Did the cannon live?

Earth Thought Notebooks

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Histoire & stratégie

In the LBDSN 2013, the gun is no longer mentioned as a major weapon in the French arsenal... Is this an oversight or a sign of decommissioning?

There are many examples in France's military history where the size and capabilities of its army are described by an inventory in which the gun has been mentioned since the Middle Ages. Must the cannon now be an outdated system or revolutionized by technology so that its digital evocation is no longer mentioned in a document such as the White Paper on Defence and National Security of 2013 (LBDSN 2013)? This observation, which may go unnoticed due to the appearance of new equipment, nevertheless raises questions about the symbolic, tactical and technical roles of firearms at the beginning of the 21st century.

Battle of Castillon (1453): 300 guns led by the Bureau brothers participate in the French victory over John Talbot's English army. Wagram (1809): the large battery of Drouot aligns a front of 112 pieces and contributes significantly to overthrow an initially unfavourable tactical situation. There are many examples in the military history of France where the size and capabilities of its army are described by an inventory in which the cannon appears since the Middle Ages. Must the cannon now be an outdated system or revolutionized by technology for its digital evocation to no longer be cited in a document such as the White Paper on Defence and National Security of 2013? (LBDSN 2013) This observation, which may go unnoticed due to the appearance of new equipment, nevertheless raises questions about the symbolic, tactical and technical roles of firearms at the beginning of the 21st century.

What are the visible and hidden assets of an armed force with guns?

The range, the destructive power, but also the production capacity, the level of training

and the ammunition stockpile are information that, when deciphered, says a lot about the operational level of an armed force. It is not surprising then that some of the first images attributed to the EIL[1] or to the Russian forces in Ukraine were artillery pieces: guns captured by the EIL in Iraq and filmed with a high angle of fire as a curved trajectory shot to confirm the high level ofThe guns captured by the EIL in Iraq and filmed with a high angle of fire as if they were in a curved trajectory to confirm the high level of training of the jihadists that the coalition was about to face, self-propelled guns (2S19) to support the idea of a high level of threat from the Russians.

Although the gun sometimes presents an image of a rustic and somewhat outdated weapon, it still intrinsically conveys a certain image of military and technological power. In many countries, protocol retains batteries of honour to salute the official investitures of monarchs and other heads of state. Indeed, as the heir to an era when economic resources and the technological capacity to produce them remained scarce, this protocol thus indicated to the world the level at which these countries aspired to position themselves. Moreover, the martial approach of the salvo of honour associates the image of power with the representation of its potential destructive power.

Physically, the simple possession of this type of weapon retains a powerful symbolic image. This impression of power is often conveyed by the simple visual aspect of the equipment. If no one is yet able to affirm that it has been well used, the famous "Tsar Pushka" gun [2] in Moscow, by its impressive measurements (890 mm in calibre) and although it is not very powerful, it is a very powerful weapon.this single one, was thus sufficient to indicate to the adversary a certain idea of the technological superiority and intimidation of Russia at the time of Ivan the Terrible. This symbolic role still appears in the collective imagination with the evocation of the "Big Bertha" [3] in 14-18 or the famous German V3 [4]. Closer to us, the French citizen continues to let himself be impressed by the force of the visual impact of an AUF1 or a CAESAR in the 14 July parade, just as he remains impressed by a LECLERC tank, a VBCI or a specific engineering machine.

The manufacturing processes, despite widespread industrialisation, have retained a certain amount of complexity. Although the ability to machine with precision now seems within the reach of many, the secrets of the chemical composition of manufacturing steels are well guarded. Thus, in spite of the relatively rustic appearance of the traditional barrel, few countries are still able to develop autonomously a classic barrel tube capable of withstanding the firing constraints of a modern part.

