THE FUTURE OF U.S. WEAPONS PRODUCTION

IN THIS ISSUE

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ABOUT THE POSTERS IN THIS ISSUE

Documenting the wartime viewpoints and diverse political sentiments of the twentieth century, the Hoover Institution Library & Archives Poster Collection has more than one hundred thousand posters from around the world and continues to grow. Thirty-three thousand are available online. Posters from the United States, the United Kingdom, Germany, Russia/Soviet Union, and France predominate, though posters from more than eighty countries are included.
Today, millions of drones are battling in the Ukrainian sky, while unmanned naval variants stalk Russian ships. Cheap unmanned kinetic systems have changed the 21st-century face of war. This surprised the intelligence community, the Pentagon, and its major defense contractors. Every Ukrainian infantry platoon employs drones to kill any single Russian soldier venturing into the open. Unmanned seaborne drones sank so many warships that Russia pulled its fleet out of most of the Black Sea, enabling Ukraine to resume grain exports deemed impossible when the war began. President Biden, intimidated by Putin, has forbidden Ukraine from employing U.S.-provided weapons to strike inside Russia. Nonetheless, Ukraine is employing its own patchwork drones to hit deep inside enemy territory.

Over the past three years, the face of war in the 21st century has been forever altered by the commoditization of digital technologies. This has enabled unmanned systems to wreak destruction at a fraction of the previous costs. These cheap economies of scale are advantaging Iran, Russia, and China, because the American military procurement system has not adapted.

The economist Joseph Schumpeter coined the memorable phrase “creative destruction” to summarize how upstart companies, decade after decade, have introduced manufacturing innovations that destroyed more established companies. Cars bankrupted buggy whip companies, digital photography doomed Kodak, etc. In the free marketplace, millions of consumers choose what to buy. If a company does not keep pace, its products fail to sell, and bankruptcy follows.

Over the past three decades, the number of large defense contractors has plummeted from 51 to the current “Big Five” consisting of Lockheed Martin, Raytheon, Boeing, General Dynamics, and Northrop Grumman. Because the military was the sole customer that decided what products it wanted, the shrewder corporations developed unique skills and bureaucratic acumen, accumulating comparative advantages that blocked out competitors. These mega corporations subcontract to hundreds of small companies to manufacture parts for weapons like an aircraft carrier. Scattering these subcontracts ensures jobs for the politicians in their home districts.

For decades this closed-system oligopoly produced fearsome weapons, albeit also fearsomely expensive. This business model worked well when defense budgets received five percent of GDP (a bargain for the world’s superpower), and when our enemies were second-rate armies or terrorists equipped with rudimentary technology. In our wars in Iraq and Afghanistan, there were ample funds for high price tag items. Between 1980 and 2020, we possessed a monopoly on air power, overhead surveillance, and precision strike. The Pentagon oligopoly didn’t do cheap. The famous Global Hawk drone by Northrop Grumman, for instance, was projected to cost $10 million in 1994. Two decades later, the cost had inflated to $131 million.
Congress paid that high sticker price because we were fighting in Iraq and Afghanistan. The White House released photos of top officials mesmerized by precision drone strikes, and bragging about killing any terrorist anytime, anywhere, with no collateral damage. That was remarkable. Left unspoken were the millions of dollars spent on each strike package. When those wars ended badly, it left a sour taste in the Biden administration and in Congress. We abandoned Afghanistan and our remaining troops in Iraq are shot at by Iranian-controlled militias.

Consequently, the U.S. defense budget has plummeted to three percent of GDP, driving out any tolerance for error in procurement, and China has emerged as our technological peer. At the same time, the low-priced commoditization of digital military-applicable technologies has left the Pentagon with a losing business model. Our exquisitely engineered surveillance drones are too pricey; our offensive strike missiles are too few; and we lack a streamlined manufacturing process to produce cheap unmanned weapons. Just as embarrassing, our anti-drone defensive missiles cost ten to fifty times more than the drones they intercept, as the 9th-century Houthi tribe demonstrates by persisting in drone attacks at ships in the Red Sea.

