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MASTER OF MILITARY STUDIES


**THE GLASS CEILING:
THE ROLE OF FIRE SUPPORT OFFICERS IN MANEUVER UNITS**

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

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EXECUTIVE SUMMARY

Title: The Glass Ceiling: The Role of Fire Support Officers in Maneuver Units

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Thesis: It is common practice in the operating forces for maneuver commanders to misuse fire support officers and the artillery community can begin to correct this by implementing confidence building measures.

Discussion: Historically, Fire Support Officer billets in infantry units were not a priority necessary for remaining competitive and therefore more proficient officers were placed in staff billets within firing batteries or in artillery battalion staffs. This left the less experienced officers to deploy with infantry battalions as Fire Support Officers. As the Marine Corps adjusts to the post-OEF environment, artillery battalions must ensure that the Fire Support Officers that support future Marine Air-Ground Task Force (MAGTF) deployments will be experienced, and competitive to gain the confidence of their supported commanders.

Conclusion: To build a strong habitual relationship with maneuver units, Marine artillery battalions must maintain enduring habitual relationships with supported infantry regiments and battalions rather than simply attaching fire support officers prior to a deployment. This allows fire support officers to become integrated into the maneuver unit and afford them the opportunity to fill key fire support billets.

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PREFACE

The inspiration for this paper is due to the struggles that I have witnessed artillery fire support officers face when working in a battalion landing team (BLT). While all the officers were highly competitive and experienced in the realm of fire support, there was constant resistance from our maneuver counterparts to maintain fire support billets and marginalize artillery officers to planning only artillery fires. Upon the realization that all the artillery officers that were attached to the maneuver unit were highly competitive, each was placed in billets with increasing levels of responsibility such as headquarters platoon commander, company executive officer, or future operations planner. Throughout the predeployment training the artillery officers were executing the duties of the company fire support team leader or the battalion fire support coordinator, and were more knowledgeable on fire support coordination than their maneuver counterparts. Even with these expert fire supporters, at no point was there a possibility of placing these highly-qualified officers in key fire support billets within the BLT. This became even more frustrating when I returned from deployment and realized that this was not an isolated incident, but is a continuous problem that is not being addressed to higher.

I want to thank Dr. Edward Erickson for helping me shape my initial argument and guiding me along the way through each draft of this paper. I would also like to thank LtCol Jarrod Stoutenborough for continued guidance and for assisting me in confirming or denying many of my assumptions in order to prevent me from dedicating countless hours of research that would not aid in the process. Special thanks also to LtCol Jim Lively, LtCol Hunter Rawlings, LtCol Andrew Tate (ret.), Maj Chris Macak, Maj Court Boson, Maj Eric Spitznogle, and Maj Scott Culbertson for encouraging me to write on this topic. This was an incredible learning experience

that I hope that I can pass on to my community in hopes that we can build a better team with our supported maneuver community.

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THE IMPORTANCE OF FIRE SUPPORT

Fire support is defined in joint publication (JP) 1-02 as “fires that directly support land, maritime, amphibious, and special operations forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives.”¹ During major armed conflicts from the battles of Napoleon to the modern era of Operation Enduring Freedom (OEF), fire support has played a decisive role through the use of massing fires on conventional enemy forces. In this endeavor, artillery fire support officers (FSOs) have been instrumental in providing all-weather fires in support of maneuver units through the careful coordination and integration of fires in relation to airspace, time, and maneuver forces.

As evidenced by current armed conflicts such as Operation Inherent Resolve (OIR) in Iraq or Marine artillery batteries conducting fire support in Syria, the warfighting function of fires continues to be essential in the success of military missions.² In the current operating environment fire support is planned, coordinated, and executed through the use of both lethal and non-lethal fires. As conflicts continue to become more complicated, fire supporters will continue to be vital. However, should the artillery community not continue to make refinements to how it selects and trains its FSOs, it will risk losing its ability to achieve the desired effects on the battlefield.

MCDP 1, originally written in 1989, defines combined arms as “the full integration of arms in such a way that to counteract one, the enemy must become more vulnerable to another.”³ The Marine Air Ground Task Force (MAGTF) and the Ground Combat Element (GCE) are “combined arms teams by the nature of their organizations. The GCE’s ability to deliver fires is most effectively employed when it creates a combined arms effect.”⁴ To maximize combat

power commanders must use all available assets and resources to gain an advantage over an adversary, this is achieved through the use of combined arms. The Marine Operating Concept (MOC) states that the 21st century MAGTF “blends maneuver warfare and combined arms to generate the combat power needed for simultaneity of action in its full range of missions.”⁵ Use of this concept to gain and maintain an advantage over an adversary requires commanders to effectively employ all available weapons systems and maximize success with all aspects of fires, lethal and non-lethal, in future operating environments. To integrate those systems, commanders must do the same with their personnel.

Commanders are ultimately responsible for the proper employment of fires in support of their maneuver forces. Ensuring that they have personnel who understand that fire support is more than simply the employment of weapons systems to engage an enemy is essential to their overall success. Artillery regimental commanders understand that “fire support is both science and art, which requires highly trained and professional personnel able to identify targets, understand the higher and supported unit’s mission, commander’s intent and scheme of maneuver, in order to conduct fire planning that best support it.”⁶ To influence the perspective of the maneuver commanders, the artillery community instituted major changes in how it supports maneuver in order to provide commanders with FSOs that are subject matter experts (SMEs). However, even with the extensive reforms made by the artillery community, maneuver commanders are still unwilling to place FSOs in billets of greater responsibility.⁷

Due to a lack of a continued presence in maneuver units, the artillery community has lost the influence on the assignment of fires and effects billets that they once maintained. Fire support billets that were formerly assigned to artillery officers as experts in fire support within maneuver battalions⁸ are currently being filled by infantry officers.⁹ Therefore, this paper seeks

to examine the following: 1) to what extent are FSOs being assigned fire support billets within maneuver units; 2) what are the opposing perspectives of the artillery and infantry communities that contribute to the assignment of FSOs; 3) how can the artillery community improve the capability of FSOs to support maneuver units. This paper also seeks to answer the research question, “To what extent do maneuver battalion commanders misuse FSOs and what might be done to change this situation?” Though it is common practice in the operating forces for maneuver commanders to misuse FSOs, the artillery community can correct this by implementing confidence building measures (CBMs).