As mentioned above, the ability to use the gun is finally a relevant indicator for the analyst seeking to characterize the operational level of an adversary. Indeed, in spite of its technically elementary operating principle and almost unchanged since 14-18, the golden age of indirect fire artillery, it is above all the increasing level of complexity of coordination and calculation that makes its use difficult below a certain threshold of training or coordination capacities. This complexity increases with the level of modernization of a force. The level of capability of an artillery will thus evolve from the simple ability to fire a gun shot, even if it means firing on sight (expeditionThe level of artillery capability will thus evolve from the simple ability to fire a cannon shot, even if it means firing on sight (Afghan experience with the 122D30 cannon), to the ability to be integrated into a global coordination matrix with actors from the 3rd dimension and space. The latter capability is currently held by only a very small number of government armies, including France and the United States. It should be noted, in this respect, that being capable of employing indirect fire on a massive scale can also say a great deal about inter-service liaison and logistic support capabilities. In France, the Artillery Train was created by Napoleon in 1800 in order to make ammunition supply more reliable. Knowing how to supply massively and fluidly is also a complex operation in itself. The multiplication

of 3rd dimension actors, associated with the emergence of collateral damage restriction policies, generates a growing need for arbitration and capacity for deconfliction, analysis and discrimination. The double progression of precision and control of the effects of projectiles, which seems to make the use of artillery easier to implement, does not seem to compensate for the simultaneous progression of constraints induced by modern warfare. Finally, the last aspect, for the analyst who relies on the description of the ability to manoeuvre and fire artillery, is the evaluation of the potential level of coordination of an armed force. For example, a manoeuvre at the artillery battalion level might indicate a possible manoeuvre capability down to the brigade level for joint command.

Not sacrificing know-how that is difficult to regenerate

Faced with a conventional and numerous enemy, the French artillery of the 80s had combined the best of its capabilities and know-how within the artillery group of the armoured division. With the firepower of sixty-four AUF1 self-propelled vehicles capable of firing with precision, without delay in battery deployment, the French armoured division (DB mod. 84) had to be able to neutralise the columns of Soviet tanks on the march to the enemy. This capability was made possible by being out of range thanks to the extension, the camouflage capability and the ability to make rapid saving movements. This dynamic maneuver required a high level of coordination to optimize trajectories, rationalize shell consumption, follow the movements of supported troops and maintain the permanence of fire. The French ATLAS system (automation of firing and ground-to-ground artillery links) was the result of discussions aimed at providing French artillery with a weapon system capable of integrating all these requirements. It is a fact that while the system has demonstrated its capabilities and confirmed its potential, its capacities are now under-utilised due to the scarcity of manoeuvres.It is a fact that although the system has demonstrated its capabilities and confirmed its potential, its capacities are now under-utilised due to the rarity of real manoeuvres and engagements in a format that exceeds that of a liaison, observation and coordination detachment commanding the fires of a section of one to four guns. The scarcity of available equipment and the scarcity of personnel able to devote themselves to it no longer seem to allow artillery units to preserve this operational capacity to actually manoeuvre several firing units together.

The tactical and technical know-how peculiar to military employment is doubled by the need to maintain a technological and industrial base capable of developing and producing artillery systems and ammunition, as for all armaments. Without an ambitious medium-term development project, the maintenance of technical know-how for highly qualified personnel (engineers, boilermakers) is only maintained through export orders. These orders are supported by the visibility and performance observed by the French armed forces' use of them. There is therefore a real risk that the SOUTEX [5]* cycle will be broken by not pursuing a national armaments programme.

Not to pursue the logic of quantitative reduction

The numerical factor (number of aligned parts) certainly no longer has the same meaning as in the past. The saturation shot has left the field open for precision in the face of modern engagements. A CAESAR, firing twice as far as a 155 mm howitzer from the 60s and 70s (AMF3), is capable of necessarily beating much larger surfaces. The covering of

their crossfire made it possible to cover almost the entire area of engagement of the La Fayette brigade in Afghanistan, without the CAESARs having to leave their protected bases. The accuracy and type of ammunition (OACED [6]) also made it possible to achieve the same effect with much lower consumption than at that time. However, the reality of public finances and the choices made meant that the number of CAESARs in the Army did not exceed 77 (the first tranche ordered and delivered, finally not followed up) for a long time. In a weapon that punishes its training by the application of live fire, there is therefore a not insignificant risk that the artillery's material capacities to training and its operational contract may be saturated by the multiplicity of external commitments and the inevitable attrition of the number of guns.

