



"Raise" the soldier...

Reflection circle G2S - n° 23

Le MGI (2S) Raymond WEY et le général (2S) Hubert BODIN

Published on 13/04/2019

Sciences & technologies

When Oscar PISTORIUS, amputated below the knees at the age of 11 months, became an elite athlete, he wanted to participate in the Olympic Games in BEIJING in the category "Athletics". When Oscar PISTORIUS, who had been amputated below the knees at the age of 11 months and became a top-level athlete, wished to compete in the Beijing Olympic Games in the able-bodied category, the International Athletics Federation did not allow him to do so because it considered that his prostheses gave him a significant advantage over his competitors. However, in 2008, the Court of Arbitration for Sport ruled in his favour, despite a study that objectified this advantage.

This example demonstrates the fragility of the boundary between man who is cared for and repaired thanks to the progress of science and man who is enhanced by technological breakthroughs, enabling him to surpass his natural capacities and his acceptability by certain societies. It is also significant that the Anglo-Saxon term "human enhancement", i.e. improved man, significantly attenuates what the notion of "augmentation" in the French translation conveys as questions.

Two approaches to this general concept can be identified, which are not without consequences for its ethical repercussions. The first is trivializing, considering that man has not stopped "increasing" since the invention of the first stone tool. The only novelty in this evolution is the contribution of modern technology, of "anthropotechnics", which, going beyond the mere multiplication of human natural capacities, now makes it possible to act directly on the human body. The second, more radical, proposes the idea of a man modified in his body, or even in his genome, in order to provide him artificially with extraordinary capacities of intelligence, adaptability, strength and even longevity.

The soldier has never remained outside the evolution of science and it is hard to see how, tomorrow, he could not participate in the harvest of the fruits promised by the digital revolution. The soldier has never remained outside of scientific developments, and it is

hard to see how, tomorrow, he might not be able to share in the harvest of the fruits promised by the digital revolution and that of Nanotechnology, Biotechnology, Computing and Cognitive Sciences (NBIC, Artificial Intelligence [AI]), which could, if we are not careful, profoundly transform our idea of mankind, thus raising serious ethical questions.

Since the myth of Icarus, the manufacture and improvement of objects capable of enhancing one's abilities has been man's dream since the myth of Icarus. He has never ceased to invent and perfect the means to push back the capacities offered by his nature alone. Inventing the lever, he increased his strength tenfold; with the firing pin he shaped the first knife and then, with increasing improvement, he increased his ability with all the tools he could imagine. He facilitates his mobility with the sledge, then the wheel and all the means of transport that will follow. He ensures his protection, surrounding himself with clothing that will allow him to adapt to the environments he crosses. He prolongs his sensory perception with instruments that, from glasses to telescopes, allow him to correct his sight but also to increase it until he looks at the universe. In man's struggle against pain, illness, disability, he did not hesitate to brave all the prohibitions.

The soldier, in his obligation to dominate his adversary, used these inventions, improved some of them, adapted them to his specific needs. Thus, the combatant, faced with the enemy, transformed the tools of the hunter and the farmer into an increasingly vulgar weapon, knife, propellant, and then sword. In the field of mobility, he quickly monopolizes everything that has been invented and whose interest he sees: the trolley, the motor vehicle, skis, parachute or aircraft, knowing how to make the most of it. Thus combat swimmers see their ability to remain in discreet immersion increase as their breathing equipment gains in performance. The same is true for operational fallers. The horse has been used in combat since the Mesopotamian and Egyptian empires, where the exceptional increase in mobility has revolutionised the art of warfare. Soldier and mount becoming one, feeding the mythology of the centaur, but proving its effectiveness with the Scythian rider. He hardened his clothes to make protections, leather then iron. Adapted as closely as possible to the anatomy, as if to become a simple extension of it, the armor will fit as well as possible the joints whose freedom of play is essential in combat. Lightweight, adapted to the threat of modern ammunition, it is always present in the form of ballistic protection, bullet-proof or shrapnel-proof vests. The most recent discoveries in composite fabrics even offer the possibility of "intelligent" and "communicating" clothing. Today, he imagines and implements the FELIN programme, providing soldiers with technological innovations enabling them to see in the dark, to control their fire independently of their movements, and to communicate discreetly. He learned a long time ago to repair the infirmities suffered during conflicts, the emblematic example of which remains that of the "Broken Mouths". And now the "exoskeletons", originally designed to improve the mobility of victims of spinal cord injuries or to facilitate handling work, are being tested in order to improve the soldier's performance.

