



## The 21st Century Bottleneck

We are currently living in rather depressing times, which has in turn prompted some gloomy predictions about the future. The last 18 months has seen massive bushfires and floods in Australia, California and Europe, the global COVID-19 pandemic, race riots in the United States, a disputed American Presidential election culminating in the January 6 Capital Building insurrection, and heightened tensions between the two global superpowers, China and the United States. All these events may be symptoms of a far worse looming problem that some have dubbed the 21<sup>st</sup> century bottleneck.

The theory goes that, based on current trends, towards the end of this century global population growth should slow and plateau around the 10 billion mark, most countries should by then be fully developed and transitioned away from their carbon-based economies, and technological advances will be greatly enhancing human flourishing and wellbeing. However, we have to get from here to there.

Right now, we still have a growing global population. However, to employ, feed, house, clothe and entertain the growing masses in an ever more affluent manner, we are still largely reliant on non-renewable resources. This combination results in climate change, international conflict (over access to resources and markets and who should do what regarding reducing emissions) and pandemics (as growing populations with access to modern transport infrastructure can all too easily spread contagious diseases). New technologies can help with easier access to information, services and communication, but these same technologies are also highly disruptive to existing social patterns and create increased political polarisation.

Therefore, the middle decades of the 21<sup>st</sup> century will determine what the future of the world will look like: a utopia with a stable population, sustainable economy and mastery of life changing technologies, or civil strife, diseased populations, a ravaged environment, failed states and war.

If the second scenario wasn't gloomy enough, my new book "Big Wars" predicts another dangerous challenge will be added into this mix. Around mid-century, the same time that we face the increased environmental, population and political pressures of the 21<sup>st</sup> century bottleneck, developments in

military technology will have changed the nature of warfare. Such technology will make long, drawn out, incredibly bloody and destructive wars along the lines of those fought in the first half of the 20<sup>th</sup> century far more likely.

The book explores why international wars grew in size enormously for 200-years, culminating in the global cataclysm of the Second World War. But after 1945, and quite suddenly, international wars became much smaller and rarer events. In short, the reason is that prior to 1945 military technologies and techniques favoured quantity over quality. After 1945, the opposite was the case.

During the big wars of the 19<sup>th</sup> and early 20<sup>th</sup> century, weapons were easy to use, armies were huge, and war machines cheap and easy to mass produce. As a result, it was not possible to win a war after a single battle. Victory tended to go to the side who could field the largest armies, produce the most weapons and could wear down a weaker foe whilst replacing its own losses. Wars became long, drawn out, wars of attrition, in which the loser suffered total collapse, the winner was scarcely less exhausted, and civilian suffering was dreadful.

In contrast, military pre-eminence after 1945 was dictated by superior technology. This was most prominent in the case of nuclear weapons, but quality replaced quantity in all aspects of warfare, resulting in enormous, complex and costly weapons systems such as supersonic jet aircraft, precision guided missiles and nuclear-powered submarines and aircraft carriers. This dramatically reduced the size of armies, navies and air forces, and led to correspondingly shorter international wars. In the case of the most powerful nuclear armed nations, the cost and destructiveness of modern weapons made fighting big wars in the old style infeasible, if not impossible.

That is about to change. New weapons systems currently being fielded or on the drawing board are trending towards being smaller, lower cost and easier to use (or entirely autonomous). China now has a larger navy than the United States, primarily because of much smaller (and more expendable) warships compared to the behemoths the US Navy continues to operate. The same trends are likely to affect aerial warfare (where cheap drones will replace expensive, irreplaceable masterpieces like Australia's F-35 Joint Strike Fighter) and on land where cheap missiles and robotics will replace the 60-ton metal dinosaurs that were so prominent on 20<sup>th</sup> century battlefields. At the same time, nuclear arsenals have shrunk enormously, warheads have much lower yields, and new anti-missile systems that actually work are on the cusp of being deployed. All this points to quantity replacing quality, and big, protracted wars between major nations becoming feasible again. The new weapons systems that will make this possible will likely have matured by mid-century.

As difficult as the past 18 months has been, we could at least console ourselves that calamitous man-made disasters such as the World Wars were a thing of past. They were, and they may also be a thing of the future.

*John Storey is a lawyer and military historian. His new book *Big Wars* will be released in October 2021 and is available for pre-order from Hybrid Publishers.*