Come the revolution

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Date: July 31, 1995
From: National Review(Vol. 47, Issue 14)
Publisher: National Review, Inc.
Document Type: Column
Length: 2,726 words

Abstract:
Technological advances will have a tremendous impact on defense strategies and the fighting of wars. Communications and management techniques will also change, and the military will need fewer personnel. A history of warfare and forecasts are presented.

Full Text:
THE buzzwords haunting the Pentagon today are ``revolution in military affairs.''

The idea, simply put, is that the same technologies that have transformed the American workplace may have no less profound an effect on the American way of war. In this view the information revolution, aided and abetted by advances in the material sciences (such as those which allow the creation of stealthy aircraft or long-endurance cruise missiles), will create a new era of warfare, in which not merely the weapons but also organizations and operational concepts become radically different from what they have been since World War II. The idea that we are living in a period of revolutionary change in the conduct of war goes back some 15 years, to the writings of a host of senior Soviet officers, including the chief of the General Staff, Nikolai Ogarkov. These Soviet theorists believed that within a decade or two conventional weapons would have the military effects of small nuclear weapons -- that is, that a salvo of precision guided weapons, remotely directed, could destroy scores of armored vehicles in minutes, if not seconds. Those targets (which might, they feared, be Soviet tank columns) would be detected and identified from distances of hundreds of miles, and as little as twenty or thirty minutes might pass between when American sensors would locate them and when a lethal hail of missiles would destroy them. In a second stage of change, perhaps in the second or third decade of the next century, these Russian generals anticipated a battlefield dominated by weapons based on ``new physical principles'' -- exotic devices such as lethal lasers or microwave beams that would supplement or even largely replace conventional cannons or bullets.

Such a military - technical revolution was bad news for the Soviets. It threatened that form of warfare in which they were strongest -- massed assaults by armies of tanks and infantry fighting vehicles -- and emphasized areas (most notably high-tech manufacture) in which they were hopelessly weak. American defense experts, primarily in the Defense Department's Office of Net Assessment, studied these texts and were impressed by their intellectual rigor, which contrasted sharply with the mounting chaos of the final crisis of Communism in Russia. Gradually several American versions of this notion of revolutionary change developed, and the phrase ``revolution in military affairs'' began creeping into speeches, conference titles, and the annual report of the secretary of defense.

The revolution has attracted a small but influential core of believers, including the vice chairman of the Joint Chiefs of Staff, Admiral William Owens; former Deputy Secretary of Defense John Deutsch; and, in a more muted way, Secretary of Defense William Perry. It is also beginning to win over segments of the bureaucracy.

While few publicly dispute the notion of a revolution in military affairs (or RMA, as the predictable acronym goes), anyone who steps into the debate can sense a strong undertow of skepticism. The skeptics include chiefs of services who fear that these notions could lead to cuts in a current force structure that is scanty enough as it is, infantrymen who have deep reservations about the relevance of high technology to muddy battlefields, bureaucrats wed to a national-security strategy embodied in the early Clinton Administration's Bottom Up Review (see Andrew Krepinevich, p. 42), diplomats who fear that a smaller ``revolutionary'' force would be unable to maintain the commitments to keep American soldiers, sailors, marines, and airmen overseas. On the basis of numbers, entrenched institutional position, and vested interests, one would have to say the anti-revolutionists have the upper hand -- but then, so did the martial nobility of the late Middle Ages that watched their castles succumb to the blows of artillery handled by common civilian contractors.

