realistic as actual live training becomes more costly and environmental policies continue to restrain all training opportunities.

Joint exercises are becoming more common and integrating more systems than ever before. Rotations at the Joint Readiness Training Center and the Battle Command Training Program must continue to include naval surface fire support when training forced or early entry capable units. JRTC must have the current communications equipment necessary to ensure proper doctrinal training. Fire Support O/Cs at JRTC should arrange for a naval gunfire MTT to come to Fort Polk during annual O/C training as part of their O/C certification process. This would once again give resident trained experts to coach player units in the proper planning and

use of naval surface fires. BCTP fire support O/Cs must also conduct this training if naval surface fire planning is continued in their scenarios.

Fire support doctrinal manuals must be updated to include current naval fire support systems, their capabilities, and doctrinal procedures to request and control these assets at the echelon that the manual is written for. Naval and Marine Corps doctrinal fire support personnel should review these sections for accuracy. The current transition from Army field manuals to joint publications, which have a joint review process will greatly facilitate this action.

Organizationally, army fire support teams are manned at a sufficient level to be able to control both organic assets and naval fire support assets simultaneously. ANGLICO teams gave the army an additional, but not essential, manning capability. They gave the maneuver commander more options when covering targets or requesting simultaneous fires, but their presence did not give him additional capabilities. The true challenge in this area is ensuring teams are manned to 100 percent strength based on current MTOEs. This problem is a recruiting and retention problem which must be addressed at Department of the Army level.

Current and future initiatives in signal equipment will permanently fix the current communications break between Army forces on the ground and Navy ships at sea. The addition of SINCGARS to naval surface fire ships provides an interim solution to the communications gap. The development of JTRS will allow true connectivity between all forces on the battlefield and facilitate joint interoperability between forces on a permanent basis. The Army must continue to monitor this program's development.

The Army must not allow its fire supporters to go into future operations unprepared to fully utilize all the assets available to them. In the past, the Army has had the luxury of the Marine Corps providing trained experts to utilize their naval surface fires. This luxury is no longer available. By taking the above-mentioned measures now, the Army fire support community can ensure it is postured for success when the capability of naval surface fire support ships increases in the near future.

BIBLIOGRAPHY

Books

Aspinall-Oglander, C. F. *Military Operations in Gallipoli, Vol I, Inceeption of the Campaign to May 1915*. London: William Heinemann Ltd, 1929.

Bailey, Jonathan B.A. *Field Artillery and Firepower.* Oxford: The Military Press, 1989.

Bartlett, Merrill L., ed. *Assault From the Sea: Essays on the History of Amphibious Warfare.* Annapolis*:* Naval Institute Press, 1983.

Dastrup, Boyd L. *King of Battle: A Branch History of the U.S. Army's Field Artillery.* Fort Monroe: TRADOC Branch History Series, 1992.

Friedman, Norman. *Desert Victory.* Annapolis: Naval Institute Press, 1992.

_____. *Seapower as Strategy: Navies and National Interests.* Annapolis: Naval Institute Press, 2001.

Gudmundsson, Bruce I. *On Artillery.* Westport: Praeger Publishers, 1993.

Garzke, William H., Jr. and Robert O. Dulin ,Jr. *Battleships: United States Battleships, 1935-1992,* rev. ed. Annapolis: Naval Institute Press, 1995.

Isely, Jeter A. and Philip A. Crowl*. The U.S. Marines and Amphibious War: Its Theory, and its Practice in the Pacific.* Princeton: Princeton University Press, 1951.

Miller, Edward S. *War Plan Orange.* Annapolis: Naval Institute Press, 1991.

Page, David. *Ship's versus Shore: Civil War Engagements along Southern Shores and Rivers.* Nashville: Rutledge Hill Press, 1994.

Scales, Robert H., Jr. *Firepower in Limited War.* Washington D.C.: National Defense University Press, 1990.

