What ethics of new technologies in warfare?

military–Earth thinking notebook

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At a time when research is constantly advancing in new technologies, there is an urgent need for more reflection on the ethical consequences of their use in warfare. Indeed, human beings are gradually disappearing from the battlefield and from the decision-making loop, while the difficulties linked to discrimination and collateral damage are regaining their full acuteness.

Greater government involvement in research and the introduction of appropriate employment doctrines in conjunction with industry should make it easier to understand the ethics of new equipment. In any event, the soldier must remain at the heart of the conflict and master the application of fire.

The application to the military world of new technologies such as nanotechnology or robotics conveys their share of fantasies, such as the super-soldier or virtual warfare. However, many of these fantasies, which have so far been mediated by science fiction films of varying quality, are on the way to becoming reality.

At a time when research, driven as much by the need to know as by the need to be profitable, is constantly progressing, it is urgent today to speed up reflection on the ethical impact of these technologies used in warfare.

Research can no longer free itself from all responsibility, and future doctrines of use must also be thought out as soon as possible in conjunction with industrialists. The soldier must in any case remain the central element of war, otherwise there is a risk of endangering the nation he is supposed to protect.

What are ethics in warfare today, and what technologies are we talking about?

"The specificity [of the soldier] lies in the fact that he is the holder, in the name of the nation from which he derives his legitimacy, of the responsibility to inflict destruction and death, at the risk of his life, in accordance with the laws of the Republic, international law and the customs of war, ...".[1]

International law and the customs of war are thus the foundations of ethics. The habits and customs of war have been replaced by jus ad bellum (the right to make war) and jus in bello (law in war). Formalized later in the form of numerous conventions, these rules and principles have made it possible to define a legal framework to limit the violence of conflicts between States. A third set of norms, jus post bellum, attempts to regulate the behaviour of victors in the aftermath of conflict and facilitate the reconstruction of nations. The definition of concepts such as war crimes has at the same time made it possible to moderate the behaviour of actors by removing the sense of impunity. This legal ethic is, however, less and less adapted to contemporary conflicts that no longer meet the criteria of war between legitimate state authorities. Moreover, the clear distinction between combatants and non-combatants becomes less relevant when one of the actors is not a regular army, since civilians are no longer always mere spectators.

It is therefore imperative that these texts be supplemented by ethical principles. In the words of the French text: "Master of his strength, he respects the adversary and takes care to spare the population" [2]. The soldier's principles are thus expressed by the notion of controlled force, used at a level that is rigorously sufficient and proportional to the effects to be obtained. The soldier must thus always be capable of distinguishing between the interest of the State he serves and the preservation of humanity, the latter ultimately having priority. Permanent discrimination between civilians and combatants must be one of his primary responsibilities, since the population is used by all in asymmetrical conflicts, whether for information, action, concealment or propaganda purposes.

When we talk about new technologies in the defence field, drones and more generally robotics are the first area that comes to mind. It is often a matter of replacing the soldier to do as well or even better while protecting human life. Moreover, decision-making autonomy will probably be acquired in less than a quarter of a century thanks to continuous progress in artificial intelligence. Then there are potential offensive modes of action in cyberspace[3] and the space domain, such as the capability to destroy satellites before the likely return of space-to-Earth weapons programmes. Finally, nanotechnology[4] offers formidable military possibilities on a scale of half a century, limited for the moment to the improvement of the existing. There is a lot of talk about increased protection for the combatant or the strengthening of physical and mental capacities, while waiting for a better perception of the new developments[5] that will be made possible by the mastery of the infinitely small.

New technologies raise real ethical and moral questions.

The civil-military duality of these new technologies makes their relationship to ethics very complex. Can we still hope to spare non-combatants when certain fields of action such as the Internet or space are as fundamental to the civil economy as they are to waging war? Unless actions are limited to the rare infrastructures that would be used exclusively for military purposes, collateral damage will be almost systematic. Considering that the

neutralisation of major Internet equipment can cause billions of euros in losses, comparing the potential effects of an attack in the cyberworld with the electromagnetic effects of a nuclear bomb is not inopportune, but with a very big difference: the anonymity of the attacker and, de facto, his impunity.

Because of an inability to identify the real perpetrator, the anonymity offered by new technologies is likely to be the fundamental development of the years to come. Apart from highly sophisticated technologies such as nanotechnology, it will be easy for governments to shift responsibility, or even delegate their actions, to private service providers. Clearly, states that are unable to react in the same field of action as their adversary will find it difficult to justify retaliation through conventional military operations, paralysing their freedom of action.

In addition to the undermining of these legal ethical principles, the moral relevance of the use of certain tools is becoming more and more important as mankind is gradually being removed from the space of operations. Like the drone operator operating outside the theatre of operations, a soldier can nowadays kill without directly risking his life. The ethical problem of delivering death without proximity is a debate that will therefore be further amplified with these technological improvements, risking one's life being a full part of the moral justification for giving death.

Conversely, we must not forget that the effectiveness of neutralising a weapon lies as much in its material destruction as in the associated human losses. These remote operators, for drones today and robots tomorrow, will inevitably end up being targeted instead of vectors that are too easily replaceable, even within national territory if necessary. Is it ethical to take the risk of attracting violence within one's own population under the guise of protecting the soldier? Will we still talk about terrorism?