To date, the Pentagon’s efforts to adjust have been embarrassing. In FY 2022, unmanned systems (drones) were included in 140 Procurement Line Items, mainly for highly expensive, sophisticated surveillance platforms. To remedy that, this year the Pentagon’s Defense Innovation Unit (DIU) invested a billion dollars in “cheap drones” intended to be attritable on the battlefield, as bullets and shells are attritable.

But DIU then selected an established contractor that is to deliver those drones at more than $50,000 per unit, pricing DoD out of the warfighting market. Impoverished Ukraine is producing a million drones at $500 per unit, while Russia keeps pace with its own one million drones. China, controlling 70 percent of the worldwide commercial drone market, is quite capable of annually producing well over a million attack drones. The Pentagon’s oligopoly, with layers of executives, is producing several thousand exquisite Lamborghiniis instead of a million cheap but solid Mustangs.

The Pentagon’s procurement system is too onerous and expensive to keep pace. The consequence is foreboding. According to the Wall Street Journal, America can’t build drones fast and cheap enough, or with better defenses against electronic warfare. “We are further behind today than we were two and a half years ago,” said a project manager at the DIU.

The potential consequences are perilous. “We are at an absolute pivot point in maritime warfare,” retired Admiral James Stavridis, former Supreme Allied Commander in NATO, said. “Big surface ships are highly at risk to air, surface, and sub-surface drones. The sooner great-power navies like that of the United States understand that, the more likely they are to survive in major combat in this turbulent 21st century. Like the battleship row destroyed at Pearl Harbor, carriers are at the twilight of their days. It is absolutely time to move the rheostat away from manned warships and toward more numerous and far less expensive unmanned vessels.”

During the Civil War, the Union navy constructed an original coal-fired steamship named USS Wampanoag. When the war ended, the navy reverted to sailing ships. Two more decades passed before sailing ships were replaced by steamships. Admiral Stavridis is alarmed that today’s navy is repeating that mistake. Unmanned drones guarantee that surface warships must stand farther and farther from the conflict zone in order to survive, rendering them less effective.

The proven effectiveness of drones renders vestigial the ritualistic declaration that America needs more warships. Why build more targets? A classic example is the Marine Corps. A few years ago, the Commandant decided Marines should be ready to sink Chinese warships by shooting missiles from atolls in the South China Sea. At $2 million per unit, 64 missiles with a hundred-mile range were purchased. To get within that hundred-mile range, the Commandant then requested 35 small amphibious ships, each costing $350 million to transport four missiles.
At the same time, the Navy was designing a new, cheaper missile with a 350-mile range, to be launched from an aircraft without endangering the crew. Oops. Now there was no need for Marines, at exponentially higher dollar costs, to risk ships and crews venturing into well-defended Chinese waters. But instead of treating the short-range missiles already purchased as a sunk cost and getting back to winning land battles, the Marines have persisted in requesting those 35 vulnerable ships, at a total estimated cost of $11.9 billion and $15 billion. The new Marine mission confounds the U.S. Navy; why spend so much for a mission already obsolete?

The tenacity of Marine leaders in denying the laws of physics reflects the obduracy besetting the leaders in all four services. Professionally, they know cheap, AI-equipped unmanned systems armed with missiles have changed warfare; but emotionally, they resist the divesting of their pricey, vulnerable legacy systems to free up money to invest in upgrades. It’s not just the naval service (Navy and Marines) that rejects change. In land battle, drones now reduce the threat of a successful surprise blitzkrieg and hold vulnerable all supply depots in the rear. All Army (and Marine) platoons, like Ukrainian platoons, should be equipped with disposable attack drones, just as they are equipped with bullets. Yet our ground forces are not adapting to what is the daily reality of the land battles in Ukraine.

On balance, unmanned systems advantage the defense over the offense. This should make a mockery of Chairman Xi Jinping’s pledge to seize Taiwan, a vow that constitutes the most dangerous near-term military challenge to the United States. To invade, China must mass a thousand ships or more. Currently on a shoe-string budget, Ukraine is producing a million drones a year. If wealthy Taiwan did the same, each Chinese ship would face a swarm of five hundred to a thousand attack drones. By immediately exploiting drone technology, for several billions of dollars Taiwan can mount an impregnable defense. But instead of building drones at low cost in its own factories, Taiwan is spending $360 million to purchase a paltry thousand U.S.-made drones. Unfortunately, Taiwan, like the Pentagon, is resisting the cheap drone revolution, a mortal act of military malpractice. Americans will not die for a nation that heedlessly refuses to defend itself.