Turabian, Kate L. *A Manual for Writers of Term Papers, Theses, and Dissertations*. 6th ed. Chicago: University of Chicago Press, 1996.

Warry, John. *Warfare in the Classical World.* London: Salamander Press, 1980; reprint, New York: Barnes & Noble, Inc., 1993.

Watson, Bruce W. and Peter M. Dunn, ed. *Military Lessons of the Falkland Islands War: Views from the United States.* Boulder: Westview Press, 1984.

Woodward, Sir John and Patrick Robinson. *One Hundred Days.* Annapolis: Naval Institute Press, 1992.

Zabecki, David T. *Steel Wind: Colonel Georg Bruchmuller and the Birth of the Modern Artillery*. Westport: Praeger Publishers, 1994.

Government Documents

Joint Chiefs of Staff. *JP 1, Joint Publication--Joint Warfare of the Armed Forces of the United States*. Washington, DC: Joint Chiefs of Staff, 10 January 1995.

_____. *JP 1-02, Joint Publication--Department of Defense Dictionary, Military and Associated Terms*. Washington, DC: Joint Chiefs of Staff, 28 March 1994.

_____. *JP 3, Joint Publication--Doctrine for Joint Operations.* Washington, DC: Joint Chiefs of Staff, 1 February 1995.

_____. *JP 3-02, Joint Publication--Joint Doctrine for Amphibious Operations*. Washington, DC: Joint Chiefs of Staff, 8 October 1992.

_____. *JP 3-09, Joint Publication--Doctrine for Joint Fire Support.* Washington, DC. Joint Chiefs of Staff, 1998.

_____. *National Military Strategy.* Washington, DC: Joint Chiefs of Staff, 1999.

US Army. *FM 3.0, Field Service Regulations--Operations*. Washington DC: Department of the Army, 2001.

_____. *FM 6-20-20, TTPs for Fire Support at Battalion Task Force and Below.* Washington DC. Department of the Army, 27 December, 1991.

_____. *FM 6-20-30, TTPs for Fire Support for Corps and Division Operations.* Washington DC. Department of the Army, 1989.

_____. *FM 6-20-50, TTPs for Fire Support for Brigade Operations (Light).* Washington DC. Department of the Army, 5 January 1990.

_____. *FM 6-30, TTPs for Observed Fire*. Washington DC. Department of the Army, 16 July, 1991.

_____, *TOE Handbook 06700L-CTH*, Washington D.C.: Department of the Army, 20 Dec 1991.

US Army, US Marine Corps, U. S. Air Force, and U. S. Navy. *FM 90-20/FMFRP 2-72/ACCP 50-28/CINCLANTFLTINST 3330.5, J-Fire, Multi-Service Procedures for the Joint Application of Firepower*. Washington, DC: Department of the Army/U. S. Marine Corps/U. S. Air Force/Department of the Navy, February 1994.

US General Accounting Office, *Report on the Evaluation of the Navy's 1999 Naval Surface Fire Support Assessment, September 1999,* GAO/NSIAD-99-225 Defense Acquisitions.

US Marine Corps. *FM 6-8, Fleet Marine Force Manual 6-8-Supporting Arms Observer, Spotter, and Controller.* Washington DC: Headquarters, Commandant of the Marine Corps, 24 June 1994.

_____. FM 1-11, *Fleet Marine Force Reference Pamphlet 1-11-Fleet Marine Force Organization.* Washington DC. Headquarters, Commandant of the Marine Corps, 2 March 1992.

US Navy. "Forward … from the Sea." Washington DC: Department of the Navy, 1996.

_____. "…From the Sea." Washington, DC: Department of the Navy, December 1994.

US Navy and US Marine Corps. *NWP 22-2 (Revision C)/FMFM 1-7, Naval Warfare Publication/Fleet Marine Force Manual--Supporting Arms in Amphibious Operations.* Washington, DC: Department of the Navy, October 1993.

