Brigade deep battle 2.0
UAV-Fires teaming in support of the brigade deep fight

By Capt. Joseph Schmid

During the ongoing Russo-Ukrainian conflict, military professionals throughout the globe witnessed Russia's ability to systematically project "annihilation Fires" leveraging nascent unmanned aerial vehicles (UAVs) teamed with massed rocket and cannon artillery. In their article titled, "Russia's New Generation Warfare," Phillip Karber, president of the Potomac Foundation, and Joshua Thibeault, a member of the Russian New Generation Warfare study team, detailed the debilitating effects of Russian UAV-Fires teaming. They state "Ukrainian units have observed up to eight Russian UAVs overflights per day … The increased availability of overhead surveillance combined with massed area Fires [have produced] … approximately 80 percent of all casualties."[1]

Russian UAV-Fires teaming served the dual purpose of instantly attriting whole battalions of Ukrainian mechanized infantry as well as having the uncanny effect of disrupting the Ukrainian OODA Loop decision cycle (observe, orient, decide, act).[2] Imagine a U.S. combined arms brigade (CAB) "in a three-minute period …

[suffering] a Russian fire strike destroying two mechanized battalions with a combination of top attack munitions and thermobaric warheads."[3]Following the almost instantaneous loss of two mechanized infantry battalions, the imagined CAB will likely no longer be able to perform basic warfighting functions. Consequently, its remaining combat power could no longer successfully close with and destroy a comparatively sized adversarial near-peer formation. This troubling observation from the Russo-Ukrainian conflict has decidedly hastened our own UAV interoperability, especially at echelons above battalion.

Numerous training exercises, both real and virtual, have led to improvements in regards to our own organic UAV-Fires teaming. During Rim of the Pacific Exercise 2016, the Marine Unmanned Aerial Vehicle Squadron 3 (VMU3) tested their RQ-7B Shadow's ability to perform a traditional call for fire. Maj. Jarrod Larson, VMU3 executive officer, said, "One of the things we're designed for and we do really well is that forward observer role. We can go very deep in the battlespace and call for fire with

either artillery Fires or with other aircraft, and relay those targets to either the ground controllers or actually control and observe those Fires ourselves."[4]

The VMU3's RQ-7B Shadow became yet another sensor proficient in providing rapid targeting data for responsive artillery strikes based off the target selection standards recommended by a fire support coordinator.

Larson's UAV-Fires scenario described above was internalized by the 25th Infantry Division Artillery after they coupled manned unmanned teaming (MUM-T) with traditional lethal Fires to generate a paradigm for the purpose of maximizing lethality and target handoff in a contested division deep area between the division coordinated firing line (CFL) and the fire support coordination line. The initial concept by Maj. Bobby Sickler, Maj. David Henderson and John Hansen in their article titled "Deep Battle 2.0: An Integrated Division Deep Fight," was "broken into four distinct phases: Shape, find, destroy and accomplish the mission."[5] During the shape phase the DIVARTY tactical opera-

1   Phillip Karber and Joshua Thibeault, Russia's New Generation Warfare, Army Magazine, June 2016 issue, accessed on Feb. 28, 2018.
2   MacCuish, Donald A. 2012, "Orientation: Key to the OODA Loop - the culture factor," Journal of Defense Resources Management, Vol. 3, Issue 2.
3   Phillip Karber, Examining Russia's Policy Near, Abroad, and Around the World, 2015 AUSA Annual Meeting and Exposition, Washington D.C., Oct. 12-15, 2015.
4   Megan Eckstein, RIMPAC 2016: Marines Test UAVs for Artillery Calls for Fire, Close Air Support, U.S. Naval Institute News, Aug. 1, 2016.
5   Maj. Bobby Sickler, Maj. David Henderson and John Hansen, An Integrated Division Deep Fight, Deep Battle 2.0, Center for Army Lessons Learned (CALL), February 2017 issue, p. 1.

Soldiers fire an M119A3 howitzer during a live-fire exercise. (Courtesy photo)

tions center (TOC) reduced "the enemy air defense posture to a level acceptable to employ rotary-wing aviation with a relative level of freedom of maneuver."[6] Kinetic strikes, usually in the form of M26 rockets fired from High Mobility Artillery Rocket Systems, exploited targeting data acquired by organic Gray Eagle UAV to destroy adversarial air defense assets. "The find and destroy phases took place in a continuous loop within the EA [engagement area]."[7] Lethal indirect Fires were employed for targets such as adversarial long range artillery, light skinned vehicles, command and control nodes and target acquisition radars. Armored targets would be passed to rotary wing. With this system of systems, it's key to note that one umbrella organization, the 25th DIVARTY, collocated both the UAV asset able to transmit targeting data and the firing unit able to rapidly receive the target, compute firing data and fire.

During fiscal years 2016-17 this construct was validated in numerous command post exercises such as Yama Sakura 71, Talisman Saber, Ulchi Freedom Guardian, and culminated in 25th DIVARTY's Warfighter 2017 performance. Key to success was the collocation of Gray Eagle feed directly adjacent to the fire control element, contributing to rapid lethal responsiveness upon target identification.