In sum, the commoditization of digital military technologies cannot be ignored. The defense budget will not increase to accommodate the Pentagon’s oligopolistic production of expensive weapons. The Gordian Knot of the ossified Pentagon procurement process prevents the production of cheap AI-enhanced unmanned systems. That knot cannot be unraveled, but it can be cut. Embrace the killer digital app of cheap AI unmanned systems—land, air, and naval drones and missiles. Do not repeat the Wampanoag.

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China’s All-of-Society Procurement Strategy

By Gordon G. Chang

The People’s Republic of China is in the midst of the fastest military buildup since the Second World War.

Expect the rapid expansion to continue. China’s regime is building an industrial base that will sustain the growth. For instance, Chinese shipyards, according to the U.S. Navy’s Office of Naval Intelligence, now have a capacity more than 232 times greater than America’s.

Once, the People’s Liberation Army was land-based and relied on a “Stalin-like strategy of weight in numbers.” Now, the military is still the world’s largest, but it is also agile and built around a navy and air force able to project power far from China’s shores and even in the heavens.

For more than a decade, Xi Jinping, the Communist Party’s general secretary and also chair of its Central Military Commission, has accelerated the modernization push. Today, his effort to strengthen an already fearsome-looking military is nothing short of an all-of-society campaign.

China’s military-industrial complex, Richard Fisher of the Maryland-based International Assessment and Strategy Center told me this March, is comprised of thousands of companies, some state-owned and others private.

Fisher was talking about only companies overtly military in orientation. In a broader sense, the military-industrial complex includes all of Chinese society.

The Communist Party of China considers the People’s Republic to be totalitarian in nature, seeing the country as a single entity with all components owing “absolute” loyalty to itself. It should come as no surprise, then, that Xi Jinping enforces a doctrine once called “civil-military fusion” but now known as “military-civil fusion.” In short, in Xi’s China, every individual, company, enterprise, university, and institution must hand over to the military whatever the generals and admirals think they need.

China’s procurement effort, therefore, is nothing if not comprehensive. Xi, among other things, is mobilizing China’s civilian companies. In 2022, a Chinese factory owner making medical equipment for consumers told me that local officials had demanded he convert his production lines in China to make items for the military. Communist Party cadres were issuing similar orders to other manufacturers. The Party, this entrepreneur said, was now operating once privately owned factories because owners fled China, not wanting to stick around for “Xi Jinping’s war.”

Xi, to support modernization of the People’s Army, has been transforming the Chinese political system to achieve what the Financial Times called his “Dream of a Chinese Military-Industrial Complex.” At the Communist Party’s 20th National Congress in October 2022, he engineered “unprecedented” promotions for “a new group of political leaders in the top echelons of power” who did not have “the usual careers in provincial government or Communist Party administration.” Instead, the new group had “deep experience in China’s military-industrial complex.”
Since then, the new leaders have solidified the military’s hold over the Chinese regime. This disturbing trend is evident in increasing spending on the PLA.

That spending is gobbling up resources. In his most recent Work Report, released this March at the annual meeting of the National People’s Congress, Premier Li Qiang announced an increase of general public expenditures of 4.0 percent for this year. Li also set a GDP growth target of “around 5 percent,” but the economy will undoubtedly grow far slower than that. At the same time, Beijing announced the military’s budget would jump 7.2 percent.

In all probability, actual military spending will outstrip public expenditures and economic growth by margins far larger than reported in March.

Xi’s procurement strategy is to buy as much as possible as soon as possible. Critics have noticed. They point out that Xi’s spending is straining China’s resources in much the same way that large military budgets strained the finances of the Soviet Union. They also think Xi’s procurement strategies appear designed to solidify his position in the Communist Party, and observers note his accelerated spending pace has resulted in procurement problems of all sorts.

For instance, General He Weidong, the second-ranked vice chairman of the Central Military Commission and China’s No. 3 military official, in March railed against “fake combat capabilities.” Hong Kong’s South China Morning Post reports that He, whose words were somewhat ambiguous, appeared to target corruption in the procurement of military equipment.

