



## The military revolution in robotics is not on.

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**Unscrupulous and infallible soldier, intelligent tactician, is the robot soldier the military revolution of tomorrow that technological evolution seems to logically prepare? For the author of this article, it is unlikely. Over-abundant robotization appears to be a technological headlong rush. Far from providing a solution to the strategic impasse in which Western armies find themselves against techno-guerrillas and terrorist groups, it accentuates the gap between ways of fighting and increasingly favours the abandonment of conventional combat by the adversary for asymmetrical combat.**

May 11, 1997 marks the first victory of an artificial intelligence over human intuition [1] in the chess game won by the computer Deep Blue against Kasparov. Since then, robotics has developed rapidly through the design and realization of programs or autonomous machines. Military equipment now includes such automatons that replace human operators [2] because they are faster, more accurate and even more powerful. It is now possible to imagine hundreds of robot-soldiers confronting each other on dehumanized battlefields to give substance to this new stage of technological development.

In reality, excessive robotization appears to be a flight forward, at most a technological fantasy. Far from providing any solution to the strategic impasse in which Western armies find themselves in opposition to techno-guerrillas and terrorist groups, it accentuates the gap between the ways of fighting of each belligerent and increasingly favours the abandonment of conventional combat by the adversary in favour of asymmetrical combat.

The robot is attractive because, in the imagination, it seems to combine all the qualities of the perfect soldier.

Tomorrow's automated military systems are likely to be more efficient, in line with technological developments that see equipment increasing its performance generation after generation. As the limits of human reactivity have already been reached, the programmes under development more frequently include automatic system reactions: electronic countermeasures, launching decoys, aiming correction, etc. The foreseeable evolution thus consists in giving the intelligent machine the power to destroy alone [3].

Indeed, a key concept of tactics is to understand, design and act faster than the opponent [4]. A robot capable of detecting, deciding and then firing autonomously will be more efficient than a human opponent, giving a real tactical advantage to the one who commands it. Better yet, in the perspective of the "zero death" combat that is becoming haunting in today's operations, the loss of a machine seems of little consequence compared to a human loss. Public opinion will be little moved by the loss of robots, drones or other computer programs.

As Charles Ardant du Picq [5] explained, the search for the least exposure to danger is a constant in military history. So the replacement of the human combatant on the battlefield by the robot fighter seems logical, in keeping with the historical approach of seeking maximum protection. The adversary himself would derive limited media benefit from exhibiting the remains of a machine as compared to a human prisoner.

Finally, the last step in this fantasized implementation of robotics, the appearance of programs capable of taking tactical command seems to be a longer term possibility [6]. Today, the Army considers that man must remain at the heart of decision-making. However, programs with artificial intelligence and capable of taking into account an unprecedented number of variables could participate in the decision-making process, write orders or even react alone in the event of an alert.

However, it is very likely that robotics will not change the art of warfare since its supposed effectiveness will encourage potential adversaries to refuse conventional combat.

The automation of tasks such as replacing human combatants with machines should significantly increase the theoretical combat effectiveness of units equipped with robotic equipment. However, by increasing the technological differential between belligerents with and without robotic technology, robotics reduce the likelihood of conventional combat. In theory, any conventional tactical engagement between humans without robotic assistance and robotic adversaries would become asymmetric in nature. Asymmetric combat leaves little hope of victory for the technologically inferior side.

In a majority of engagements, this type of combat would therefore be futile because the outcome would be known in advance. In the same vein, any combat between armies largely equipped with robots would become theoretically predictable by comparison of the technologies employed. The more an army was equipped with acting and thinking robots, the more its tactical effectiveness could be calculated and predicted, much more than it would be possible to predict with human beings whose parameters fluctuate according to fatigue, morale, level of training or simply maneuvering intelligence.

The combat between robotic armies seems absurd, as its result can almost be extrapolated from the characteristics of the equipment alone. Thus, seeking to fight conventionally against a technologically superior robotic opponent could not be a viable tactical approach. It is this same reasoning that leads so many opponents of technologically dominated Western armies to fight differently, asymmetrically or even outside the expected military field!<sup>[7]</sup>

The robotics revolution is part of the all-technology paradigm and does not correspond to a strategic reflection.

In reality, excessive robotization appears to be the pursuit of a technological solution to tactical and strategic problems. This robotization, in fact of revolution, seems a technological headlong rush that forces the adversary to react a priori by avoiding the planned combat.

Thus warned of their technological inferiority, the adversaries will try to circumvent the domination of robots by other means. A superior technology or equipment, no matter how efficient, should not impose a strategy or a tactical procedure. Having built the Maginot Line, France had allowed itself to be locked into a strictly defensive strategy. In 1940, the adversary therefore sought to get around this obstacle, both literally and figuratively. In the same way, the robotic armies, without equals, will only find asymmetrical combatants facing them.

It is even conceivable that they will not even find armed combatants facing them. The adversary would simply end up refusing armed combat. Therefore, the robot must be considered as what it is: a technological fantasy to which the industrial world is no stranger, because each robot produced calls for the design of other, more intelligent and more efficient machines. It is also a means of asserting its technical and military superiority over the other, or even of exhausting it financially by pushing it to invest in research, to the point of losing it. This is how Ronald Reagan conceived the strategic defence initiative against the Soviet Union in the 1980s.

**The advent of the atomic weapon and the concept of deterrence created a new paradigm: the impossibility for one country to confront another militarily without fear of destruction. However, deterrence did not prevent wars. Wars have taken a different form, hybrid<sup>[8]</sup>, civil or asymmetric. Robotisation without strategic thinking only reinforces this paradigm through the excessive "technologisation" of military equipment. Awareness of this would perhaps help to curb the idea that war can become "clean", that is to say, without deaths.**

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<sup>1]</sup> The outcome of the game appears controversial for various reasons, but, afterwards, the computers will confirm their superiority over the human players.

2) The Israeli "iron dome" rocket interception system is an automatic weapons system. Reacting faster and more efficiently than the human brain, it detects, identifies and destroys opposing rockets within seconds. As such, it is an autonomous robotic system.

3) What is called a brilliant robot in English, which could be translated as "autonomous".

4) "Military technology in question - the American case", Joseph Henrotin, 2008 edition. Chapter 1 describes the need to dominate the observation - orientation - decision - action loops in order to defeat the adversary by anticipating his actions. The one with faster OODA cycles eventually wins.

5) "Etudes sur le combat, combat antique et combat moderne" , Charles Ardant du Picq, 1880 edition.

6) See "Perspectives tactiques" by Colonel Hubin, 2009 edition, for a tactical description of tomorrow's engagements. Chapter 8 highlights this evolution of command with the development of decision support software. Page 60: "Moreover, with the help of computers and modelling, the machine will take precedence over the leader's thinking because the plethora of parameters to be taken into account is no longer humanly possible and the computer will have to be relied upon to assist in decision-making".

7) Colonel Liang Qiao and Colonel Xiangsui Wang's visionary book, "War Beyond Boundaries", 1997 edition, explains that our world has already entered this new era. Dominated by American technological superiority, other countries can no longer confront the United States on the conventional battlefield. War is moving beyond the realm of armed conflict: it is expanding into all areas, cybernetics, space, finance, culture...

8) The hybrid war in the Ukraine is an illustration of this type of circumvention: conventional warfare being already impossible for many reasons (including not to degenerate the conflict into a nuclear war - a rise to extremes dear to Clausewitz), the war takes another confusing form.

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