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[Greater China](#)
[China Business](#)
[South Asia](#)
[Southeast Asia](#)
[Japan](#)
[Korea](#)
[Middle East](#)
[Central Asia](#)
[World Economy](#)
[Asian Economy](#)
[IT World](#)
[Book Reviews](#)
[Letters](#)
[Forum](#)

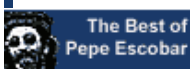

War and
Terror



The Complete
Spengler



The Complete
Henry C K Liu



The Best of
Pepe Escobar

South Asia

Jun 13, 2009

Page 1 of 2

BOOK REVIEW

The coming robot wars

Wired for War by P W Singer

Reviewed by David Isenberg

If you want to understand why Peter Singer's latest book, *Wired for War: The Robotics Revolution and Conflict in the 21st Century*, is a tour de force, just consider some headlines from the past month.

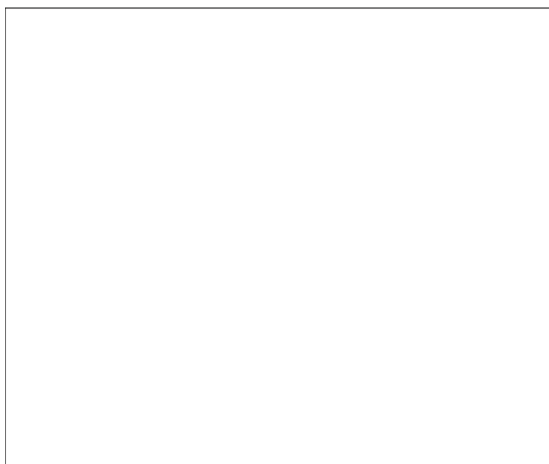
"Study Urges Using Neuroscience to Improve Soldiers' Performance"

"Pentagon Joins CIA's [United States Central Intelligence Agency] Drone War on Pakistan"

"Mullen: Drones Future Stalwart of US Force"

"America's New Air Force"

"Engineers at the Mojave Desert base are developing a miniature



missile that can be launched from a robotic plane against terrorist targets."

"In future, machines could decide when to fire weapons"

The most fascinating thing about them is not that they are appearing only months after the book's release, though that will undoubtedly help boost sales. It is that every one of those headlines reflects an aspect of the issue, each of which has its own chapter in the book. They serve as testimonials to the



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prodigious amount of research and serious reflection on the issue that Singer has done.

It bears mentioning that Singer, a senior fellow at the Washington, DC Brookings Institute must be making many other scholars gnash their teeth in envy. He is either the luckiest academic on the face of the planet or has an unparalleled sense of coming military trends. If he could discern economic futures as well as he does with military ones he would be giving advice to Warren Buffett and George Soros.



His 2003 book, *Corporate Warriors*, examining the realm of private military and security contractors, came out less than six months after the US invasion of Iraq. That book became the gold standard for academic writing and media reporting on the issue. It was also the work which inspired the writing of countless other dissertations and theses on the subject. Although the subject had been covered by others, including myself, before then, his book made firms like Blackwater and Halliburton household words. To this day one can't read a paper on the subject without seeing a discussion of Singer's "typology" of the different types of private military contractors.

That book's popularity was all the more impressive, considering it was his former PhD dissertation. A type of writing normally known for giving one bleary eyes and splitting headaches.

After that he wrote a well received book on child soldiers.

Fortunately, Singer has improved even more as a writer. Stylistically he has lightened up. His copious research is lightened by numerous pop culture references, much of it understandably drawn from science fiction, which is quite understandable, considering his subject is [robots](#). That means references to the like of H G Wells and Jules Verne to Star Trek, *Terminator* movies, and, of course, Isaac Asimov. And almost all of them are highly informative and amusing. How many people knew that Wells predicted the advent of the atomic bomb?

Despite the effort to appeal to a broader audience this is not a casual book. It is a very serious book about the future of one of humanities oldest activities, war. And while war and conflict has long been a staple of science fiction the problem, as Singer notes, is that science fiction is turning into science reality. He notes the famous quote by the late English physicist and science fiction author Arthur C Clarke, who wrote the novel *2001: A Space Odyssey*, and gave us HAL, the malevolent supercomputer (think the artificial intelligence SkyNet from the *Terminator* movies) that: "Any sufficiently advanced technology is indistinguishable from magic."

While robots are not magic, the technologies that are on the [battlefields](#) today, not to mention those on the drawing boards, are at the limits of human imagination. And perhaps beyond the limits of contemporary ethical and moral limits on the use of force and rules of war.

