Death from Above

How Secure Tactical Video Transmission Impacted the Second Nagorno-Karabakh War

By John Antal

An Azerbaijani HAROP Unmanned Aerial Vehicle (UAV) detonates over an Armenian T-72 Tank as another UAV flies to a target to the left in this image. (Photo: Azerbaijani Ministry of Defense).

On September 27, 2020, a short and decisive war in the Caucasus erupted that provides a glimpse of wars to come. Azerbaijan and Armenia clashed in a conflict in rough, mountainous terrain that lasted 44 days and ended in Armenia's surrender and Azerbaijan's triumph. The battlespace was the area of Nagorno-Karabakh, the contested region between Armenia and Azerbaijan. The Azerbaijanis executed their version of cross-domain maneuver to win a rapid and decisive victory against a defending and determined adversary. To achieve this, the Azerbaijanis invested a reported $24B+ to upgrade their forces, purchasing the latest Turkish and Israeli Unmanned Aerial Vehicles (UAVs) and Loitering Munitions (LMs). The effective use by Azerbaijan of these weapons in the war was stunning. The unrelenting tempo, precision, and lethality of the Azerbaijani aerial top-attacks devastated and demoralized the Armenians and played a definitive role in Azerbaijan's victory. These systems did not win the war by themselves, and UAVs have been over-hyped in many press accounts of the war, but the impact

of the high-definition full motion video (FMV) provided by top-attack systems categorized this conflict as “the war of the drones.” The Azerbaijanis used the secure FMV capabilities of their systems to enhance sensor-shooter integration, to obtain battle damage assessment, and for propaganda to win the information war. In these aspects, especially the use of secure tactical FMV video and data links, the conflict is a harbinger for wars to come.

The BAYRAKTAR TB2 is a Turkish medium altitude long endurance (MALE) unmanned combat aerial vehicle (UCAV) that uses an Aselsan Common Aperture Targeting system (CATS) for electro-optical reconnaissance, surveillance, and targeting. Low-light and infrared high-definition cameras on the TB2 generate an unblinking eye of the battlespace. The Azerbaijanis used the Full Motion Video (FMV) capability of the TB2 to great advantage in the Second Nagorno-Karabakh War. (Photo: wiki commons by Bayhaluk)

Sensor-Shooter Integration

The first phase of the Azerbaijani effort was to employ their newly acquired high-tech UAVs and LMs, in addition to conventional artillery and rockets, to take down the Armenian air defense and command and control (C2) network. They did this in in the first weeks of the war. Armenian air defense, made up of older Russian-made systems, could not stop the Azerbaijani UAV and LM attacks. Even when the Armenian air defense systems were operating, the aerial top-attack weapons penetrated the airspace and knocked out the defenders. Azerbaijan used a wide variety of UAVs during the war and the most effective and notorious were the Turkish-made BAYRAKTAR TB2 (Turkish defense company Baykar), the Israeli-made HAROP (Israel Aerospace Industries), and the fully autonomous Israeli-made SKYSTRIKER (Elbit Systems). The electro-optical sensors on the most sophisticated UAVs and LMs used by Azerbaijan are state-of-the-art Infrared (IR) and low-light High-Definition Television (HDTV) cameras that deliver secure tactical video reconnaissance, surveillance, and targeting data. During the war, the TB2 operated as an attack platform and as the “eye in the sky” for Azerbaijani forces to identify and designate targets for other UAVs, LMs, artillery, rockets, and smart anti-tank guided missiles

(ATGM), such as the Israeli-made Spike ATGM system. While the TB2 UAV identified Armenian forces in the designated strike zone, LMs circled autonomously overhead, automatically verifying their targets, and then diving into their victims to detonate their 23 kg (51 lb) warheads in a kamikaze-like attack. Prior to launch the HAROPs are programmed before launch to autonomously fly to a pre-defined strike zone. Once there, they loiter and the human operator can select one LM for target search and attack, while the others are monitored periodically. According to IAI, "The operator directs the selected LM to the target area and uses the video image to select a target, and to attack it. The HAROP tracks the target and then dives on it, detonating the warhead upon impact. If required, the attack can be aborted and the operator can re-attack with the same LM." The vital component is the HD camera system which allows the operator to gain situation awareness of the battlespace and direct the LM to attack targets designated by the operator.

