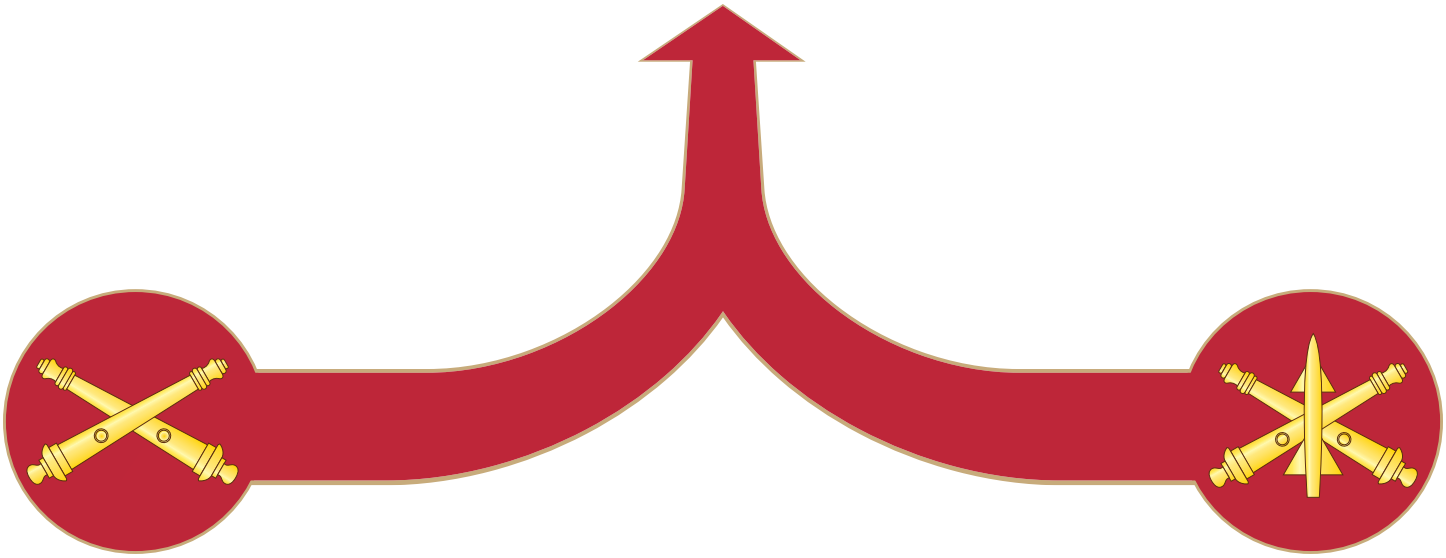

The future of field artillery

Merging with air defense

By 1st Lt. Taylor Maroni

Faced with an uncertain future, the field artillery branch and the United States military as a whole must be prepared for anything. We can look at our branch's past to see how it evolved to meet different challenges and analyze the effectiveness of the decisions that were made in response. We can focus on developing an understanding and building trust with the other branches of service in order to maximize the assets available for our mission. Once we know what we want our future to look like, we can begin developing new doctrine and adjusting the field artillery and air defense artillery job specialties as needed. In order to prepare for an uncertain future, we need to embrace new unit configurations, new equipment and new doctrine that embodies a bold and logical progression from our current standards.

Making the best possible decision going forward concerning the field artillery and air defense artillery branches may seem like a daunting task, but we can look to the past for guidance. By analyzing the decisions that were made and the nuances of the situations, we may be able to discern patterns that are applicable to today's situation. The air defense artillery began as a part of the field artillery branch, and by 1958, momentum was gaining to split the two due to increasing technical and tactical differences. However, it was not until 1968 that the two branches were officially separated. The main argument for the split was that trying to teach officers both kinds of artillery prevented them from attaining the proficiency necessary in order to carry out basic functions in either specialty. Separation was finally achieved in 1968 mostly due to experiences in the Vietnam War.

"Combat in Vietnam required the officer to arrive as a proficient field artilleryman and not a hybrid field and air defense artilleryman. Army commanders in Vietnam simply did not have the time to train an air defense artilleryman to be competent in field artillery […] who had had insufficient training in the basic techniques."[1]

If you apply the lesson learned here from Vietnam, you would assume keeping traditional field artillery and all other non-traditional (rocket/missile) operations separate would be the best course of action. However, in 2014, the Army decided to combine the military occupational specialties of traditional fire control specialists and their rocket counterparts. The argument of lack of Soldiers available and costs saved is similar to the reasons used to resist the air defense artillery becoming its own branch. While there might be short term benefits, it is important to consider the significant consequences it could have on future warfare.