Finally, the logic of tightening the number of pieces of equipment is opposed to the logic of concentration of fire which will continue to remain valid despite the technology. Thus, the firing rate of a CAESAR gun section (which depends more on the physical condition of its crew than on a self-loading self-propelled gun) remains broadly similar to that of an AUF1 section in the 1980s. The ability to strike an enemy with brutal and concentrated fire will then depend on the number of tubes aligned per section or per battery to obtain a significant effect without breaking off the fire. The logic of reducing the number of tubes per firing section, observed de facto in recent engagements (GA2 CAESAR, SAM 2) thus seems to have reached its limits in the face of a more symmetrical enemy than the armed groups hunted in Africa or Afghanistan.

Prospects: maintaining sufficient conventional gun capabilities and combining them with new concepts

Contrary to the paths taken by the Western and mainly European countries, the emerging countries whose defence efforts in absolute terms are trailing the major powers are modernising their artillery systems but are not aiming at a significant reduction in their quantity. Through the efforts made to continue its development, these States also indicate that in their view the gun remains an essential capability to be maintained in the arsenals of a land force. Among the most advanced countries, Israel, whose arms exports surpassed France in 2013, has a technology recognized as one of the most sophisticated, but retains a large and powerful artillery. Although Israeli guns are still essentially M109s of American origin, they have been regularly upgraded and are now more powerful than ever.They are part of a global defence system, capable of destroying projectiles in flight and of immediate response by counter-battery fire.

It is a fact that apart from a situation mainly imposed by economic choices in Europe, the classic artillery gun is maintained as a fundamental capability in the battle corps. However, the maintenance of conventional capabilities (traditional shells, blinding capability with smoke, illumination of the battlefield with white light or infra-red rays) could be combined with another reflection aimed at complementing the tactical and technical capabilities of these systems and thus make their use even more relevant. For example, it is certain that the development of precision through GPS guidance or the participation of artillery in non-lethal actions are avenues that can be explored. Among the examples of the development of non-lethal capabilities with high added value, it would be relevant to ask the question of the exploitation of the chemical "marking" technique used in the civilian field of the safety of goods and persons. In a context of asymmetrical combat, a shell with such a chemical marker, fired by a rocket[7] over a specific area, could make it possible to trace insurgent groups. The Israelis have developed a tactical procedure to warn the inhabitants of a given place of the imminence

of a bombardment on their area. This tactical procedure is based on the use of non-explosive shells that alert the population by means of noise and shock waves.

The fate of the cannon thus still seems assured. The West must nevertheless ask itself whether, by systematically resorting to the third dimension, its armies have not sacrificed capabilitiesThe West must nevertheless ask itself whether, by systematically resorting to the third dimension, its armies have not sacrificed capabilities that might one day be lacking, both in terms of know-how and availability in a combat where air supremacy would no longer be guaranteed as it is today.

1] Islamic State of Iraq and the Levant

[2] Tsar Pushka: founded in 1586 on an order from Fedor[I], son of Ivan the Terrible, is known to be the largest howitzer ever built. However, it would never have served any real purpose, remaining an ambassador for Russian weapons technology of the time.

[3] Grosse Bertha: 420 mm howitzer used by the Prussians during the Great War. It is often confused in the popular story with the giant gun "Pariser kanonen" used to bomb Paris in 1918.

4] V3: secret weapon developed by the Third Reich to [bomb] England. It was built on the site of Mimoyecques (Pas de Calais) near Landrethun. It consisted of five batteries of five guns, each measuring 130m long. It was designed to fire 140 kg shells, measuring 150 mm in calibre at a range of about 165 km. It was never operational, having been the subject of active bombing campaigns by the Allies.

[5] SOUTEX: an acronym for export support, i.e. all military, commercial or industrial actions aimed at optimising arms sales to foreign actors.

[6] OACED: anti-tank shell with directed effect. Artillery ammunition developed by NEXTER operating on the principle of an infrared directed shaped charge on a target with a high thermal signature such as a battle tank. Its theoretical use allows it to destroy a section of four tanks with two shells.

7] Rocket fire: artillery fire whose charge is triggered at a distance from the ground by a proximity fuse mechanism or by timing. The fusing fire developed for machine gun shells ("schrapnell") is also used for the firing of flare shells or the use of specific shells requiring a high deposition, such as the French OACED anti-tank shells.

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