Singer has very methodically and dispassionately looked at the past and present and has peered, on the basis of future weapons contracts, peered into the future. What has he seen? The answer is, though he does not put it this way himself is, to quote the tag line from one sci-fi movie classic (*The Fly*, 1986) is that we

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should "Be afraid ... Be very afraid."

Right at the outset, in his author's note, Singer makes some critical points as to why this subject is important. Given that many people might think this is just another book about "gee whiz" technologies on the battlefield they are worth noting.

First, "We embrace war but don't like to look to its future, including now one of the most fundamental changes ever in war."

Second, "While we accept change in other realms, we resist trying to research and understand change in the study of war. For example, the very real fear about what the environment will look like as far away as 2050 has driven individuals, governments and companies alike to begin (belatedly) changing their practices. Yet we seem willing to stay oblivious to the changes that will come well before then for war, even though, just like the changes in global climate, we can already see the outlines of the transformation under way."

Some of what Singer writes about has been known for years, at least for those who follow military technology issues. These include PackBots, used for explosive ordnance disposal (EOD), made by iRobot, the same firm that produced Roombas, the [robotic vacuum](#) cleaner. PackBots can also be equipped with a shotgun. So much for Isaac Asimov's Three Laws of Robotics, the first of which says robots shall do no harm.

Another firm, Foster-Miller, produced the Talon, a ground robot which comes in EOD, reconnaissance, and hazardous material versions. Its true lethal weapon claim to fame, however, is its SWORDS (Special Weapons Observation Reconnaissance Detection System) version. This is the military version of a Transformer toy; able to carry almost any weapon less than 300 pounds, from automatic rifles and machine guns to grenade launchers and anti-tank rocket launchers.

But is not just quantitative firepower that is remarkable; it is the accuracy and immunity to battlefield chaos. Not being affected by emotional stresses, every weapon it carries is capable of pinpoint precision, turning it into the equivalent of a sniper's rifle.

The arming of a system like SWORDS vastly increases the range of combat military duties it can do, from street patrols and sniping to urban warfare. Considering it can drive through snow or even underwater to a depth of 100 meters feet that means it could show up in the most unexpected places.

But lethal weapons are not the only kind that robots are being equipped with. There is also ongoing work to equip robots with incapacitating chemical, acoustic, and directed energy weapons (think *Star Trek* phasers), and lasers.

Ground robots can come in all shapes and sizes. The MARCBOT (Multi-Function Agile Remote Controlled Robot) is essentially a toy car with a [video camera](#). But it has been used to carry anti-personnel mines to kill insurgents in Iraq.

As of last year there were 22 different ground robot systems, over 12,000 in all, operating in Iraq. But robots aren't just for the army. They operate on the air and sea also.

Most people today are familiar with the Predator, a UAV (Unmanned Aerial Vehicle) or drone, which can fly for a day and reach an altitude of 26,000 feet. Their cost of US\$4.5 million

each is miniscule compared to average cost of today's fighter or bomber aircraft. More importantly, they can stand stresses that human pilots cannot. Thus, the trend is that pilots will be used less and less.

After the September 11, 2001 attacks Predators were armed, both by the CIA and the US military with Hellfire missiles, and have carried out thousands of missions, and at least hundreds of armed attacks.

Aside from the predator there is its bigger brother, Global Hawk, which can stay in the hour for up to 35 hours and reach an altitude of 65,000 feet.

Systems like these are actually piloted by human controllers working back in the United States. One hour they might be at work firing a missile from a Predator and the next back home eating dinner with the family. That has interesting, to say the least, implications for military professionalism and the warrior ethic.

There are many other smaller aerial systems, used for reconnaissance, such as the Raven, Shadow and Wasp. Last year, according to Singer, there 5,331 drones in the US military inventory, almost double the number of manned planes.

Drones are also being used domestically for homeland security and for policing the border with Mexico.

At sea there is REMUS (Remote Environmental Monitoring Unit) used for clearing mines from waterways.

In short, increasingly the US military will rely on robots. Even former president George W Bush acknowledged that. "Now it is clear the military does not have enough unmanned vehicles. We're entering an era in which unmanned vehicles of all kinds will take on greater importance - in space, on land, in the air, and at sea." To borrow from the world of fashion, military robots are the new black.

All that just comes from the introductory overview. That is followed by chapters on the history of robots from ancient times to the end of the 20th century, fundamentals of robotics, and exponential change in technological trends.

In chapter five, things become even more intriguing, and ominous, as Singer looks at the [robots of the future](#), now on the drawing board. SWORDS is scheduled to be replaced by MAARS (Modular Advanced Armed Robotic System). Aside from more powerful weapons, a green laser "dazzler" and tear gas it will have a [loudspeaker](#) to warn insurgents that "resistance is futile".

Continued 1 2