HISTORICAL CONTEXT

Impression of the Artillery Community

The FSO is the direct representative of the artillery battalion and the artillery community to the supported maneuver commander.¹⁰ The artillery community see the FSO as an advisor to the supported company or battalion commander on the most effective way to coordinate, deconflict, and employ available fire support assets in support of the maneuver concept of operations.¹¹ Many of the impressions of the artillery community and the capability that future FSOs will bring are determined by these representatives.

Importance of the FSO

The necessity for having an experienced and qualified FSO is not a new requirement for the artillery community. This obligation was published in 1964 in the Fleet Marine Force Manual 7-4 (FMFM 7-4), Field Artillery Support, which states that:

the (fire support) officer is the artillery commander’s personal representative to the unit with which liaison is established. Frequent change of (fire support) officers is undesirable in view of the requirement to be thoroughly familiar with the supported or reinforced unit’s policies, plans, situations, responsibilities and missions. Nevertheless, where artillery officers are required to be away from their own units for prolonged periods, it may be desirable to change (fire support)

officers. Representative liaison is best accomplished when the (fire support) officer is a highly qualified professional artillery officer familiar with the current situation, plans, and policies of his own commander.¹²

What is surprising about this paragraph is the fact that the requirement was listed in 1964.

However, units are still struggling with providing experienced FSOs to maneuver units that can take on more responsibility than simply monitoring the conduct of fire (COF) net.

Impression of the Maneuver Community

Due to past shortfalls in artillery personnel to fill FSO billets,¹³ a widely-held opinion¹⁴ among the maneuver community is that maneuver units do not receive the priority they deserve when FSOs are assigned to support training evolutions or deployments.¹⁵ This is due to the fact that for over the past thirty years the FSO billet was often gapped or a last minute “hot fill” billet by the supporting artillery battery,¹⁶ and higher priority was placed on training artillery officers in billets within the firing battery or on the battalion staff.¹⁷ Sadly, when this occurs the relationship between the maneuver and artillery communities suffer. The infantry has the impression that the artillery community is not supportive¹⁸ and the artillery community fails to represent itself or display how fires can best support the maneuver force.¹⁹

THE PROBLEM

The Glass Ceiling

Acknowledging the gaps in the doctrine, training, and personnel selected to fill the billets as FSOs in the past, the artillery community has made significant changes to increase the capability of its personnel and therefore the supported maneuver units to which they will be assigned. However, there remains a glass ceiling of how the supporting FSOs are employed by the supported unit. Even with the changes made within the artillery community to staff FiSTs with more experienced FSOs there is an aversion to placing FSOs as the battalion Fire Support

Coordinator (FSC) or the company FiST Leader.²⁰ This leads to FSOs being placed in staff billets, such as Assistant Operations Officer, rather than the billet that they were selected to fill by the supporting commander which is a misuse of personnel. This paper proceeds from the premise that trained FSOs are inherently more effective than non-artillery officers who must learn a skill set in an “on-the-job training” environment. A literature review reveals that this is an under researched topic and there is little, if any, evidence available to support this premise. With that said, the author and many of the professionals interviewed in the preparation of this paper agree that this is a *de facto* condition as well as a very real problem affecting the Marine Corps.

EFFORTS TO FIX THE PROBLEM

The Restructure of Liaison

The shortage of fire supporters available to deploy with maneuver units has not gone unnoticed. In 2010 Plans, Policies, and Operations (PP&O) sponsored a working group to address concerns that the infantry community believed that the operational fire support requirements were not being addressed.²¹ The working group included personnel from PP&O Ground Branch (POG); the Marine Detachment at Fort Sill, OK; all four Marine artillery regiments; the Marine Air Ground Task Force (MAGTF) Operational Advisory Group (OAG); Air Naval Gunfire Liaison Company (ANGLICO); and the Total Force Structure Division (TFSD) Ground Combat Element (GCE) Branch.²² The intent for the working group was to determine the best experience level and rank to execute the duties of the FSO and best represent the artillery community.²³

In order to allow the appropriate amount of time for FSOs to build the proper relationships within the supported command the working group defined the requirement to:

“provide formed FiSTs at D-210 and fully trained and qualified teams at D-180.”²⁴ They also specified that they are less concerned with which battery is tasked to provide supporting fires. However, they do want fully trained FSOs attached to the supported units during pre-deployment training exercises in order to rehearse standard tactics, techniques and procedures (TTPs) at the individual team level. Keeping these primary concerns in mind, the working group convened to discuss consolidating the artillery FSOs at the battalion level.

Sadly, the efforts of the AOAG to fix the problem have largely been unsuccessful. This is due to the fact that the intent behind the restructure was not clearly understood throughout the GCE. While maneuver commanders are happy to receive more experienced FSOs as part of the assigned FiSTs they are unaware that the intent of the supporting unit is for the most qualified officer to fill key fire support billets within the maneuver unit.²⁵

CONTESTED GROUND

The Reality of the Operating Forces

Unfortunately, FSOs assigned to maneuver units, find that the billets for which they were selected to fill by the supporting commander are already filled by infantry officers.²⁶ Many FSOs find themselves filling billets based on what billets are gapped rather than what they are trained to fill.²⁷ Often battalion FSOs find themselves working as the assistant operations officer or future operations planner and many of the company FSOs end up filling in gaps as maneuver platoon commanders or even as company executive officers.²⁸ This employment of maneuver billets is an indicator that maneuver commanders realize that the FSOs assigned to support them are highly competitive officers it fails to provide with the opportunity to demonstrate their capabilities as fire supporters. It also highlights the lack of awareness among the maneuver community about the proper use of FSOs and how the restructuring of FSOs provides

experienced fire supporters to maneuver units with the intent that they will fill key fire support billets in order to increase the capability of the overall unit.

While the restructure is relatively new within the GCE this is not a novel concept, in 1978 the FMFM 6-3 Marine Infantry Battalion stated that “the artillery liaison officer is the fire support coordinator in the infantry battalion”²⁹ and this is echoed in FMFM 7-1 Fire Support Coordination from the same year, where it states that “the infantry battalion commander will designate a fire support coordinator; the artillery liaison officer is normally designated.”³⁰ Early fire support publications reflected similar language and placed the responsibility of coordinating fires for the battalion on the assigned artillery FSOs.

