THE LOOMING DARK SIDE OF MNT

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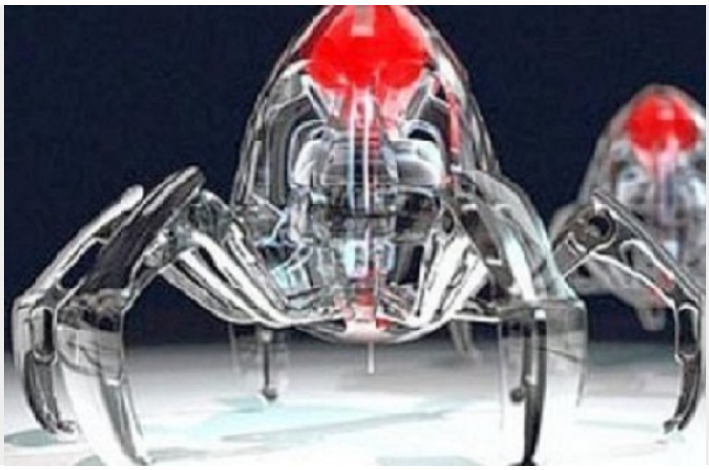

Category: Opinions

By Prof. Z. S. Andrew Demirdjian, Los Angeles, 13 August 2023

In the 1990s, nanotechnology was hailed as the new scientific messiah for business and society, but at the dawn of the 21th century the dark side of this overly-rated invention has emerged. The new kid on the block is causing major concerns for society, not so much as a paradigm shift, but for changing its focus from industrial to military production.

One knotty problem is in the molecular nanotechnology (MNT) in the area of nanoweapons (i.e., any military armament which exploits the use of molecular nanotechnology). The military application of MNT is causing a major concatenation for society to hail it or to hate it.

Nanotechnology, as a twentieth century scientific frontier, was looked upon by some pundits as the third industrial revolution to usher in the great time to harvest products and services at lower prices for its inherent ability to produce smaller products at lower price, but with longer durability.

As the name "*nano*" manifest its essence, which stands in Greek for something small or tiny, China revved up its R&D wheels to become the number-one country to exploit nanotechnology by opening up about five government centers of research in various cities of the country and surpassed the preeminence of the United States in this field.

The United States and China are not only now vying for trade, but also for military supremacy. The concerns arise not just for these two superpowers, but also for the rest of the world where there are many rogue governments (e.g., Turkey and Azerbaijan) which are ready to capitalize on nanoweapons by conquering their weaker adversaries, especially to settle territorial claims.

While nanotechnology has proven to be beneficial in many industries, in this article the major risks of MNT will be briefly discussed as a warning against world destabilization and even for its eventual destruction.

Of the following major areas in which nanotechnology has been pointed out as being fraught with risks, include biodiversity loss, climate change, environmental disaster, nuclear holocaust, pandemic (COVID-19) spread, biotechnology risk. MNT is the last quagmire facing humanity.

The positive side of nanotechnology or MNT is extensive. For example, it will enable us to make very powerful molecular computers; we will be able to make materials over fifty times lighter than steel or aluminum alloy with the same strength; we will be able to make jets, rockets, cars, UAVs (drones) or even furniture that would be extremely light, strong, and inexpensive. In medicine we will be able to produce molecular surgical tools. Guided by molecular computers and injected into the blood stream we could locate and destroy cancer cells, unclog arteries, or provide oxygen when the circulation is impaired, to mention a few areas of outstanding benefits.

Molecular manufacturing has the capacity to build complex structures at atomic precision, which could produce highly advanced products, such as computers including building material, at low

costs and in large quantities.

Despite all those benefits, the MNT has a negative side which may present risks to humanity in many irreversible ways. According to Chris Pheoenix and Mike Treder of the *Center for Responsible Nanotechnology*, including Anders Sandberg from *The Future of Humanity Institute*, molecular manufacturing is the application of nanotechnology that posses the most extensive "global catastrophic risk".