Keeping in mind the advantages of UAV-Fires teaming portrayed above, while exploiting 3rd Brigade's recent experience at Joint Readiness Training Center 18-04 rotation, in the following pages, I will portray how the incorporation of deliberate UAV-Fires teaming may have increased 3rd Squadron, 4th Cavalry Regiment's ability to project combat power deep within our own heavily contested brigade deep fight area. Drawing on past experiences gained as a troop fire support officer as well as a DIVARTY battle captain, I will isolate certain "Division Deep Battle 2.0" characteristics and apply them to the brigade deep fight in an effort to synchronize dynamic UAV target acquisition efforts with a light cavalry squadron's tactical control (TACON) artillery battery. Ultimately, I will argue for the establishment of a deliberate UAV-Fires cell inside the 3-4th CAV TOC able to act as an umbrella organization coupling UAV target acquisition efforts with a TACON fire direction center (FDC). I believe the realization

of these arguments will set the necessary conditions for 3-4th CAV to impose catastrophic disruptive Fires focused wholly on dynamic targets presenting real-time threats between the forward line of troops and the division CFL.

During our recent 18-04 JRTC rotation, I believe two phases of the battle presented unique friction points that would have benefited from the incorporation of deliberate UAV-Fires teaming. These events include 3-4th CAV's initial advance into the engagement area in support of 3rd Brigade's forward passage of lines (FPOL), as well as their screen of 2nd Battalion, 27th Infantry Regiment during the defense. During scenario one, 3-4th CAV's establishment of 3rd Brigade's FPOL, 3-4th CAV retained TACON of one M119A3 105 mm howitzer battery, which generally received calls for fire (CFF) from fire support teams (FISTs), using traditional observation techniques, on-ground collocated with their respective CAV troops. CFF's would be initiated upon dismounted platoon-sized elements or lightly skinned adversarial vehicles, often after making initial contact. Overall, any remnant forces the cavalry squadron encountered were destroyed or retrograded and the screen resulted in a successful FPOL with her sister 2-27th IN and 3rd Brigade Combat Team, 25th Infantry Division battalions. However, in the process, adversarial forces were allowed to make initial contact with ground elements of 3-4th CAV. Lt. Col. Scott Pence, commander of 5th Squadron, 73rd Cavalry (Airborne), recounts from his JRTC experience "The opposing force used light humvees to quietly and slowly occupy dismounted observation points, gain visual contact and harass the rotational unit with indirect Fires."[8]

Therefore, the underlying problem rests with allowing the enemy to gain a position of relative advantage, which granted them the ability to collect positional information on our most forward formations. We were unable to maintain a favorable stand-off distance between ourselves and advancing adversarial forces. Conversely, adversarial forces imposed favorable stand-off distances in the latter stages of the battle as 3rd Brigade busied itself establishing a defense with two infantry battalions abreast and 3-4th CAV screening forward. All attempts to ascertain enemy force posture

and movement were frustrated. Our efforts to conduct surveillance within the brigade deep fight along likely avenues of approach were routinely denied resulting in rotary and Fires' inability to initially disrupt advancing columns of mechanized infantry and armor. The failure to project disruption Fires within the brigade deep fight during the defense led to increased attrition of our maneuver battalions during their direct engagement. This failure stemmed from our collective inability to bypass the enemy's disruption zone in an effort to acquire targets behind the forward edge of battle area. Both circumstances, the initial entry of 3-4th CAV and the brigade's defense, highlight an inadequate ability to routinely project coordinated disruptive lethal Fires into the brigade deep fight during key elements of the battle. Consequently, we'll now transition to blending select characteristics of Henderson's Division Deep Battle 2.0 theory with emerging cavalry doctrine in order to generate the conditions needed for rapid lethal Fires within the brigade's contested deep fight, synchronized by an aggressive light cavalry squadron TOC, acting as a UAV-Fires umbrella organization.

In an Armor Magazine article titled, "The Return of Cavalry: A Multi-Domain Battle Study," Majors' Nathan Jennings, Amos Fox, Adam Taliaferro, David Griffith and Kyle Trottier state, "It has become increasingly vital for advance ground elements to integrate indirect, aerial … and informational Fires to dynamically shape battlefield outcomes."[9]

The incorporation of deliberate UAV-Fires teaming during 3-4th CAV's establishment of 3rd Brigade's FPOL, could have potentially shaped the battlefield more toward our favor. Imagine, upon FPOL establishment, all squadron RQ-11 Ravens were leveraged to observe pre-planned likely avenues of approach. CAV small unmanned aerial systems (SUAS) Raven teams would traverse three to four kilometers in front of their troop formations effectively extending the likelihood of observing the adversary for the purpose of dynamic targeting. Think of the Raven section, possibly teamed with a troop FIST, as a multi-domain operation version of the combat observation and lasing team of the early 2000's which "augmented the platoons for an additional target acquisition capability."[10]

6   Ibid
7   Ibid
8   Lt. Col. Scott Pence, 2017. "The Lethality Imperative: Training Cavalry Squadrons to Fight for Information." Armor, Summer 2017, p. 4.
9   Maj. Nathan Jennings, Maj. Amos Fox, Maj. Adam L. Taliaferro, Maj. David Griffith and Maj. Kyle Trottier, 2017. "The Return of Cavalry: A Multi-Domain Battle Study" Armor, Summer 2017, p.18.
10   Robert S. Davidson, 2000. "R&S lessons learned-brigade reconnaissance troop employment." Military Intelligence Professional Bulletin. Vol. 26, Issue 4. p. 62.