This practice was changed in the 1981 version of the FMFM 7-1 where it states that “the weapons company commander is the fire support coordinator”³¹ and it has remained until present day in the updated 2016 version of MCTP 3-10F Fire Support Coordination in the GCE. However, it is worth noting that the same publication also states that “the direct support artillery battalion commander is normally the regiment’s FSC”, it also shows that the artillery regimental commander is also dual hatted as the division FSC. Therefore, the only fire support billets that were changed to be filled by infantry officers were those at the battalion and company level. Understanding the different perspectives of the artillery and maneuver communities on the roles of the FSO and FSC could lead to a consensus³² on how to integrate and employ personnel in order to increase unit capability in the future.³³

The Fire Support Coordinator

The general view held within the maneuver community is that the role of battalion FSC is seen as a bridge between company command³⁴ and becoming the battalion operations officer (OpsO).³⁵ Maneuver commanders often believe that the weapons company commander is the

best candidate for this based on the level of experience as a weapons platoon commander and is usually the senior rifle company commander within the battalion.³⁶ The roles and responsibilities associated with the FSC billet are seen as “not just the integration of indirect fires but of heavier direct fire weapon systems to manage the battlespace.”³⁷

The billet of battalion FSC is viewed as a highly technical and very demanding job³⁸ that is designated by the maneuver commander for someone who best understands the surface danger zones (SDZs) of all the direct fire weapon systems and how to manage battlespace geometries.³⁹ For this reason, maneuver commanders favor their weapons company commander for this role⁴⁰ because generally they have led the rifle platoon and company attack⁴¹ and understands how fires will affect the last 300 yards of the attack on the objective.⁴² This logic is flawed, controlling indirect fire assets organic to an infantry battalion is in no way the same as controlling all fire support assets from the surface to 50,000 feet and integrating them in support an attack. The use of the FSC billet to increase the knowledge of fire support will likely benefit the individual infantry officer, however, “most infantry captains have had limited experience within the fire support arena.”⁴³ The same argument can be made that while experience leading an attack may provide perspective, it does not make any officer regardless of MOS an expert on fires. Therefore, it can be reasoned that a trained FSO will have a better understanding of fires and its effects on the battlefield than a former rifle platoon or company commander.

The Fire Support Officer

The general consensus from the maneuver community on the effective employment of FSOs is that “they are the technical experts on artillery fires, but are generally not very experienced in planning other fires in support of maneuver.”⁴⁴ Additionally, FSOs are often assigned to maneuver units with “limited fire support experience and often with a

misunderstanding on how an infantry battalion fights dis-aggregated and as a whole.”⁴⁵

Typically maneuver commanders employ FSOs as an asset with varying degrees of responsibility.⁴⁶ One example of this is a five-tiered approach, with escalating levels of responsibility based on the individual FSO’s level of experience and capability.⁴⁷

The first of these tiers is the expectation that the FSO is able to coordinate solely artillery fires in support of a company or the battalion. In the second tier, the FSO can be relied upon to synchronize all organic fires that are internal to the battalion such as the 81mm mortars and direct fire assets. Within the third tier the FSO is trusted by the maneuver commander to coordinate additional non-organic fires such as naval surface fire support (NSFS). At the fourth tier the FSO can be trusted to advise the commander on how fires can influence the maneuver unit and “even informing him when his plan is flawed due to a lack of proper use of fires.”⁴⁸ The final tier is when a FSO is capable of training the commander’s infantry officers on how to coordinate and deconflict fires to be better FiST Leaders and future FSCs.⁴⁹ If this is the metric by which maneuver commanders are going to judge their FSOs there is a necessity for a sixth tier where the FSO is officially designated as the FSC.⁵⁰

This tiered approach should be very alarming for artillery commanders. The message that this sends is that even though artillery commanders are hand selecting and training their best officers to be FSOs, the maneuver commander must evaluate their proficiency in order to gain additional responsibility. This also displays the glass ceiling that FSOs face within the maneuver community that even with the full trust of the commander the most that the FSO is able to achieve is to train infantry officers to integrate fires to the same proficiency level as the artillery FSOs, in effect training his own supervisor. This lack of trust in FSOs to perform the job for which they were selected and trained to do results in a waste of manpower due to the misuse of

FSOs and could have negative impacts on the future of the habitual relationship between the two communities.

If this is the case why is there an aversion to simply placing FSOs in the key fire support billets? The obvious answer is that maneuver commanders are bias to the development of their own officers over the more qualified FSOs that are assigned. Fortunately, this unique bias towards FSOs is not demonstrated toward other non-organic officers that are assigned to the unit such as AirOs or Armor Officers. These officers are allowed to perform in the billets to which they were assigned to fill upon arrival to the maneuver unit. For example, even if there is an infantry officer who is a JTAC there is no preference to replace the AirO, however, there is a push from the community to fill fire support billets that are traditionally filled by FSOs with less experienced infantry officers.

Career Progression of the FSO

The artillery community's opposing viewpoint to the glass ceiling is that the FSO is the most knowledgeable and experienced officer on fires in the FSCC. Maneuver commanders place the weapons company commander in the FSC billet due to his perceived level of experience and in an attempt to enhance to his career progression, even though the battalion level is the only time the that an infantry officer could fill that role. However, the artillery FSO will/can perform the duties of the FSC at the regimental and division level as the direct support artillery battalion and regimental commander.⁵¹ The experience gained from executing the duties of a company FiST Leader and a battalion FSC are critical to ensuring that artillery officers are prepared to coordinate and deconflict fires in support of maneuver units at the regimental and division levels.⁵² The experience gained by the FSO at the company and battalion levels is an investment that will later benefit the entire GCE.

Key Fire Support Billets

With the consolidation of the FSOs the artillery community is working to re-establish itself as the primary fire support experts in the Ground Combat Element (GCE). Ever since the publishing of FMFM 6-3, *Marine Infantry Battalion* in 1981, artillery officers have attempted to re-gain the key fire support roles as the infantry company FiST leader, and battalion fire support coordinator (FSC).⁵³ The company FiSTs are provided with experienced first lieutenants that have already proven themselves as highly competent artillery officers in key billets within a firing battery.⁵⁴ The battalion FiST is designed to be led by a post-command artillery captain to provide the maneuver with more fire support experience.⁵⁵ However, simply providing more experienced personnel is not enough to justify to maneuver commanders that FSOs should be placed in key fire support billets. After all, the weapons company commander is also a post rifle company command captain. If the artillery community wants to ensure that FSOs are filling these billets, it must provide a more competitive fire supporters that can offer something that the infantry does not already bring to the table.