MNT is the kind of technology that some analysts believe could lead to a technological singularity, in which technological growth becomes uncontrollable and irreversible to the point of having unpredictable, unforeseeable changes or grave unintended consequences for civilization.

Naturally, some effects of MNT could be beneficial and others could be detrimental, such as when the use of the technology is by artificial general intelligence in drone swarms intended to kill masses of people. Had Azerbaijan nanoweapons during the war against the Artsakh (Nagorno-Karabakh), they would not have hesitated to use them in order to wipe out all Armenians.

According to K. Eric Drexler's popularization of an early proposal, MNT is fundamentally linked with the idea of drone swarms (that posses swarm intelligence, which is the collective behavior of decentralized, self-organized systems, natural or artificial) of coordinated nanoscale robots working together would construct more nanorobots in an artificial environment containing special molecular building blocks.



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Any side in an armed conflict, which has nanoweapons, would never lose the war because of the the reproductive and multiplication capabilities of their weapons. This means any small country such as Artsakh could venture to go to war against a Goliath such as Azerbaijan if they possess such "self-begetting," self-reproducing weapons. The weapon based on MNT may be used by an underdog country against a powerful genocidal enemy.

Here is a list of the daunting risks of MNT as a weapon of war for macro destruction:

I. MNT could enable us to produce cheaper and more destructive armaments and munitions than conventional weapons of war.
II. Its small sizeand inexpensive price tag would encourage terrorists and rogue states such as Azerbaijan and Turkey to deploy them against their adversaries.
III. Cheap nanoweapons would encourage those underdog nations to settle differences with their perceived tormentors by using their MNT-based arsenal of weapons.
IV. It might also permit weapons of mass destruction that could self-replicate (i.e., make an exact copy of; reproduce) as viruses and cancer cells do when attacking the human body.
V. Nano robots, if designed to self-replicate using naturally occurring materials, could consume

the entire planet in their hunger for raw materials, just like a swam of locusts destroying a vast cornfield in a matter of moments.
VI. Nano robots could crowd out natural life, out-competing it for energy, as happened when blue-green algae appeared and outcompeted earlier life forms.
VII. Civilian and military research on emerging technologies has been overlapping, which has caused some to fear a reduction in transparency and that MNT could be misused to make weapons of mass destruction.
VIII. MNT can produce living robots known as xenobots, which can self-replicate. A xenobot is a type of programmable organism made from frog cells that can replicate by spontaneously sweeping up loose stem cells.
IX. Weapons made with molecular nanotechnology (also called nanoweapons) could potentially be found in five different forms:

Augmented varieties of existing weapons types; Tiny machines, such as robots, that could create new types of destruction; hyper-reactive explosives due to extremely small particle sizes and unique physiochemical properties; pathogens and chemicals linked to nonmaterials creating new types of hybrid chem-bioweapons with more efficient delivery systems; and materials with superior electromagentic properties that could cause disruption to the electrical grid and communications infrastructure. Some of these types of weapons are combined for greater destructive force.

Currently, the United States Army is rushing to develop its own "tank-killing" small drones that soldiers can carry into combat. The weapon will be designed as a loitering munitions, but not as a "nanoweapon" rather a type of drone which is being widely used in the Ukraine War. This tiny drone is predicted to be "... powerful enough to destroy a tank but cheap enough for mass employment would be valuable". Since the molecular-based weapons have a negative image, courtiers shy away from calling them nonoweapons.

Nanotechnology in general is the manipulation of matter using specialized tools to create new structures and materials with at least one dimension measuring between 1 and 100 nanometers. At this small scale, materials have unique physiochemical properties, and it is this property of nanotechnology that can either create great benefits for humanity or deadly potential weapons of war.