Finally, competition from artificial intelligence and the capabilities offered by nanotechnology will inevitably impact the soldier. Robotics induces a double ethical question[6], intimately linked to the human character of the soldier. What will be the capacity of artificial intelligence to adapt the rules of engagement to the complex reality of warfare? Is it possible to accept the withdrawal of human life by artificial will, and therefore, as a corollary, what place for man in the decision to fire? In view of the non-standard situations common in conflicts, it is difficult to imagine the division of responsibilities between industrialists and military leaders in the event of a bad decision taken by an artificial intelligence.

Moreover, the soldier improved tomorrow by nanotechnology (and perhaps by genetics the day after tomorrow) will undoubtedly be the logical continuation of the use of these same techniques to treat man today. The placing of implants directly into the muscles or even the brain makes it easier to visualize all the possible drifts, and the difficulty of drawing the limits of what is acceptable in this field. What freedom of choice does a soldier have when faced with the use of implants when a refusal will directly endanger his life in an artificially augmented environment?

Solutions are possible, subject to a minimum national **description of the limits.**

As the first stage in the emergence of these technologies, research no longer responds to a need but determines it. Even if the philosophical debate on the ethical responsibility of the researcher is eternal, the question of how it should be framed is more acute. Having long used Gabor's Law[7] to reject all prohibitions,[8] the researcher can no longer be content to oppose the neutrality of the technique he is studying and the ethics of the applications that result from it. It is not, however, desirable to systematically take refuge behind the precautionary principle to prohibit all research. Concerning military applications, the Ministry of Defence and therefore, by extension, the State, should redefine and increase its role in the R&T phase[8], which is today largely neglected and abandoned to industrialists. However, it is at this level of reflection on risks that the ethical aspect must be addressed, in order to allow limits to be set on the products developed. This role will certainly require that the cost of such limits sometimes be assumed in order to avoid abuses linked to a need for profitability for the manufacturer.

An adapted doctrine of use should also make it possible to compensate for the ethical difficulties involved. To return to the comparison with nuclear weapons, the ethics of deterrence is inseparable from its doctrine of use... or non-use. The same logic should be applicable to weapons or means of action linked to new technologies, provided they are applied on a large scale. It is necessary to begin this reflection very early on, so that the defence industry can be guided much earlier than today before the product development phases.

We must therefore avoid letting industry design systems of such complexity that man could no longer intervene in the decision-making loop. This would be tantamount to imposing de facto his exclusion, and therefore to forcing the introduction of a new ethic of warfare: automating the decision to kill.

Finally, the soldier must remain the central element of war, whatever the human cost. Since war remains first and foremost a clash of wills in the service of a political goal, it would be utopian to believe that it will be won painlessly by states that are able to replace man by technology on the battlefield. Only death or inflicted suffering can bend political will. A war waged exclusively by robots would be meaningless because there would be no end to it unless one of the two belligerents were economically asphyxiated. In the absence of soldiers and military objectives with high added value in the areas of operations, it is therefore the national territory, its population and its vital infrastructures that will become the target allowing the adversary, asymmetrical or not, moreover, to affect first the effectiveness of the armaments and then, ultimately, to bend the political power . However, it is the whole purpose of the professional soldier, voluntary and trained to survive, to take decisions in extraordinary situations and, if necessary, to offer his life in the place of the citizen in order to preserve freedom of political action.

The tactical superiority potentially provided by the new technologies must not overshadow the ethical problems inherent in their use in war situations, as well as the new strategic weaknesses induced for states that would be unable to fight in the same dimensions. The dehumanization of the battlefield and the anonymity of the aggressor will undoubtedly displace violence towards objectives of greater strategic value, mainly to the detriment of national territorial security.

Greater State involvement in research and the establishment of appropriate doctrines of use in correlation with industrialists should make it easier to understand the ethics of new

equipment.

In any event, the soldier must remain at the heart of the conflict and master the application of fire, supported by his ethics and moral strength which will enable him to take the best decision, risking his own life if necessary. The loss of tactical effectiveness will thus be compensated for by the preservation of the moral and therefore political legitimacy of military action.

1] "L'exercice du métier des armes dans l'armée de Terre", Etat-major de l'Armée de Terre, January 1999.

2] Soldier's Code, Army.

3] Cyberspace: "virtual space bringing together the community of Internet users and digital information resources accessible through computer networks". (Larousse). We must beware of limiting this world to the Internet and be aware of its constitution in three sets, each one carrying vulnerabilities: infrastructure, applications and information itself.

4] Nanotechnology: "a field of science whose vocation is the study and manufacture of structures whose dimensions are between one and one thousand nanometres". (Larousse). For comparison, the average size of a hair is 100,000 nanometres.

5] A NATO report, The Security Implications of Nanotechnology, published in 2005, discusses, for example, their application to bacteriological and chemical warfare.

6] Human Rights Watch published a comprehensive publication on the subject in November 2012: Losing humanity, the case against Killer robots.

7] Gabor's Law: "all that is possible will be done, always". According to this law, nothing can prevent a researcher from trying the most dangerous or unlikely experiment somewhere. It would therefore be useless to regulate research.

8] R&T: research and technology; R&T is situated between fundamental research (CNRS, universities) where the State, through its funding, is very present, and product development (R&D) led by industrialists. It consists of validating the most promising technologies, studying and removing the risks involved in their use, and often takes the form of technological demonstrators.

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