Maneuver's Counterargument

Within the maneuver community the artillery FSO is viewed similarly to the way the artillery liaison billet was viewed prior to the restructure in 2010. FSOs are employed as SMEs on artillery fires.⁵⁶ It is generally recognized by the maneuver community that the artillery community is attempting to take ownership as the fire support SME within the GCE.⁵⁷ However, having a specific MOS within the fire support community does not automatically qualify an officer to become a FSC. Examples of this would be that being an F-18 pilot that does not make them an expert in combined arms or fire support coordination, or just because someone is an 81mm mortar platoon commander doesn't make them an expert on fire support planning or

combined arms planning and execution.⁵⁸ Until the artillery community can reach a consensus with the maneuver community about the effective use of FSOs, there will continue to be resistance toward how FSOs are employed in maneuver units.

The same can be said for artillery officers; having the 0802 MOS does not mean that the individual is an expert in fire support planning and combined arms planning in support of maneuver.⁵⁹ To challenge this way of thinking, future FSOs must bring new capabilities and qualifications that are currently not featured within the maneuver unit. This would place additional training requirements on the artillery community to send FSOs to courses such as the Joint Targeting course, Intermediate Information Operations (IO) Operator's course, and the Fire Support Coordinator's Course.

FSC Requirements

Unlike other fire support billets, such as AirOs or JTACs, the FSC and FiST Leaders have no required formal school or certification in order to clear fires. These billets are designated completely by the battalion commander and company commanders. AirOs are required to complete the weapons and tactics instructor (WTI) course at Marine Air Weapons and Tactics Squadron One (MAWTS-1) to perform their job and JTACs are required to complete the tactical air control party (TACP) course at the Expeditionary Warfare Training Group (EWTG) Atlantic or Pacific prior to controlling aircraft. Likewise, artillery officers are required to complete an annual regimental safety test in order to ensure that they are integrating fires in accordance with the joint regimental order. However, there is no requirement for the FSC or FiST Leader who will clear these fires.⁶⁰ With no standard certification requirement in place to clear fires, commanders are potentially placing their own Marines in danger of fratricide. This

also presents an opportunity for the artillery community to set the standard for FSOs to be FSCs as the more qualified officer.

Competing Requirements

Another key factor in the career path of artillery officers is that the FSO billet is not viewed as a competitive billet on promotion boards.⁶¹ The competing requirements of sending fully trained and certified FSOs to maneuver units revolve mostly around the time the officer has available in the operating forces. Inside a three-year tour artillery battalions must ensure that their officers have the opportunity to perform within key billets prior to being selected as an FSO. For lieutenants, these billets are fire direction officer (FDO) and often battery executive officer (XO) while captains need the opportunity to serve as a battery commander in order to remain competitive for promotion.⁶² Though these billets do provide artillery officers the experience that will make them subject matter experts (SMEs) on the employment of artillery for maneuver commanders, they do not satisfy the requirements of being SMEs on the integration of other fire support assets in the maneuver planning. If the artillery community fails to make the FSO billet a competitive one on par with other billets in grade, it will force artillery commanders to either send artillery officers on FSO tours who do not have key billets in grade or prevent officers from perusing FSO tours in order to remain competitive.

To ensure that the artillery community is providing the best possible FSOs to maneuver units, the training of these officers must be made a priority and planned for at the regimental and battalion levels. The recommended training courses for FSOs from company to regimental level are outlined in the JRegtOP 3570.2A. However due to competing requirements within the supporting units and the shortage of availability to send officers to additional training courses,⁶³ these are rarely attended prior to FSOs being assigned to a maneuver unit.⁶⁴

ADDRESSING THE PROBLEM IN THE NEAR TERM

The purpose of artillery fires and all additional fire support assets is to support the infantry's scheme of maneuver. This is nothing new, in the 19th century Carl Von Clausewitz stated that, "It is harder to do without artillery than without cavalry; artillery is the principal agent of destruction, and its use in action more closely coordinated with the infantry's."⁶⁵ The current state of the relationship between the supported maneuver units and their supporting artillery units is fragmented.⁶⁶ Supporting artillery FiSTs should be requested by their supported infantry units for all training exercises spanning from local level to the Service-level events.

However, this is not a one-sided issue. Supporting artillery units should also maintain a presence within the supported unit's command post and create buy-in from both units,⁶⁷ giving personnel the opportunity to integrate prior to training evolutions.⁶⁸ The responsibility of maintaining this cooperative relationship between units ultimately lies with the commanders,⁶⁹ ensuring that the maneuver units are familiar with the supporting unit's FSOs and that an open dialogue between the supporting and supported commanders remains. The usefulness of this practice can be seen in armed conflicts where FSOs were often in entirely different sectors from their parent artillery units, but instead were collocated with their supported infantry unit and were thus able to establish and maintain a habitual relationship.⁷⁰

Habitual relationships between the supporting FSOs and the maneuver unit must be established early for personnel from both units to develop and become familiar with Tactics, Techniques and Procedures (TTPs). Establishing a habitual relationship should begin in garrison and be maintained throughout the pre-deployment training. Unfortunately, a lack of integration often results in the supporting unit providing a "pick-up team" as the FiST at the last minute with an unprepared FSO.⁷¹ Another shortfall of the pick-up team is a lack of adequate time for the

FiST to train together and develop to operate as a cohesive team. Providing a team that has not been trained or certified to the supported maneuver unit will eventually lead to a lack of confidence in the FSO and inadequate fire support during a training exercise or named operation.⁷²

It therefore is the responsibility of the artillery community to change the mind of maneuver commanders, by offering FSOs that are more experienced and more qualified at coordinating and synchronizing fires than their own officers. If this is not made a priority within the artillery community, the misuse of FSOs will continue to be an issue indefinitely.