Periodicals and Journals

Blosser, O. Kelly. "Naval Surface Fires and the Land Battle," *Field Artillery*, September-October 1996, 41-45.

Brown, James B. "In Search of Synergy: Joint Amphibious/Air Assault Operations." *Joint Forces Quarterly,* Autumn-Winter 1998-1999, 48-52.

Carlino, Michael A. "The Moral Limits of Strategic Attack." *Parameters,* 32, no. 1 (2002): 15-29.

Cebrowski, Arthur and John Garstka, "Network Centric Warfare: Its Origin and Future." *Proceedings*, 124 no. 1 (1998): 28-35.

Engel, William F. "Transforming Fires for the Objective Force," *Field Artillery,* November-December 2001, 9-13.

Frothingham, Peter J. "The Revolution in Amphibious Warfare." *Surface Warfare* 24, no. 5 (1999): 8-13.

Gordon, John, IV. "Naval Fire Support and the Force Projection Army," *Field Artillery,* October 1993, 22-27.

Grandin, Jay F. "After Grenada: Joint Operations in the 82d Airborne Division," *Field Artillery,* February 1988, 43-46.

Hubbard, Zachary P. "The ANGLICO Edge," *Field Artillery,* April 1990, 22-26.

Hucks, John A. "ANGLICO: Ready to Go," *Field Artillery Journal,* March-April 1985, 14-16.

Kearns, Darien L. " Let's Set the Record Straight With Regard to NSFS." *Marine Corps Gazette* 85, no. 9 (2001): 76.

Krulak, Charles C. "Operational Maneuver From the Sea." *Joint Forces Quarterly*, Spring 1999, 78-86.

Lehman, John F. Jr. and William L. Stearman. “Keep the Big Guns.” *Proceedings* 126, no. 1 (2000): 43-47.

Ley, Michael P. “Naval Gunfire Support: What We Need to Understand.” *Field Artillery,* February 1988, 39-42.

Lindemann, Michael. “DD21 Brings Fundamental Changes to the Land Battle.” *Surface Warfare* 25, no. 3 (2000): 25-29.

McMichael, Scott R. “Urgent Fury: Looking Back and Looking Forward.” *Field Artillery,* March-April 1985, 8-13.

Morris, Micheal. “ANGLICO: Deep Fires or Deep Six?” *Proceedings* 124, no. 7 (1998): 59-62.

Murdock, Paul. “Principles of Waron the Network-Centric Battlefield.” *Parameters* 32, no. 1 (2002): 86-95.

Neal, Richard I. “Fires for Lean, Mean, Maneuverable Marines.” interview by Patricia Slayden Hollis, *Field Artillery* March-April 1998, 2-4.

Pearson, Paul F. “FIST!” *Field Artillery Journal,* May-June 1976, 6-10.

Ralphs, Tracy A. “Troops Ashore Deserve Better Fire Support,” *Proceedings* 124, no. 6 (1998): 69-72.

_____. “Where Are the Battleships? *Armed Forces Journal International,* April 1999, 46-52.

Rogers, Kevin C. “Fires for Future Amphibious Operations: OMFTS,” *Field Artillery*, January-February 1999, 25-27.

Romberg, C. R. “The Training of Forward Observation Officers.” *The Journal of The Royal Artillery* 122, no. 1 (1995): 47-49.

Roos, John G. “An All-Encompassing Grid: US Services Pursue the Promise of Network-Centric Warfare.” *Armed Forces Journal International,* January 2001, 26-35.

Sawyer, Robert E. “ANGLICO Is Gone; The Mission Isn’t.” *Marine Corps Gazette* 84, no. 6 (2000): 68-72.

Schires, Brian G. “Land Attack Warfare: A View From a Fresh Set of Eyes.” *Surface Warfare* 25, no. 3 (2000): 10-14.

Schwalm, Ross. “Fires in Support of Amphibious Operations-A Status Report.” *Marine Corps Gazette* 85, no. 3 (2001): 22-26.