In September 2014, Command Sgt. Maj. Daniel Moriarty stated that most of the reasons for the change were based on career progression for Soldiers within the branch, as well as the opinion that traditional and rocket systems are very similar now due to the digital systems they use. "With all of our weapon platforms becoming digitized, the reliance and use of manual gunnery should be relegated to degraded operations only."[2]

1 *King of Battle: A Branch History of The U.S. Army's Field Artillery, Boyd L. Dastrup, p. 288. 1992.*
2 *The United States Army Field Artillery Branch's Newsletter, p. 1, September 2014.*

Soldiers from 2nd Battalion, 8th Field Artillery Regiment, use the Joint Effects Targeting System during a Program Executive Office Soldier limited user test. (Courtesy photo/PEO Soldier)

An important factor to consider should be how well fire control Soldiers can be trained in both traditional and rocket units, as well as in manual gunnery. A core tenant of the field artillery has always been the ability to perform degraded operations if the situation required it. I do not think that the need for manual gunnery backups will go away no matter how reliable the digital systems get. As things currently stand, it is already a challenge for new fire control Soldiers to learn manual gunnery as they do not learn it at advanced individual training, and now they will have to learn the rocket side as well.

When entering a conflict, the military usually has a certain amount of catching up to do once they have assessed the situation. However, effective solutions are usually only able to be implemented after a significant amount of time has passed. Considering the scale of the technology we face today, it is a big risk to assume we have time to catch-up once a conflict has started. Eventually, the "missile peace" could be broken by one side or the other launching a serious attack via missile. Considering this, I am afraid that the field artillery's missile and rocket side will become increasingly vital to success in a future conflict and that Soldiers and officers alike will not be ready. In the Field Artillery Basic Officer Course, we spent a total of two days out of six months learning about the rockets and missiles of the field artillery. Lieutenants sent to rocket units quickly learn the tools of the trade, but what happens when Soldiers and officers who have spent their whole career in traditional field artillery units are suddenly expected to perform in a combat environment with rockets? I do not think that the integration the Army is looking to achieve is feasible without rocket and missile batteries becoming a part of field artillery battalions. In a composite battalion such as 2nd Battalion, 11th Field Artillery, experience in both M119s and M777s can be easily obtained due to the ability to rotate people between jobs. The same could be achieved with rockets.

With advancing technology, traditional field artillery might soon be able to support missions traditionally left up to missiles and rockets. Talk of field artillery hyper velocity rounds has been circulating for at least a couple of years, and they stand to change the game of the "plus one" rule when facing near-peer enemies. The "plus one" rule is where an enemy can easily identify our interceptor missile launchers due to their distinctive signatures. The enemy can reasonably calculate how many projectiles a launcher should have, and can launch stockpiled, cheaper, "dumb" rockets that will force the launcher to use up all its rounds. This is compounded by the fact that for each instance, two interceptors need to fire at the same target for redundancy.[3]

Hyper velocity rounds (HVP) stand to disrupt the current norms by introducing uncertainty in the enemy. They will be guided rounds that are capable of chasing down and intersecting with other missiles. The rounds can be fired from a slightly

3 *$86,000 + 5,600 MPH = Hyper Velocity Missile Defense. Sydney J. Freedberg Jr., Jan. 26, 2018. https://breakingdefense.com/2018/01/86000-5600-mph-hyper-velocity-missile-defense/*

modified tube already used in M777s and M109s. The enemy will not be able to estimate the amount of hyper velocities rounds a battery might have, especially because they are exponentially cheaper than rockets or missiles. Right now, the estimate for one HVP is $85,000, which is cheap compared to $3,000,000 for one Patriot missile. Traditional field artillery batteries also have a smaller signature before firing and can maneuver more easily undetected. This will allow us to match the enemy's number of cheaper "disposable" projectiles and save our expensive sophisticated missiles for when they are really needed.

