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Related Categories: Cybersecurity and Cyberwarfare; Military Innovation; Science and Technology; Warfare; China; Russia

SPACEX DEVELOPS KEY TO HYPERSONIC WEAPON TRACKING

Hypersonic weapons pose a significant challenge to current U.S. missile defense systems due to their high speeds, maneuverability and erratic flight trajectories, all of which make them capable of evading radar detection. To deal with the threat, the U.S. defense community has been advocating for the development of a space-based sensor layer that includes a constellation of smaller satellites in low earth orbit capable of detecting Chinese and Russian hypersonics. However, this solution has proven elusive as a result of the prohibitive costs and practical difficulties of launching enough satellites to create an effective system. However, the private sector may now have solved the problem. SpaceX, the aerospace company headed by futurist and technological innovator Elon Musk, has developed a new technique giving it the ability to simultaneously launch 60 small satellites into orbit. The technique is being seen in defense circles as a potential game-changer, making it possible for the Pentagon to deploy a sensor layer to detect hypersonic weapons quickly and cost-effectively. (AL.com, August 6, 2019; C4ISR.net, August 6, 2019)

[EDITORS' NOTE: for more information about the difficulties of tracking and countering hypersonic weapons, see the American Foreign Policy Council's *Strategic Primer* on hypersonic weapons.]

A NEW CYBER WEAPON: ACOUSTIC ATTACKS

Last year, some 40 American and Canadian diplomats in Cuba were rendered ill by what was described as a "sonic weapon." While controversy still surrounds the incident (more recent findings have cast doubt on the acoustic weapon theory), such weapons are indeed real - and they are evolving. Hackers have reportedly developed malware capable of conducting a cyber attack that involves weaponizing any networked commercial speaker, and then using it to play ultra-high or ultra-low sounds inaudible to the human ear but which can cause physiological and psychological pain. That, moreover, might be just the beginning. According to one technology consultant, "...acoustic cyber-weapon attacks could potentially be done at a much larger scale using something like sound systems at arenas or commercial PA systems in office buildings." The most alarming aspect of such potential attacks is that, unless there is a sound meter monitoring the speakers, a target may never know it is under attack - allowing the attacker to degrade an entire organization without its knowledge. (Wired.com, August 11, 2019)

MAKING NAVY SHIPS MORE LETHAL

The U.S. Navy has adopted a strategy of "distributed lethality" to fight future conflicts, relying on multiple vessels to confront an adversary, rather than a concentrated core fighting group that would prove easier to target. That strategy, meanwhile, has taken a step forward with the development of the Adaptive Deck Launcher (ADL), which allows any ship with the requisite deck space to significantly expand or add an offensive payload. The ADL system incorporates four cells capable of accommodating a wide array of offensive and defensive ballistic missiles, and can be bolted on and added to amphibious transports, dock landing ships, and even allied vessels, giving these craft firepower normally reserved for Navy destroyers. (*The Drive*, August 8, 2019)

NANOTECH HELPS ADDRESS "SHRINKAGE"

Unfortunately, when U.S. military equipment is shipped from a warehouse, it does not always arrive at the desired location. The Pentagon has long suffered losses from stolen hardware (dubbed "shrinkage") and items lost as a result of poor tracking. New means to solve these problems have emerged, however, thanks to practices already being employed in the commercial sector. Among the most promising is the tagging of packages utilizing radio frequency identification (RFID). The military is exploring nano RFID technology capable of providing an undetectable unique fingerprint to each piece of military equipment. The nanotrackers (which are 1,000 times thinner than a newspaper) could work as transmitters or beacons and become integrated into a more robust and accountable inventory system. (*Clearance Jobs*, August 13, 2019)

NEW LASERS TO PROTECT ARMY INFANTRY

U.S. Army infantry units are often at the forefront of conflict and suffer the most casualties, so Army leaders are working on innovative technological solutions to keep them safe. The new "Adaptive Squad Architecture," which views the soldier, squad, and their equipment as a cohesive combat platform, is focused on using technology such as small drones for air support, acoustic sensors to measure sounds of enemy fire, and sensors detecting light from adversary weapons in order to protect a unit. And, while rapidly targeting an enemy after they have fired upon a soldier is useful, the Army is developing a laser technology that tracks adversaries even before they shoot. The "pre shot detection" system, still in development, will work in combination with the Army's Rapid Target Acquisition system once mature to identify when soldiers are being looked at through glass - such as the optics used in sniper scopes and binoculars - through the use of laser emitters that bounce reflections back to the squad. The functionality, Army officials believe, will be especially useful in urban environments. (*Fox News*, August 22, 2019)