Military spending on MNT has been reported by a number of countries, such as China, France, India, Iran, Israel, Malaysia, the Netherlands, Russia, Sweden, UK, and USA. Breakthrough discoveries in MNT have already led to new developments in camouflage; stealth aircraft; drone swarms; nano-enhanced lasers; smaller munitions with increased explosive force; self-replicating smart nanorobots (SSN), which search for and destroy targets without human input and self-replicate with materials found in the environment; virus carrying insect robots; "mini-nuke" (a small nuclear bomb), which weighs five pounds and carries the power of one hundred tons of TNT (A toxic explosive), to cite a few devastating nanoweapons.

Louis A. Del Monte, who has written several books on MNT, predicts that nanoweapons will dominate the battlefield of the future and will help determine the superpowers of the twenty-first century and they may ultimately prove to be more problematic than nuclear weapons.

Israel has focused its entire efforts on national security by stock piling and inventing weapons, such as UAVs, first for self-protection and later for lucrative sale to other countries such as Azerbaijan.

Likewise, other small nations threatened by powerful enemies will have no choice but to resort to equipping their armies with deadly nanoweapons for self-defense, such as by deploying nanoweapons aboard an insect robot to deliver them just about anywhere into the enemy territory.

Innovations in MNT will continue. However, there is a heightened concern for its use in weapons of war. The vicious circle is that when terrorists and rogue countries such as Azerbaijan and Turkey bully smaller/weaker nations such as Armenia and Artsakh, in an attempt to get even, the smaller/weaker nation would resort to new weapons to be able to retaliate against their nemeses since by conventional weapons they would be outnumbered and outgunned.

As a result, we would have a likely situation wherein the good and the bad will use MNT weapons of war.

In an attempt to forestall any potential danger, K. Erik Drexler, considered as the father of nanotechnology, founded *The Foresight Institute* and prepared a set of guidelines for the ethical development of nanotechnology and MNT, which includes the banning of free-foraging, self-replicating pseudo-organisms on the earth's surface and other places in the cosmos.

Chances are, terrorists and rogue countries (e.g., Turkey and Azerbaijan) would not abide by any of ethical rules, and even by laws enacted against the use of MNT deadly weapons, which are a growing threat to humanity. The world community should organize collectively and come up with stringent rules and regulations, laws, and bans, to stop the spread of nanoweapons of war and penalize those terrorists and rogue countries for their illegal use.

Additionally, to follow the concept of reward and punishment, we should also reward and recognize those countries that abstain from having or using any MNT nanoweapons in their arsenal or for their disuse during an armed conflict with an adversary. After all, nanoweapons of macro destruction are serious matters for being risky and radical, which concern all nations on the planet Earth to keep them under a tight leash before the dark side, the evil of MNT threatens the viability of our world.

Self-replicating nano swarm weapons, which are ready to accomplish their mission to destroy the enemy, come hell or high water. You do not have to be a rocket scientist or have high college degrees to engage in research and development. What is needed is enthusiasm, dedication, and the willing to learn in order to tackle science and technology. Remember, major scientific discoveries have been done by individuals who were not college graduates, but they had the imagination and the will to succeed, regardless how many times they had failed to make a scientific discovery.

Scientific discoveries are an equal opportunity endeavors to small as well as large countries.



Does this look like a conventional weapon? You are right, it is a mosquito-like nanonweapon called "insect robot", which is self-replicating and is programmed to destroy the enemy when unleashed into the environment. The mission is to spread a deadly virus like Omicron by biting members of the family. You can swat it death, but others will come to finish the job. Frightening? Bizarre? Macabre? Rogue states will work on producing such a mass killer (like COVID-19) for it takes only $10,000 to $100,000 to start an R&D facility to either produce nanoweapons of mass destruction or to invent anti-nanoweapon devices or both. Time is of the essence, and don't just dilly dally for Artsakh's future is in the balance. Anti-nanoweapon production is a must in order to survive in these precarious times.

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Comments



LK – 2023-09-03 07:49:14
Thank you, Dr. Demirdjian, for yet another insightful article. You also used the word Nemesis just when we needed to hear it.