Battle Damage Assessment

Once Azerbaijan knocked out enough Armenian air defense and C2 to achieve air superiority over designated strike zones, the UAV and LM effort concentrated on targeting Armenian artillery, tanks, and infantry units in bloody top-attacks. Since the modern UAVs and LMs operated by Azerbaijan contained both situation awareness and weapons capability in the same platforms, the Azerbaijanis could accurately count their kills. Using the FMV from both UAVs and LMs to understand how many Armenian systems were destroyed or disabled, this information helped guide their combined arms assaults that led to the capture of terrain that dominated the major highways linking Nagorno-Karabakh through mountain passes to Armenia. Once the Azerbaijanis secured these vital roads, it placed the Armenians in Nagorno-Karabakh on the horns of a dilemma, with the choice to either fight to the death or surrender. Desperate to save their forces, Armenia proposed a cease-fire. Azerbaijan rejected the initial overtures as their ground forces moved to capture the major cities and decisive terrain in Nagorno-Karabakh. Only after Azerbaijan achieved its objectives did they agree to a ceasefire. In a *de facto* surrender, Armenia accepted Azerbaijan's terms on November 10, 2020, and withdrew from Armenian-occupied territories surrounding Nagorno-Karabakh. Throughout the war, UAV and LM videos bolstered by robust secure tactical video feeds, provided the Azerbaijanis with superior situation awareness.

Information War

Azerbaijan, with the aid of Turkey, planned and prepared a high-tech conflict against Armenia for at least a decade prior to September 2020. Part of this strategy involved winning the information war. This effort was designed to confuse and demoralize Armenian forces and break the will of the Armenian population. Every precision UAV and LM attack was captured in high-definition video through a secure data link. The films depicted burning tanks and devastating explosions among groups of Armenian soldiers. The Azerbaijanis used these gruesome videos in countless propaganda films on the Internet and social media platforms. Armenian's viewed this footage and feared for their soldiers. In this propaganda effort the Azerbaijani message was loud and clear: "We are winning. We will bring you death from above with our drones and you can't stop us." As Armenian losses surged and their lines continued to fall back, morale suffered.

Courage is useless in the face of educated bullets, and the Azerbaijani top-attack munitions hit their targets with brilliant accuracy. These videos were crucial elements in Azerbaijan's propaganda effort. Leveraging the power of real-time video capture by unmanned systems to win the information war is relatively new and the Azerbaijani's played this hand skillfully.

The HAROP can be launched from a truck, with as many as 12 Loitering Munitions per truck, or air launched. (IAI image)

Lessons Learned

As the 1973 Yom Kippur War was studied as an example of modern combined arms operations during the late 20th century, the Second Nagorno-Karabakh War holds lessons in the dynamic clash between attack and defense, the use of technology, and conduct of cross domain maneuver for today. The increasing "democratization of technology," whereby high-tech weaponry such as UAVs and LMs become available to all, and the secure tactical video produced by these weapons that depicts the violence of each strike used as a powerful propaganda tool, has serious implications for western military forces. The battlespace is now transparent and there is nowhere to hide. As after the 1973 Yom Kippur War, the question on the minds of many western military leaders should be whether the combat units of NATO would fare any better than the Armenians under the Azerbaijani whirlwind? Has NATO fielded the integrated air defense capability to counter UAV and LM assaults? How many NATO units have recently trained against UAV and LM swarm attacks? How will NATO integrate the command-and-control cross-domain capabilities of 29 multinational, multi-service UAV systems? These questions demand answers.

Tackling this challenge should start with a detailed study of the Second Nagorno-Karabakh War to derive lessons learned, and then transform those lessons into updated doctrine, training, and equipment. One of the key lessons is the use of secure tactical video equipped UAVs and LMs to enhance sensor-shooter integration, raise situation awareness through battle damage assessment, and to win the information war. When the next conflict between peer-competitors occurs, the side that fails to learn the lessons of the Second Nagorno-Karabakh War will find themselves at a significant strategic and tactical disadvantage that they may not be able to overcome.

John Antal is the author of 15 books and hundreds of magazine articles on military subjects. He served 30-years in the US Army, with 26-years in leadership of tank and cavalry units and currently serves as a member of the Army Science Board. His latest book, Leadership Rising, will be published in June 2021.

Author's Page: https://www.amazon.com/author/antal