Combined Arms Coordination

The MOC 2025 combined with the current operating environment requires that maneuver units on the tactical level be capable of leveraging all aspects of fires, including lethal and non-lethal capabilities. Despite this tasking, maneuver units continue to utilize traditional lethal fires while failing to take a holistic approach to the integration of additional capabilities.⁷³ This is the result of a fundamental lack of understanding on the proper employment of non-lethal and information related capabilities (IRCs) at the battalion level and below. “The joint force (means) employs IRCs (ways) to affect the information provided to or disseminated from the target audience in the physical and information environment to affect decision making.”⁷⁴

As fire support SMEs, it only makes sense for the artillery community to take advantage of the opportunity to train FSOs that have a firm understanding of capabilities and effects of all lethal and non-lethal fire support assets on the modern battlefield. This would allow the FSO to integrate into the planning of maneuver units much earlier through the use of IO and the IRCs. Bringing a new capability to the maneuver unit could encourage integration of all assets across

the MAGTF throughout the ROMO in the form of a combined arms coordination center (CACC).

Confidence Building Measures

In order to influence the opinions of the maneuver community, artillery commanders must continue to make necessary changes to build the confidence of maneuver commanders. This will require more than the continued strengthening of the habitual relationships between supporting and supported commanders.

The first step toward building confidence in assigned FSOs will be to have them integrate early and often into the maneuver unit. It is not enough to simply provide personnel for a specific training exercise alone, FSOs must maintain a presence as the supported battalion to develop relationships with the staff and commander. This will provide the FSOs with opportunity to become involved with the planning and coordination of all assets available, rather than simply planning for artillery fires.

Another way that FSOs can gain the confidence of their supported units is to be a highly-trained fire support SME who is capable of integrating combined arms into the maneuver unit's planning. The individual who can make the unit better will prove to be an asset, making it far easier for the maneuver commander to place them in key fire support billets.

Artillery battalion commanders are setting the precedent that all FSO billets be staffed by highly competitive artillery officers to be their personal representative to the maneuver unit.⁷⁵ This will continue to improve the habitual relationship between the supported and supporting units and ensure the FSO is able to "sell" artillery as a fire support agency and as fire supporters.⁷⁶ With consistent support of competitive FSOs who are SMEs in fire support being

assigned to the supported unit, maneuver commanders will be more comfortable using FSOs in key fire support billets within maneuver battalions.⁷⁷

FIXING THE PROBLEM IN THE LONG TERM

Changes to the FSO Billet

The changes made by the AOAG in 2010 to the selection and employment of FSOs should be standardized and implemented across the GCE to provide a mutually beneficial relationship for the maneuver and artillery communities. To facilitate this change, maneuver commanders must be educated on the historical shortfalls of staffing FSOs, the changes made by the artillery community to correct these issues, and the increased level of experience and capability that FSOs bring to the supported unit. Placing FSOs in fire support billets will provide the maneuver commander with more options to focus his infantry officers at other points of friction while mitigating unnecessary risks to the force or the mission.

Rewrite of Doctrine

The fire support publication, MCTP 3-10F, that both communities refer to contradicts itself as to who will clear fires at different points in their career. If the artillery officers are FSCs at the regimental and division level, it would only make sense that they gain the experience to become better FSCs by performing the same duties as FiST Leaders or FSCs at the company and battalion level. Infantry officers can be placed in these billets, but according to the publication, the battalion is the highest level that an infantry officer will ever clear fires.

This should be reconciled to reflect the same officers as part of career progression. If the artillery officer is best choice at the regimental level and above, he should also be the right choice at the company and battalion levels. Making this part of career progression will ensure that the artillery community places a higher emphasis on certifications in order to be qualified to

fill the billet. This will also lead to more effective fire support at the regimental and division levels.

Formal FSO Training

To ensure that the FSOs provided to maneuver units are employed in key fire support billets they must have qualifications that are not generally found in the supported unit. The artillery community must form a training pipeline to allow artillery officers to attend courses that would make them more qualified to be FSOs, such as the Joint Targeting Course, the FSCC course, and the intermediate IO course. These specific courses would not only provide FSOs with the experience of running an FSCC as the FSC, but would allow them to integrate additional lethal and non-lethal assets into the planning process. Though it is not uncommon to find maneuver officers who have attended a FSCC course, it is highly unlikely that any other community will have personnel that have attended all three of these courses which allows the individual FSO an opportunity to demonstrate his expertise as a SME of fires and effects.

While this training recommendation would require more time to get the FSOs in to courses prior to deployment, it would also allow them the ability to gain instant creditability upon arriving to a maneuver unit the same way that an AirO is seen as the SME when he checks-in. These courses could also be prioritized to ensure that officers are sent to courses that will be most beneficial to the gaining unit. For example, all FSOs should attend the FSCC course and this can often be coordinated by using Mobile Training Teams (MTTs) at each regiment's Artillery Training School (ATS) to allow for maximum participation and minimum cost. The next priority for all officers should be to attend the intermediate IO course so that FSOs learn how they can tie non-organic, information related capabilities into the mission and better support

the unit. Finally, all battalion FSOs should attend the Joint Targeting course to learn how to better systematically integrate fires to achieve the supported commander's desired effects.

The regimental ATS could be utilized to set up a training pipeline that would afford FSOs the opportunity to attend these essential training courses and afford them the opportunity to be a SME on fire support and the integration of fires. ATS already conducts training courses for artillery billets internal to the battalion such as Position Commander's Course to ensure that artillery officers are experts in their assigned billets. The same level of professionalism should be applied to officers filling FSO billets. This would consist of a four-week training pipeline with either internal instructors augmented by FSOs that have recently returned from an FSO tour as well as schoolhouse instructors from Expeditionary Warfare Training Group (EWTG) or Marine Corps Information Operators Course (MCIOC).

FSOs seen as Competitive

To ensure that the artillery community continues to follow along the path of sending highly competitive officers to represent the community as FSOs, the billet must be viewed as competitive and necessary for career progression. As stated above many artillery battalion commanders are sending their best and brightest officers to serve as FSOs in support of maneuver units. If the community is going to sustain this, these billets must be afforded equal footing with other competitive billets in grade such as battery commander equal to the battalion FSO billet and battery FDO equal to the company FSO billet. Through this increased prioritization of the FSO billet and the additional qualifications that FSOs will have the opportunity to receive through training courses, more artillery officers will seek out the opportunity to serve as FSOs in the future. The increased competition of artillery officers to fill

these billets will ensure that the artillery battalion commander is sending the right officer for the job.

