Modern weapons

1. Discuss the following questions.

1. In future armed conflicts, which modern weapons could be used?

2. Which of them are the most deadly ones?

3. How, do you think, could the 3rd World War end? Could some people survive? Would they have environment suitable for life of animals and humans?

1. Discuss the new vocabulary.

|  |  |  |
| --- | --- | --- |
| thermobaric weapons | flammable particles | to flatten buildings |
| to ignite | to rupture eardrums | compelling evidence |
| to seek sanctuary | **aerial bombardment** | **brokered peace** |

Vacuum bombs in Syria: the latest chapter in a long history of atrocity from the skies

Imagine taking a deep breath then submerging yourself in water. Then imagine having all of the oxygen forced instantaneously from your body. Try to inhale again. But instead of cold water filling your lungs, toxic, flammable particles start killing you from the inside out.

Such suffering and death is distressing and inhumane. That is what is inflicted by a [thermobaric bomb](http://www.globalsecurity.org/military/systems/munitions/thermobaric.htm), sometimes called a “vacuum bomb”. They first appeared in modern form in the 1960s and have been refined ever since. Russia, [the US](http://nationalinterest.org/blog/the-buzz/the-american-militarys-deadly-thermobaric-arsenal-14505), [China](http://defence.pk/threads/chinese-thermobaric-bomb-for-sale-to-all-south-asia-except-india.218801/), [India](http://defenceforumindia.com/forum/threads/india-tests-newly-developed-thermobaric-ammunition.74869/) and many others have them.

Thermobaric bombs [use different combinations of heat and pressure](http://news.bbc.co.uk/1/hi/world/south_asia/1854371.stm) to produce different high explosive effects. An initial explosion produces a pressure wave powerful enough to flatten buildings or penetrate into cave or other structures. At the same time, the explosion will disperse highly flammable fuel particles around its vicinity.

These, often aluminium-based, particles ignite a fraction of a second later and burn at very high temperatures. The two blasts combine for maximum effect. They use up all the oxygen in the surrounding air, creating a vacuum – hence “vacuum bomb”. The resulting vacuum can be powerful enough to rupture the lungs and eardrums of anyone nearby.

The Syrian and Russian governments [have both been accused](http://www.dailymail.co.uk/news/article-3257396/Russia-moves-deadly-new-weapons-equipped-thermobaric-warheads-Ukraine-world-s-attention-Syria.html) of using thermobaric bombs against rebel forces. Compelling evidence supports the claims of [devastating consequences for nearby civilians](http://www.itv.com/news/2016-08-08/syrian-forces-drop-chemical-bombs-on-civilians/).

It is brutally clear why Vladimir Putin and his ally Bashar al Assad might use these weapons. Thermobaric bombs are highly destructive with fearsome, direct physical effects. In opposition-held areas, civilians are just as likely to be affected as combatants. The indirect effects are also desirable from Syrian and Russian government perspectives. Local communities are terrorised into submission or displaced, joining the millions of refugees seeking sanctuary elsewhere.

**Civilian targets**

The [UN Human Rights Council](http://www.un.org/press/en/2012/ga11206.doc.htm) has been highly critical of numerous uses of lethal force in Syria. This includes the aerial bombardment by pro-government forces of areas beyond government control. It seems almost too obvious to state that the widespread killing of civilians by such methods is immoral. The weapons are indiscriminate and cannot distinguish between combatant and noncombatant. Their use against civilians is disproportionate to any threat those civilians pose to Assad’s rule. Further, the suffering and death they inflict is inhumane, by any measure. Worse, any claim that only fighters are being targeted in these bombings is dishonest and inaccurate. The distinction between civilian areas and the battlefield has disappeared in places like Aleppo.

Until some form of brokered peace is achieved, with distasteful but necessary accommodations, the suffering will continue. Right now, the West is powerless to prevent these abhorrent Russian and Syrian tactics. We can only stand by while their vacuum bombs literally suck the life out of innocent civilians.