There has been this year widespread publicity about this very ill. For instance, in January Bloomberg News reported that the fuel tanks of China’s missiles were, due to rampant corruption, filled with water instead of propellant. Some believe flagrant corruption led Xi Jinping to purge scores of officers in the Rocket Force, the branch of the Chinese military responsible for most of the country’s nuclear weapons, in the second half of last year. Moreover, Xi sacked Defense Minister General Li Shangfu, whom he had hand-picked just months before, apparently over corruption concerns.

These revelations lead to questions: Is Xi Jinping’s military procurement strategy as successful as it appears? And, more important, is his breakneck pace of procurement undermining the military’s readiness to fight?

Outsiders do not know the answers to these questions, but Xi apparently thinks his military is big enough. He may not yet have made the decision to go to war, but his belligerent actions show he has made the decision to risk war.

And he now has a military to wage one.
Anyone paying sober attention to the invasion of Ukraine has witnessed the resurgent power of mass over finesse. Even when elegant, expensive weaponry works well, as in the air-defense realm, its utility is constrained by staggering cost differentials. Employing a million-dollar missile against a fifty-dollar drone is unsustainable. In a war of even greater scope, such lopsided expenditures would shatter budgets as munitions stockpiles dwindled. If there is one description that definitely does not apply to the current American way of war, it is “cost-effective.” Indeed, the most appropriate term for our approach to general war or even neo-colonial dustups (“Iraqistan”) would be “wishful-thinking warfare.”

Whether evaluating the follies of an individual or the behavior of a complex institution, never underestimate the seductive power of self-delusion and the ability of both lost souls and powerful decision-makers to perceive reality in the most convenient and comforting terms.

For over three decades, we have lied to ourselves about:

*The nature and motivation of our enemies.* For more than a generation, the U.S. government, no matter the party in power, insisted that religious faith had nothing to do with our religious-zealot enemies, their professed purposes, the alacrity with which they sacrificed their lives, and the tenacity of a foe who insisted that—for him, at least—our recent wars were religious endeavors indeed, and the duty of believers. How could we possibly have won when we were afraid even to admit who our enemies were?

*The likely duration of future wars.* When it became obvious, by the late twentieth century, that the weapons defense contractors wanted to sell us—and ambitious officers and I-want-my-slice politicians were eager to buy—could not be purchased, supported, or rearmed in sufficient numbers to survive, let alone win, a long war, we simply declared that future wars would be short (we’ve already written off our two decades in Iraqistan as irrelevant).

*We denied the enduring need for deep reserves of raw destructive power.* Exemplified by the artillery corps’ anti-historical infatuation with limited numbers of low-yield precision munitions (and the ever-appealing fantasy of minimally destructive war), we forgot what it takes to win existential strategic conflicts. (Hint: It’s more than striking a few nodes on an electrical grid or blocking a dictator’s favorite porn site.) Now, in the farm-team contest in Ukraine, NATO is running out of artillery shells; our own reserve stocks have revealed themselves as alarmingly shallow; and Vladimir Putin’s will to win through massive
destruction is furthered by huge volumes of cheap shells available to his otherwise-shabby forces. The wastelands of eastern Ukraine are but a mild preview of what it could take to prevail on future battlefields, of what a full-up war would look like, once our sleek new toys broke down or proved more vulnerable than their peacetime champions promised.

We also shy from the human reality that fighting to win takes a lot of merciless killing—but our alternate-universe conviction that good manners are the key to victory is too complex and ingrained to address here.

On-the-ground reality throughout history tells us that poor-but-smart enemies learn to undo the initial advantages of self-satisfied, wealthy opponents. What made the funding-starved U.S. Army and Navy of the 1930s the foundation of global victory in World War II was poverty: When generals and admirals can’t spend, they are forced to think.

We are, and likely will remain, prisoners of our wealth. We have begun to acknowledge the threat from drones (a threat noted decades ago by outliers in our defense community and dismissed by the establishment), and we may even accept, grudgingly, the need for brute force sustained beyond the enemy’s ability to sustain. But we will never field truly economical counter-weapons—not even when we can walk into a hobby shop and buy a reliable weapons platform for less than our monthly smartphone bill.