Increasing the time in the Operating Forces

In order to allow for many of the recommendations that have been made here, one of the most difficult restrictions is time. The easiest way to ensure that all artillery officers are afforded the appropriate amount of time to execute billets that make them competitive within both the artillery and maneuver communities is to increase the length of their tour in the operating forces to four years. As it stands artillery officers usually spend two of their three-year tour in the artillery battalion. This change would allow for that timeline to provide FSOs the opportunity to attend the suggested training course listed above while developing unit cohesion with their FiST and the supported unit. This way the FSO would be able to check-in to the supported unit with all required certifications to clear fires as the SME well in advance of the composite date for a Battalion Landing Team (BLT) or MEU. The result would be that artillery officers have two years to focus on artillery operations and two years to focus on fires in support of maneuver.

CONCLUSION

Through the history of armed conflict, fire support has consistently played an essential role in the success of maneuver. The use of combined arms continues to shape the battlefield and afford maneuver commanders new and devastating capabilities. As conflicts continue to be more complex, expert FSOs will become more of an asset than ever before. Commanders understand the importance of fires and look for ways of maximizing the use of all available weapon systems to achieve the desired effects on the battlefield. With new tools and weapon systems becoming available to commanders, they must be prepared to utilize their personnel in

the same way to ensure that they maintain the ability to integrate those new systems effectively. Presenting maneuver commanders with a more qualified and capable FSO is in the best interest of the artillery community and will be a win-win for both communities.

Over the last seven years the artillery community has made major changes to the way it supports maneuver units. It was the intent of this paper that the recommendations provided are discussed and implemented to allow for a better relationship between the two units based on confidence in the competitive FSOs provided and the understanding that the continuity of the relationship is a high priority for both units. Embracing the capability of lethal and non-lethal fires will allow artillery officers to bring an added critical role in the planning of future operations that also corresponds with the primary mission of the community.

Finally, the recommendations listed in this paper are simply the next step in the continued evolution of improving the effectiveness of artillerymen and the contributions of those made up to this point by the community. Though the recommendations in this paper will require significant changes within the community they are necessary to the future success of FSOs and how they will support the MAGTF.

ENDNOTES

- ¹ Joint Staff, *Department of Defense Dictionary of Military and Associated Terms*, JP 1-02 (Washington, DC: Joint Staff, February 15, 2016), 86.
- ² Ellis Group, The. "21st Century Fires." *Marine Corps Gazette* (April 2017): 64.
- ³ Headquarters US Marine Corps. *Marine Corps Doctrinal Publication 1, Warfighting*. (Washington, DC: Headquarters US Marine Corps, June 1997), 94.
- ⁴ HQMC, FS Coordination in the GCE, MCTP 3-10F. 1-1.
- ⁵ Headquarters US Marine Corps. *The Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century*. Washington, DC: Headquarters US Marine Corps, September 2016. 8.
- ⁶ Joseph T. Allena. "Fixing Marine Fire Support Through Reorganization and Overcoming Institutional Obstacles." (master's thesis, Marine Corps University, 2002), 6.
- ⁷ Rawlings, Hunter (former Commanding Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 23, 2017.
- ⁸ Boston, Courtney (Fire Support Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 22, 2017.
- ⁹ Headquarters US Marine Corps, *Fire Support Coordination*, FMFM 7-1 (Washington, DC: Headquarters US Marine Corps, Apr 1981), 3-1.
- ¹⁰ Stoutenborough, Jarrod (former Commanding Officer, 2d Battalion, 10th Marines), discussion with the author, March 21, 2017.
- ¹¹ Headquarters Department of the Army, "FM 6-30 Tactics, Techniques and Procedures for Observed Fire," (Jul 1991): 2-2.
- ¹² Headquarters US Marine Corps, *Field Artillery Support*, FMFM 7-4 (Washington, DC: Headquarters US Marine Corps, March 1964).
- ¹³ Boston, Courtney (Fire Support Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 22, 2017.
- ¹⁴ Macak, Chris (Fire Support Coordinator, Battalion Landing Team 1/5, 31st Marine Expeditionary Unit), discussion with author, March 21, 2017.
- ¹⁵ William D. Hughes, "The Artillery Liaison Team: Making the Right Choice," *Marine Corps Gazette* 75 (Jun 1991): 37.
- ¹⁶ Macak, Chris (Fire Support Coordinator, Battalion Landing Team 1/5, 31st Marine Expeditionary Unit), discussion with author, March 21, 2017.
- ¹⁷ William D. Hughes, "The Artillery Liaison Team: Making the Right Choice," *Marine Corps Gazette* 75 (Jun 1991): 37.
- ¹⁸ Boston, Courtney (Fire Support Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 22, 2017.
- ¹⁹ William D. Hughes, "The Artillery Liaison Team: Making the Right Choice," *Marine Corps Gazette* 75 (Jun 1991): 37.
- ²⁰ Macak, Chris (Fire Support Coordinator, Battalion Landing Team 1/5, 31st Marine Expeditionary Unit), discussion with author, March 21, 2017.
- ²¹ Andrew J. Tate, "Fire Support Team Consolidation," *Marine Corps Gazette* 98 (July 2014): DE18.
- ²² Ibid, DE18.

²³ Ibid, DE18.

²⁴ Ibid, DE18.

²⁵ Lively, Jim (former Commanding Officer, Battalion Landing Team 2/6, with the 26th Marine Expeditionary Unit), discussion with the author, March 24, 2017.

²⁶ Spitznogle, Eric (former FSO Battalion Landing Team 1/6, 22d Marine Expeditionary Unit in 2016), telephone conversation with the author, March 30, 2017.

²⁷ Boston, Courtney (Fire Support Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 22, 2017

²⁸ Spitznogle, Eric (former FSO Battalion Landing Team 1/6, 22d Marine Expeditionary Unit in 2016), telephone conversation with the author, March 30, 2017.

²⁹ Headquarters US Marine Corps, *Marine Infantry Battalion*, FMFM 6-3 (Washington, DC: Headquarters US Marine Corps, March 1978), 336.

³⁰ Headquarters US Marine Corps, *Fire Support Coordination*, FMFM 7-1 (Washington, DC: Headquarters US Marine Corps, March 1978), 29.