1. **Watch these videos and discuss what you saw.**

<https://www.youtube.com/watch?v=vUB2nYz6USo>

<https://www.youtube.com/watch?v=Vdu_fLb8ISc>

<https://www.youtube.com/watch?v=xbNqrV6zwk0>

**The Pentagon Wants to Train Robots to Hunt Daesh**

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[Military & Intelligence](https://sputniknews.com/military/)

By the end of 2017, the Pentagon hopes that computers, not human soldiers or analysts, will be spearheading the hunt for Daesh militants and hideouts in Syria and Iraq by using aerial surveillance footage and turning it into "actionable intelligence."

This is part of Project Maven, an effort launched last month by Deputy Defense Secretary Work to engineer new types of machine learning in the US Defense Department.

The [memorandum for Project Maven](https://pochta.rian.ru/owa/redir.aspx?C=sIPho_LTS3NExs0-UGVpppWqiJBH8exBZKsG2HTNGvb3UeVPmZvUCA..&URL=https%3A%2F%2Fwww.govexec.com%2Fmedia%2Fgbc%2Fdocs%2Fpdfs_edit%2Festablishment_of_the_awcft_project_maven.pdf) lays out quite clearly its raison d'etat: "as numbers studies have made clear, the department of defense must integrate artificial intelligence and machine learning more effectively across operations to maintain advantages over increasingly capable advisories and competitors."

Reportedly, military and civilian analysts are "overwhelmed" by the sheer amount of video footage that they have to sit down and sift through to look out for behavior indicative of Daesh terrorists. The footage is taken by drones and coalition aircraft flying over Iraq and Syria in the fight against Daesh in both countries.

While there is plenty of footage, and much of it recorded on high-resolution camera, analysts are finding it difficult to deal with the vast amount of intelligence that they have to work with. Leaders in the Pentagon are hoping that changes in technology will be able to life some of the burden off of the stretched workforce, while simultaneously bringing better results on the battle against Daesh.

Currently, analysts have to go through the laborious task of filling in any abnormal behavior they spot of the footage into a spread sheet. In an attempt to to increase efficiency, last month, the Pentagon established the Algorithmic Warfare Cross Functional Team. The team will be developing [artificial intelligence](https://pochta.rian.ru/owa/redir.aspx?C=j1DLc7RraKoXaMyhuUHSxYYGbtdRbCvrNVejanKTZ073UeVPmZvUCA..&URL=https%3A%2F%2Fsputniknews.com%2Fscience%2F201705101053470095-ai-human-brainwaves-machines%2F) to sort through the massive amounts of video data collected by human surveillance drones.

Essentially, the purpose of the unit is to reconcile the huge amount of data with machine learning in the military. The team will be working with the Pentagon's Strategic Capabilities Office, which is a group that tries to reengineer and enhance current weapons technology to a more lethal caliber. The hope is that by marrying the two departments, the DoD will be able to hasten the process of automating intelligence for military purposes for effectively.

Rather than killing machines, the idea of AI has been to focus on a collaboration between humans and artificial intelligence. In a nutshell, the machine would sift through massive amounts of data at high speeds while the human intelligence analyst makes the final decisions.

The Pentagon has been working on other such projects for over a year. In one similar project, technology is being developed that uses automation to locate and hunt down missile launchers, similar to those used by North Korea. The two projects differ slightly, as the former relies on satellite imagery whereas the latter uses full-motion video collected from drones and aircraft.

As it stands, the Algorithmic Warfare cell is waiting on a US$70 million approval of funds from the congress. Once approved, the cell will follow a "three-phase effort," each of which will last a duration of 90 days. The first phase will reportedly be to decide upon data labeling algorithms, the second will be to acquire the hardware or software that can process the algorithms, and the third will be to put the technology to use in military missions.

However, as it stands, AI is still in the basic phases of development. The Pentagon is finding that computers are superior at generating the data, but still lack the ability to analyze it to the extent of humans. This means that for now, the intelligence analysts at Arlington might have to go on being overwhelmed with cell phone intercepts and drone video footage, for quite some time yet.