With that being said, what good are precision munitions if you do not have an observer able to give you a precision target location? Technology must evolve in the fire support and firing battery roles in order to maximize the effectiveness of both. Right now, the standard method for an observer to obtain a Category II, 10-digit target location is the Lightweight Laser Designator Rangefinder (LLDR). Despite its name, anyone who has used one before knows that its components are quite bulky. Having Soldiers carry it around is a significant burden to fire support teams. However, a newer, more compact device may soon replace it.[4] The Joint Effects Targeting System (JETS) is only five pounds and is slightly smaller than the main module of the LLDR. The benefits created by simply switching to a smaller device cannot be understated. Forward observer teams often have to climb to hard-to-reach places for the best view or are tagging along with their maneuver element. Light infantry units move quickly on foot, so every piece of extra equipment has a significant effect on the Soldier's comfort and maneuverability. If the LLDR is opted to get left behind, then the maneuver element likely does not have an alternate means to pull Category II grids. This means that any fire mission called will be significantly less accurate on the initial round, which can result in more rounds being fired and the loss of the element of surprise.

Not only is the JETS more lightweight, but it also features significantly more advanced sensors. It utilizes the Precision Azimuth and Vertical Angle Module to measure the rotation of the Earth using sensitive gyroscopes rather than relying on celestial cameras. This is a huge improvement because the LLDR can be affected by adverse weather conditions that obstruct the celestial camera. The Department of Defense is looking at fielding the JETS to Army and Marine fire support elements, along with Air Force joint terminal attack controllers (JTACs) and fixed-wing aircraft, bringing everyone on a common platform and proving the worth of this new piece of equipment.

Having the right equipment to get accurate targeting data is important, but what do you do once you have it? It is increasingly likely that in the future, many targets may require engagement with an asset other than the assigned supporting field artillery. It is not surprising when you take a moment to think about how many assets are available to forward observers: Army attack aviation, Air Force, Navy and Marine platforms and countless foreign ally platforms. Joint forward observer (JFO) certification has always been important and the demand for it will only increase in the future. The proof is how Field Artillery BOLC and 13F (forward observers) AIT have changed their curriculums over the past four years in order to keep up with the demand of JFO training. Before, JFO used to be a separate course from BOLC where second lieutenants stayed after graduating in order to attend. A large number of new FA officers missed this opportunity due to classes not lining up with their permanent change of station date or going to another school such as Ranger School. When I went through BOLC, JFO had become part of the curriculum, and passing the written test was a mandatory graduation requirement. However, the only hands-on training my class got was through simulators ran by JTACs, which were similar to the recertification simulations that are ran by JFO-evaluators to keep JFOs current. Now, students in BOLC have the chance to control live aircraft and drop bombs in an impact area as part of their JFO training. Some classes even get lucky enough to do this with ally nations, further highlighting the importance of this training in a joint environment. Mark Kessens, the Fort Sill Falcon Range operations officer, extends this logic out to our pilots and JTACs as well.

"In combat, American fighter or bomber pilots won't only being dealing with Americans. You have Australians, you have Dutch, you have British, you have Canadians."[5]

There are all these assets that might be missed if there isn't awareness on how to properly acquire and take advantage of them. To support this, in 2014 13F AIT went from being six weeks long to almost nine weeks in order to include JFO training. The 13F Advanced Leaders Course and Senior Leaders Course also received changes to their curriculums to include JFO training. These changes are contributing to the readiness of fire support Soldiers to conduct missions wherever and with whatever assets available, which is priceless in the face of an uncertain future conflict.

Once we achieve this stage of modernization, we cannot stop innovating for the future. We also cannot forget our past problems and issues and how we dealt with them effectively or ineffectively. Building understanding and trust with the other branches of service and foreign allies must continue to be a focal point for our nation. Remembering the past, maximizing assets for the future, and pushing steady logical progression in doctrine is the best way to stay fit for undetermined warfare.

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4 *The Army Wants To Make Forward Observers Deadlier Than Ever With This Sleek New Targeting System. Jared Keller. Jan. 19, 2018. https://taskandpurpose.com/army-joint-effects-targeting-system/*

5 *British exchange officer fills key role supporting Fires training. Fort Sill Tribune. Feb. 15, 2018. https://www.army.mil/article/200710/british_exchange_officer_fills_key_role_supporting_fires_training*