³¹ Headquarters US Marine Corps, *Fire Support Coordination*, FMFM 7-1 (Washington, DC: Headquarters US Marine Corps, April 1981), 3-1.

³² Spitznogle, Eric (former FSO Battalion Landing Team 1/6, 22d Marine Expeditionary Unit in 2016), telephone conversation with the author, March 30, 2017.

³³ Boston, Courtney (Fire Support Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 22, 2017.

³⁴ Macak, Chris (Fire Support Coordinator, Battalion Landing Team 1/5, 31st Marine Expeditionary Unit), discussion with author, March 21, 2017.

³⁵ Lively, Jim (former Commanding Officer, Battalion Landing Team 2/6, with the 26th Marine Expeditionary Unit), discussion with the author, March 24, 2017.

³⁶ Rawlings, Hunter (former Commanding Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 23, 2017.

³⁷ Macak, Chris (Fire Support Coordinator, Battalion Landing Team 1/5, 31st Marine Expeditionary Unit), discussion with author, March 21, 2017.

³⁸ Ibid

³⁹ Rawlings, Hunter (former Commanding Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 23, 2017.

⁴⁰ Lively, Jim (former Commanding Officer, Battalion Landing Team 2/6, with the 26th Marine Expeditionary Unit), discussion with the author, March 24, 2017.

⁴¹ Rawlings, Hunter (former Commanding Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 23, 2017.

⁴² Macak, Chris (Fire Support Coordinator, Battalion Landing Team 1/5, 31st Marine Expeditionary Unit), discussion with author, March 21, 2017.

⁴³ Longino. 44.

⁴⁴ Rawlings, Hunter (former Commanding Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 23, 2017.

⁴⁵ Rawlings, Hunter (former Commanding Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 23, 2017.

⁴⁶ Ibid.

⁴⁷ Ibid.

⁴⁸ Ibid.

-
- ⁴⁹ Ibid.
- ⁵⁰ Ibid.
- ⁵¹ HQMC, FS Coordination in the GCE, MCTP 3-10F. 1-4.
- ⁵² Boston, Courtney (Fire Support Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 22, 2017.
- ⁵³ Headquarters US Marine Corps, *Fire Support in the GCE*, 1-5; HQMC, *Marine Infantry Battalion*, 336.
- ⁵⁴ Stoutenborough, Jarrod (former Commanding Officer, 2d Battalion, 10th Marines), discussion with the author, March 21, 2017.
- ⁵⁵ Ibid.
- ⁵⁶ Lively, Jim (former Commanding Officer, Battalion Landing Team 2/6, with the 26th Marine Expeditionary Unit), discussion with the author, March 24, 2017.
- ⁵⁷ Macak, Chris (Fire Support Coordinator, Battalion Landing Team 1/5, 31st Marine Expeditionary Unit), discussion with author, March 21, 2017.
- ⁵⁸ Lively, Jim (former Commanding Officer, Battalion Landing Team 2/6, with the 26th Marine Expeditionary Unit), discussion with the author, March 24, 2017.
- ⁵⁹ Ibid.
- ⁶⁰ Macak, Chris (Fire Support Coordinator, Battalion Landing Team 1/5, 31st Marine Expeditionary Unit), discussion with author, March 21, 2017.
- ⁶¹ Culbertson, Scott MACS-20 (Monitor for Field Artillery Company Grade Officers), telephone conversation with the author, March 23, 2017.
- ⁶² Ibid.
- ⁶³ Boston, Courtney (Fire Support Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 22, 2017.
- ⁶⁴ Spitznogle, Eric (former FSO Battalion Landing Team 1/6, 22d Marine Expeditionary Unit in 2016), telephone conversation with the author, March 30, 2017.
- ⁶⁵ Carl Von Clausewitz, "On War": 291.
- ⁶⁶ Robert R. Russell, "Fire Support Pubs," *Marine Corps Gazette* 100 (Dec 2016): 66.
- ⁶⁷ Culbertson, Scott MACS-20 (Monitor for Field Artillery Company Grade Officers), telephone conversation with the author, March 23, 2017.
- ⁶⁸ Spitznogle, Eric (former FSO Battalion Landing Team 1/6, 22d Marine Expeditionary Unit in 2016), telephone conversation with the author, March 30, 2017.
- ⁶⁹ Robert R. Russell, "Fire Support Pubs," *Marine Corps Gazette* 100 (Dec 2016): 66.
- ⁷⁰ William D. Hughes, "The Artillery Liaison Team: Making the Right Choice," *Marine Corps Gazette* 75 (Jun 1991): 37.
- ⁷¹ Spitznogle, Eric (former FSO Battalion Landing Team 1/6, 22d Marine Expeditionary Unit in 2016), telephone conversation with the author, March 30, 2017.
- ⁷² Boston, Courtney (Fire Support Officer, 3d Battalion, 5th Marines, during a Unit Deployment Program to Okinawa, Japan), discussion with the author, March 22, 2017.
- ⁷³ Rob Robinson, "The SPMAGTF Combined Arms Coordination Center: Advancing the FECC/FSCC Construct" (unpublished manuscript, March 15, 2017), Microsoft Word file.
- ⁷⁴ JP 3-13 Information Operations
- ⁷⁵ Stoutenborough, Jarrod (former Commanding Officer, 2d Battalion, 10th Marines), discussion with the author, March 21, 2017.

⁷⁶ Lively, Jim (former Commanding Officer, Battalion Landing Team 2/6, with the 26th Marine Expeditionary Unit), discussion with the author, March 24, 2017.

⁷⁷ Spitznogle, Eric (former FSO Battalion Landing Team 1/6, 22d Marine Expeditionary Unit in 2016), telephone conversation with the author, March 30, 2017.

BIBLIOGRAPHY

OFFICIAL PUBLICATIONS

Headquarters, Department of the Army. Range Safety. DA PAM 385-63. Washington, DC: Headquarters, Department of the Army, April 10, 2003.

Headquarters, Department of the Army. *Tactics, Techniques, and Procedures for Observed Fire*. FM 6-30. Washington, DC: Headquarters, Department of the Army, July 16, 1991.

Headquarters US Marine Corps. *Air Naval Gunfire Liaison Company Training and Readiness Manual*. NAVMC 3500.23A. Washington, DC: Headquarters US Marine Corps, October 2, 2012.