Smith, Edward A. Jr. “Network-centric Warfare: What’s the Point?” *Naval War College Review* 54, no. 1 (2001): 59-75.

Wall, Steven T. “Joint Tactical Radio System: Volume, Distance, and Speed.” *Field Artillery,* January-February 2000, 45.

Weller, Donald M. "Salvo-Splash! The Development of Naval Gunfire Support in World War II. Part I," *Proceedings* 80, no. 8 (1954): 839-849.

_____. "Salvo-Splash! The Development of Naval Gunfire Support in World War II, Part II." *Proceedings* 80, no. 9 (1954): 1011-1021.

Wise, James E. "Fire Mission!: Naval Surface Fire Support in the 21st Century." *Surface Warfare* 25, no. 3 (2000): 4-7.

Electronic Sources

ANGLICO Association website, internet, http://www.anglicoassociation.org, last accessed 23 Jan, 2002.

Fallon, William J. *Statement to Congress, Committee on Government Reform on Constraints on Military Training*, 9 May, 2001, internet, http://www.chinfo.navy.mil/navpalib/testimony/readiness/fall10509.text, p. 4-7, last accessed 8 Nov, 2001.

FSCATT Ph II Operational Requirements Document, internet, http://www.stricom.army.mil/PRODUCTS/GUARDFISTII/fscatt.html, last accessed 28 March, 2001.

Stearman, William L. and Tracy A. Ralphs, *Response to Concept of Operations for Surface Combatant Land Attack Warfare 2005-2015 (Draft)* 10 May 2001, internet, http://www.usnfsa.com/articles/navy/index.htm, last accessed 22 March, 2002.

US Army, Battle Command Training Program website, internet, http://www.BCTP.leavenworth.army.mil, last accessed 22 March, 2001.

US Army, Field Artillery School Captain's Career Course website, internet, http://sill-www.army.mil-/FACCC/SOURCE14/FACAPTAINSCAREERCOURSE/JointApplication/JC-NSFS/, last accessed 22 March, 2002.

US Army, Field Artillery School Non-commissioned Officer's Academy website, internet, http://sill-www.army.mil/usancoa, last accessed 23 March, 2002.

US Army, Joint Readiness Training Center, Observations From JRTC Doctrine Review, 21-24 Feb, 2000, internet, http://155.219.39.98/doctrine/JRTCDocRev.doc, last accessed 8 Nov, 2001.

US Army, National Training Center website, http://www.irwin.army.mil/OPSGRP/Default.htm, last accessed 22 March, 2002.

US Navy, Expeditionary Warfare Training Group-Pacific website, internet, http://www.ewtgpac.navy.mil/internet/catalog/chap2.htm, last accessed 23 Jan, 2002.

US Navy, Fleet Battle Experiment website, internet, http://www.nwdc.navy.mil/Products/FBE, last accessed 22 March, 2002.

US Navy, Land Attack Warfare Department, *Concept of Operations for Surface Combatant Land Attack Warfare 2005-2015*, (Draft) 10 May, 2001, internet, http://www.usnfsa.com/articles/navy/index.htm, last accessed 22 March, 2002.

Other Sources

Coronado, Elvis. FAOBC Instructor, interview by author, 14 March, 2002.

Hubbard, Zachary P. "Naval Gunfire Support: An Army Role in a New World Order." MMAS Thesis. Fort Leavenworth: CGSC, 1992.

Hudie, Kevin. Former CMTC Fire Support O/C, interview by author, 14 March, 2002.

United Kingdom. Report of The Secretary of State for Defence: *The Falklands Campaign: The Lessons.* London: Her Majesty's Stationary Office, 1983

US Army Command and General Staff Officer's Course, AAP A307, Advanced Communications, *JRTS Brief.* 2002.

Watson, John. FACCC Instructor, interview by author, 14 March, 2002.

Williams, David. EWTGPAC Naval Gunfire Course Scheduler, interview by author, 28 March 2002.