For a long time, all these capacity extensions remained outside the human body. Their use only occasionally raised questions, for example the crossbow, which was banned by the Church and so little followed, or recently the use of mines, which were quickly replaced by improvised devices. At the same time, the crossing of the skin barrier, the intrusion into the very heart of the human organism never appeared to be an absolute taboo. The world of sport has amply illustrated, and still illustrates, the mad desire to artificially improve naturally limited human performance.

All civilizations have used the resources known in nature to 'increase' the capabilities of their warriors or lower their moral standards. Hallucinogenic mushrooms of the wild warriors, coca leaves of the Incas, amanites of the Vikings, hashish of the Assassins sect,

morphine of the soldiers of the American Civil War, widely used alcohol, etc., have all been used to 'increase' the capabilities of their warriors or to lower their moral standards. From the Greek hoplites to the "assault pill" of the Wehrmacht in Poland, the list is a long one of products used to improve endurance, eliminate fatigue, feed the aggressiveness of fighters or simply overcome fear. The armies took advantage of advances in pharmacology outside the field of psychotropic substances to improve the performance of their soldiers. The world of sport still illustrates these practices despite attempts to moralize them.

From now on, this ability to break through the skin barrier is in the process of being extended to the physical and neurological space.

Thus, medical research in GRENoble has begun the first clinical trial on the piloting of an exoskeleton by an implant placed on the cerebral cortex of a quadriplegic. There is no doubt that this extraordinary hope brought to disabled people, becoming a reality, will inspire some ideas to researchers, if a capacity gain for the fighter is hoped for, diverting considerable progress from their original goals. For example, work on retinal implants will make it possible to "repair"... visually impaired people and, in the future, probably increase the visual perception capacities of the visually impaired. In the future, it is likely to increase the visual perception capacities of normal men, relegating to the rank of gadget the development, which seems to us today exceptional, of intelligent ocular lenses allowing the wearer to optimize his visual acuity by spontaneously enlarging an element of his environment. What can we say about the advances in brain implants, which are improving some patients with PARKINSON's disease, but which are not unrelated to the genesis of the disease? The research funded by Elon MUSK on neuronal chips implanted in the brain has the avowed aim of enabling direct human connection to an artificial intelligence server. Mad dream or reality of 2025? Utopia or beginning of the man-machine era, of the robot soldier who will be deprived of the consciousness of the acts he will perform?

Until recently confined solely to somatic applications, genetic engineering is now showing its full potential in applications on plants and animals. Genetic manipulations generate intense research activity in the field of gene transfer for therapeutic purposes for certain pathologies. How can we prevent the healing of "bubble babies" that only generic therapy can cure? How can we condemn the carriers of certain haemopathies to a guaranteed death when a simple genetic modification of their immune cells gives them "superpowers" with spectacular results on the disease? At the same time, insidiously, the phylogenetic question arises, as the modification of an individual's genetic heritage has become possible, with its phylogenetic repercussions. Repercussions on the human species, even if for the time being, these modified genes are only somatic, and their modifications will die with the individual who carries them. However, the same techniques, the same methodologies, the same protocols, can be applied to germ cells, opening the door to eugenics, to the concept of the superman and the super-combatant. Foreign to manipulations intended to cure or even eradicate genetic diseases, these practices are forbidden today in humans. Nevertheless, researchers have opened the way to a selected increase in the physical and mental capacities of individuals who are capable of surviving themselves because they are able to reproduce. What a temptation for all those, States or groups rich enough to go in search of ways to disrupt the military arsenal, the warrior remaining indispensable for the control of dominated crowds. The augmented soldier will then also become a standardized soldier. A utopian vision today given the complexity of the human genome, but what will it be in an accessible future?

Science is progressing, NBIC technologies are accelerating all research and discovery

processes. Experience shows how difficult it is to anticipate all the aspects, beneficial or harmful, of the conquests of knowledge, especially when it is a source of power and decisive superiority over an adversary. To contain the most calamitous ones, there is only one dam, that of ethics.