Headquarters US Marine Corps. *Artillery Operations*. MCWP 3-16.1 Washington, DC: Headquarters US Marine Corps, May 29, 2002.

Headquarters US Marine Corps. *Artillery Training and Readiness Manual*. NAVMC 3500.7B. Washington, DC: Headquarters US Marine Corps, June 18, 2015.

Headquarters US Marine Corps. *The Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century*. Washington, DC: Headquarters US Marine Corps, September 2016.

Headquarters US Marine Corps. *Fleet Marine Force Manual 7-4, Field Artillery Support*. Washington, DC: Headquarters US Marine Corps, March 1964.

Headquarters US Marine Corps. *Fleet Marine Force Manual 7-1, Fire Support Coordination*. Washington, DC: Headquarters US Marine Corps, April 23, 1981.

Headquarters US Marine Corps. *Fleet Marine Force Manual 7-1, Fire Support Coordination*. Washington, DC: Headquarters US Marine Corps, March 07, 1978.

Headquarters US Marine Corps. *Fleet Marine Force Manual 6-3, Marine Infantry Battalion*. Washington, DC: Headquarters US Marine Corps, March 1978.

Headquarters US Marine Corps. *Fire Support Systems for MAGTF Operations*. MCRP 3-16E. Washington, DC: Headquarters US Marine Corps, February 24, 2015.

Headquarters US Marine Corps. *Fleet Marine Force Manual 6-18, Techniques and Procedures for Fire Support Coordination*. Washington, DC: Headquarters US Marine Corps, March 1992.

Headquarters US Marine Corps. *FRAGO 001/2016: Advance to Contact*. Washington, DC: Headquarters US Marine Corps, January 19, 2016.

Headquarters US Marine Corps. *Marine Corps Doctrinal Publication 1, Warfighting*. Washington, DC: Headquarters US Marine Corps, June 1997.

Headquarters US Marine Corps. *Operational Handbook 6-2A, Fire Support Coordinator's Guide*. Washington, DC: Headquarters US Marine Corps, April 1987.

Headquarters US Marine Corps. *Operational Handbook 7-1, Fire Support Coordination by a Marine Air-Ground Task Force*. Washington, DC: Headquarters US Marine Corps, June 1983.

Joint Staff. *Department of Defense Dictionary of Military and Associated Terms*. JP 1-02. Washington, DC: Joint Staff, Feb 2016.

Joint Staff. *Doctrine for Joint Fire Support*. JP 3-09. Washington, DC: Joint Staff, May 1998.

Joint Staff. *Information Operations*. JP 3-13. Washington, DC: Joint Staff, Nov 2014.

SECONDARY SOURCES

Aitken, David M. "The Fallacy of Single Source Fire Support." Master's thesis, Naval Postgraduate School, 2003.

Allena, Joseph T. "Fixing Marine Fire Support Through Reorganization and Overcoming Institutional Obstacles." Master's thesis, Marine Corps University, 2002.

Bartelt, Erik J. "Requirements for a Joint Terminal Attack Controller Primary Military Occupational Specialty in the Post-OEF Marine Corps." Master's thesis, Marine Corps University, 2011.

Castelli, Christopher W. "Marine Artillery Support: A Model for Manning Fire Support Billets in Maneuver Units." *Marine Corps Gazette*, no. 7 (July 1999): 37-40.

Ellis Group, The. "21st Century Combined Arms." *Marine Corps Gazette* 100, no. 12 (December 2016): 21-28.

Ellis Group, The. "21st Century Fires." *Marine Corps Gazette* 104, no. 4 (April 2017): 64-68.

Friedman, Brett A. "Support the Fire Supporters." *Marine Corps Gazette* 94, no. 9 (September 2010): 53-55.

Gann, Michael J. "The Future of Air Naval Gunfire Liaison Company (ANGLICO)." Master's thesis, U.S. Army War College, 2010

Gelerter, Josh. "ANGLICO." *Marine Corps Gazette* 99, no. 3 (March 2015): 24-28.

-
- Hammonds, Darryl. "Fix Fires at the Fire Support Team." U.S. Naval Institute Proceedings 131, no. 1 (January 2005): 69-70. Academic Search Premier, EBSCOhost (accessed November 14, 2016).
- Hays, Michael G. "DO Fire Support." *Marine Corps Gazette*, no. 10 (October 2008): 14-20.
- Hughes, William D. "The Artillery Liaison Team: Making the Right Choice." *Marine Corps Gazette* 75, no. 6 (October 2008): 37-38.
- Johnson, Anthony J., Kurt Mogenson, Todd Peery, Chris Fears, and Andrew Tate. 2011. "Marine Artillery." *Marine Corps Gazette* 95 (10): 51-55.
<http://search.proquest.com.lomc.idm.oclc.org/docview/900097260?accountid=14746>.
- Mogenson, Kurt and Andrew Tate. "Scalable Fires Capabilities." *Marine Corps Gazette*, no. 11 (November 2013): 94-96.
- Payton, Leslie T. "A Revolution in Company Fire Support." *Marine Corps Gazette*, no. 6 (June 2003): 24-27.
- Robinson, Rob. "The SPMAGTF Combined Arms Coordination Center: Advancing the FECC/FSCC Construct" Unpublished manuscript, last modified March 15, 2017. Microsoft Word file.
- Russell, Robert R., "Fire Support Pubs." *Marine Corps Gazette* 100, no. 12 (December 2016): 65-69.
- Secor, Jonathan M., "Marine Field Artillery: A Path to Renewed Relevance in the 21st Century." Master's thesis, Marine Corps University, 2016
- Tate, Andrew J. and Kurt Mogenson U.S.M.C. 2014. "Fire Support Team Consolidation." *Marine Corps Gazette* 98 (7): DE18-DE20.
<http://search.proquest.com.lomc.idm.oclc.org/docview/1543790490?accountid=14746> .
- Tracy, Tommy James. "Field Artillery at the Crossroads of Transformation." *Military Review* 84, no. 1 (January 2004): 32. MasterFILE Premier, EBSCOhost (accessed November 14, 2016).
- Turner, William. 2016. "Field Artillery 2016, Beyond." Fires: 9-14.
<http://search.proquest.com.lomc.idm.oclc.org/docview/1793935154?accountid=14746>.