A Raven unmanned aerial vehicle flies overhead during a training exercise. (Courtesy photo)

Brigade Deep Battle 2.0 simply takes a Vietnam-era aerial observer concept and repackages it for today's modern technology in order to maximize UAV-Fires teaming within a light cavalry squadron. As the adversary attempts to probe the FPOL site each troop's Raven acquire targets, triggering the operator's CFF. All CFF's are centralized within the 3-4th CAV Fires and effects coordination cell (FECC) located either inside or slightly offset from the 3-4th CAV TOC. Similar to 25th DIVARTY's technique of collocating Grey Eagle feed with the fire control center, one of the TACON artillery fire direction centers will be either inside or slightly offset from the 3-4th CAV TOC directly adjacent to the 3-4th CAV FECC. This sensor and shooter collocation will promote responsive UAV-Fires teaming as well as grant the FDC enhanced maneuver situational awareness, something battery and platoon FDC's have collectively struggled with.

The idea of exploiting SUAS, such as the portrayal above, is not new. Capt. Christopher Brandt, Headquarters and Headquarters Troop, 3rd Squadron, 89th Cavalry Regiment commander, makes use of this emerging concept in his article titled, "The Future of Unmanned Systems in Cavalry Squadrons." He opens with a vignette in which small cavalry teams, not unlike the Raven/FIST combination advocated for previously, infiltrate adversarial lines for the purpose of generating calls for fire. He states, "At the press of a button, the drone lazes the target, and it delivers a set of triangulated set of coordinates to the enemy po-

sition. Artillery begins raining down on the unsuspecting [enemy] troops."[11] Brandt's scenario illustrates the enhanced lethality CAV SUAS infiltration teams coupled with a TACON indirect fire asset, can bring to the brigade deep fight.

The CAV SUAS infiltration teams have the potential to enhance the comprehensive layering of indirect and rotary-wing weapon systems in which forward-positioned Ravens, under centralized control of the 3-4th CAV TOC, engage in MUM-T with the 25th CAB's rotary wing assets. The dedicated TACON artillery battery would provide the CAV's long reach into the brigade deep fight targeting primarily advancing infantry dismounts, light-skinned technical vehicles, and especially any ADA threat attempting to deny freedom of maneuver to friendly rotary wing. As armored targets present themselves, CAV SUAS infiltration teams utilize MUM-T by sharing targeting data with the 25th CAB. Remnant forces, who survive the initial artillery disruption Fires, may continue to advance towards 3-4th CAV troop positions, still tracked by CAV SUAS infiltration teams, and subsequently engaged by 120 mm mortars. Any remnant forces of these two targeting cycles will be severely attrited and dispatched by 50 cal. and/or M240B fire. This echelonment of fire coordinated by 3-4th CAV and supported by 3rd Battalion, 7th Field Artillery Regiment, is what creates a wood chipper-like scenario, ensuring the maximum lethality of all weapons systems, while maintaining an appropriate stand-off range between forward CAV elements and ad-

vancing adversarial forces. Now transpose the above described system onto both the FPOL and the brigade defense scenarios we encountered in JRTC. I'd argue by first introducing, then enacting the Brigade Deep Battle 2.0 Theory described above, 3-4th CAV teamed with 3-7th FA and rotary elements of 25th CAB can achieve greater destructive lethality.

In conclusion, the Brigade Deep Battle 2.0 Theory is simply "a way" to achieve enhanced synchronization between a light cavalry squadron, SUAS, and its TACON artillery battery. By layering indirect assets teamed with SUAS infiltration teams we maximize windows of opportunity to attrite advancing adversarial forces, while simultaneously granting increased survivability for forward positioned CAV units. This system can project the destruction observed within Russian UAV-Fires teaming onto adversarial forces seeking to disrupt 3-4th CAV objectives. And finally, by integrating air, land and cyber domains within UAV-Fires teaming, 3-4th CAV can nest more firmly within the Army's emerging multi-domain battle concept.

Capt. Joseph Schmid is the 3rd Squadron, 4th Cavalry Regiment fire support officer. He holds a bachelor of arts in English from West Florida University. Schmid attended Field Artillery Basic Officer Leaders Course at Fort Sill, Okla., prior to serving in the 82nd Airborne Division as A Troop, 1st Squadron, 73rd Cavalry Regiment fire support officer and B Battery, 2nd Battalion, 319th Airborne Field Artillery Regiment fire direction officer, platoon leader and executive officer. He attended the Captains Career Course at Fort Sill and is now stationed at Schofield Barracks, Hawaii. Previous articles include "Cross domain Fires executed in Lightning Forge 2017" and "Calling for improvements on US Army's cannon artillery."

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