We will settle on sloppy compromises that guarantee continued profits for defense contractors (who have dictated our “big war” doctrine since Elvis returned from Germany). Note that every war or war-by-another-name we’ve fought in that period has been, at best, a draw—and usually a humiliating loss.

Our military will contribute by layering on “must-have” specifications that, mysteriously, our enemies do not seem to require. We will turn a fifty-dollar drone into, at least, a fifty-thousand-dollar drone: At present, there is no serious consistency for cost-effective, appropriate weapons and countermeasures. Beyond all the silk-lined hairshirt wailing and whining, there is still a deep-down conviction that the money will never really run out, that we can afford to pretend that future wars will accommodate us. For example, we

POLL: Should the Pentagon recalibrate to far more numerous, cheaper, simpler, and often unmanned planes, ships, land craft, and weapons platforms?

- There will never be a substitute for behemoth aircraft carriers and larger armies that showcase U.S. strength.
- Big weapons platforms and numerous and cheaper planes and ships are not antithetical but complementary assets.
- We won World War II by producing lots of inexpensive ships and aircraft, and we can do so successfully again.
- The only way to deter our growing list of enemies is to outnumber them in ships and planes.
- We should cease making costly and vulnerable weapons systems like huge carriers and manned bombers.
continue to insist on the lunatic stance that our aircraft carriers will prove survivable in a general war, when the reality is that our surface fleet will be bottled up by fear as completely as was the German navy after the tragicomedy of Jutland.

We are splendid in our largesse and suicidal in our complacency.
Discussion Questions

1. Is a 1,000-ship navy again possible if we move to smaller warships?
2. What are the disadvantages of pivoting to thousands of unmanned craft at the expense of retiring our traditional fleets?
3. Is the age of the 100-million-dollar jet fighter over?
4. Are carriers the costly dreadnoughts of the 21st century?

IN THE NEXT ISSUE

The Future of Field Artillery
Military History in Contemporary Conflict

As the very name of Hoover Institution attests, military history lies at the very core of our dedication to the study of “War, Revolution, and Peace.” Indeed, the precise mission statement of the Hoover Institution includes the following promise: “The overall mission of this Institution is, from its records, to recall the voice of experience against the making of war, and by the study of these records and their publication, to recall man’s endeavors to make and preserve peace, and to sustain for America the safeguards of the American way of life.” From its origins as a library and archive, the Hoover Institution has evolved into one of the foremost research centers in the world for policy formation and pragmatic analysis. It is with this tradition in mind, that the “Working Group on the Role of Military History in Contemporary Conflict” has set its agenda—reaffirming the Hoover Institution’s dedication to historical research in light of contemporary challenges, and in particular, reinvigorating the national study of military history as an asset to foster and enhance our national security. By bringing together a diverse group of distinguished military historians, security analysts, and military veterans and practitioners, the working group seeks to examine the conflicts of the past as critical lessons for the present.

Working Group on the Role of Military History in Contemporary Conflict

The Working Group on the Role of Military History in Contemporary Conflict examines how knowledge of past military operations can influence contemporary public policy decisions concerning current conflicts. The careful study of military history offers a way of analyzing modern war and peace that is often underappreciated in this age of technological determinism. Yet the result leads to a more in-depth and dispassionate understanding of contemporary wars, one that explains how particular military successes and failures of the past can be often germane, sometimes misunderstood, or occasionally irrelevant in the context of the present.

Strategika

Strategika is a journal that analyzes ongoing issues of national security in light of conflicts of the past—the efforts of the Military History Working Group of historians, analysts, and military personnel focusing on military history and contemporary conflict. Our board of scholars shares no ideological consensus other than a general acknowledgment that human nature is largely unchanging. Consequently, the study of past wars can offer us tragic guidance about present conflicts—a preferable approach to the more popular therapeutic assumption that contemporary efforts to ensure the perfectibility of mankind eventually will lead to eternal peace. New technologies, methodologies, and protocols come and go; the larger tactical and strategic assumptions that guide them remain mostly the same—a fact discernable only through the study of history.

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