It is a fact that the possibilities for improving the combatant's capabilities through the latest scientific advances may well upset our strategic and tactical ways of thinking. In many ways, these opportunities are daunting and require that ethical reflection accompany each step to determine what is acceptable and what is not, in the face of societal pressures and threats from potential adversaries.

It is surely appropriate in this field to separate two very different areas, that of ontogenetics, which remains on the scale of the individual and, for the combatants, is a matter of morality, which evolves according to cultures, the sociological environment, the time or the place in question, and therefore according to international conventions. With regard to "increases" or "improvements" outside the combatant, respect for man and the conviction of his irreplaceable value should remain the guide for the reflections to be conducted, with the reinforcement of a little caution! Indeed, it will remain wise to consider the vulnerability of these technological contributions. Once they have become ineffective, reducing the combatant to his intrinsic physical capacities alone, the soldier will have to draw from his training the resources that will enable him to fight in "degraded mode" and to survive. The use of pharmacological substances is more complex to police. Offering possibilities for enhancing resistance, physical alertness or recovery, their use can be individual and covert. Under no circumstances can it be admitted or even tolerated. The only exceptions to this rule concern the particular case of certain missions of an extreme nature, justifying the use of such products on an ad hoc basis in accordance with good practice: free and informed consent of the volunteer and dosages that do not cause irreversible side effects. In this area, the responsibility of the command and the Armed Forces Health Service is fully engaged.

The phylogenetic field irremissibly affects the genetic heritage of both the individual and his lineage. Dreadful in its consequences, such as those of implants, it is at the heart of ethical concerns. Thus, "transhumanism", the ultimate ideology based on the uncertain hopes of the digital revolution and proposing, among other things, to erase the innate hazards of the digital revolution, is a new way of thinking. The "transhumanism", the ultimate ideology based on the uncertain hopes of the digital revolution and proposing, among other things, to erase the innate hazards of the "genetic lottery", admits no limit to the use of genetic engineering whatever its field of application, including the military. Shattering the idea we have of man and his values. Even if he represents only a long-term threat, we must not wait to protect ourselves against him. Without delay, we must choose between the two conceptions that each summon philosophy into the genesis of this essential debate, some of which are based on PROTAGORAS for whom the best of the others, following PLATO, for whom the fight against the limits of nature leads humanity to disaster. This choice is a political choice at its noblest level because only states can ensure that the adventurers of science respect the ethical limits. It is at the political level that everything will be decided.

In the meantime, it is to be feared that some empires do not cultivate our ethical rules. They will develop, or are beginning to know how to develop, fighters who benefit from all the help offered by biotechnology. And if, out of the blue, these States were to put a few barriers in the way of their research activities, what can we expect from terrorist

movements waging a fight they want without mercy? As far as we are concerned, such a question did not wait for the digital revolution and the dreams of "cyborgs" to reject certain methods of the adversary in the name of the values we defend. In history, this has never, in the end, been detrimental to us. Of course, it remains inconceivable to accept the idea of "fabricating" a fighter in order to give him or her specific qualities. This search for the "superman" is moreover likely to remain unsuccessful for a very long time, given the multiplicity of genes involved in a given characteristic. What would then remain is the "selection" of "out of the ordinary" individuals through a careful assessment of their physical and mental capacities, whatever the situation in which they find themselves. There are many examples of the uncertainties of predictive tests: putting the "courage of despair" into a statistical equation, measuring the complex and intricate motivations that are created in a combat group, predicting chance exploits. However, current events are a wake-up call: Whether it's promotional intoxication or worrying information, the announcement by a Chinese biologist of the birth of two genetically modified babies brings us face to face with reality. The moratorium decided between researchers on the acceptable limits of genome manipulation practices becomes a fiction. IRSEM's strategic research and reflection club¹⁹ has been recommending for several years the setting up of a structure within the Defense Department designed to foster ethical and legal reflection within State authorities on all these non-therapeutic issues. It must be noted that there is still no specific framework for Defence to deal with these issues. Everything militates to set it up so that respect for ethics is clearly identified as a priority obligation in the face of the emerging offers of science and technology.

19. Strategic Research Institute of the École militaire

Title : le MGI (2S) Raymond WEY et le général (2S) Hubert BODIN
Author (s) : le MGI (2S) Raymond WEY et le général (2S) Hubert BODIN
Release date 01/04/2019

[FIND OUT MORE](#)