BUT what does a revolution in military affairs really mean? One way to think about it is to consider the basic counting pieces of military power and ask whether they will continue to exist into the future. In their current forms, the tank, the fighter plane, and the aircraft carrier (to take only three prominent examples) are evolutionary developments from weapon systems that first dominated

combat during World War II. They are faster, bigger, more lethal, and more expensive, but their look and even many of the procedures they use to bring firepower to bear resemble those of a half-century ago. One sees here nothing like the break between horse cavalry and armored vehicles, or between wagon trains and military locomotives in earlier periods. The weapons of the present and the future, however -- ``brilliant'' guided missiles and bombs; satellites that gather intelligence, relay communications, and may even serve as platforms for bombarding the earth -- do indeed look different. The English military theorist General J. F. C. Fuller once spoke of ``the dominant weapon'' in support of which all others found their place in military organization. In the past it might have been the tank or the battleship. Today it is much more likely to be the guided cruise missile.

A more subtle but no less profound transformation can be seen in concepts of authority and relationships of command. The tragic shooting down by American fighter planes of the two Army helicopters over Iraq on April 14, 1994, killing all 26 people on board, resulted in the court-martial not of the fighter pilots, but of a captain in a remote flying radar plane, whose chief responsibility was the proper interpretation of symbols appearing on computer screens, and communication based thereon. By deciding to court-martial the captain the Air Force implicitly shattered a fundamental assumption of combat, that a warrior is responsible for the injury his weapons inflict. Today, vast streams of information pour into central command posts, steadily eroding the presumed superior knowledge and discretion of ``the man on the spot.''

At the same time, the spread of electronic mail undermines traditional hierarchy, as generals realize that they can communicate with majors (and vice versa) without channeling their queries or requests through intermediate layers of bureaucracy. Corporations have felt the full force of the information technologies, and as a result have slashed away at layers of middle management. Military organizations are just beginning to feel its effects. If one were to set the organization chart for, say, an Army corps between that for a mid-century car manufacturer and that for a present-day producer and retailer like Ikea, it would resemble the former far more than the latter.

With changes in organization patterns come changes in human types. The military of the present is dominated by the carrier pilot, the fighter jock, the tanker; the military of the future may be dominated by the computer wizard, the missileer, or the specialist in remote combat who does not yet even have a title. The need for direct combat -- infantry combat of the classical type, for example -- will surely remain. Indeed, it will develop further, metamorphosing, perhaps, into something much closer to the specialized stalking, reconnaissance, and raiding skills of units such as the American Rangers or British Special Air Service. But the infantryman of the future may look more like something out of Robert A. Heinlein's brilliantly evocative 1959 Starship Troopers than like the grunt of World War II or Vietnam. His senses enhanced by thermal imaging gear and other devices, his effective firepower that of all the weapons he can summon with a radio call, his body encased in armor and perhaps even artificially stimulated with the arts of modern biochemistry, he will be an expensive, professional, and highly lethal warrior.

Lest one think that such changes are too fantastic to be serious, one should consider the transformations that have occurred in warfare through the ages. European medieval warfare, centering on the mounted knight, gave way to the professional musket-bearing warriors of the Renaissance and early modern period. The medieval military system rested on a small, extremely expensive warrior elite which had to be trained from youth to bear the burdens of armor and wield the weapons of the knighthood. It did not survive the gunpowder revolution, which democratized war and transformed politics as well. The rulers of Japan in the middle of the seventeenth century stood on the verge of just such a transformation and decided instead to preserve the social order by virtually abolishing the weapons that threatened to undermine it. Such efforts, however, could succeed only in a country that had the will and ability to virtually seal itself off from international politics.

In 1870 conscript masses of the Prussian and German confederate armies shattered French forces composed of hardy veterans of years of tough campaigning in Algeria. Their triumph was also the triumph of a general-staff system which substituted, in effect, modern management training for intuitive leadership. The Germans ushered in, thereby, an age of industrial warfare which is only now coming to an end. During this period the key to military success has resided in a country's having the ability to mobilize and train its manpower to the fullest, a large and productive military industry to spew out vast quantities of munitions, and a civilian leadership that was prepared to tap all elements of national strength in pursuit of political objectives -- in short, the age of total war.

So history does bear out the notion of dramatic transformations of warfare, but consummated over periods not of years but decades.

THE military revolution by and large favors the United States. Ours is the most technologically advanced military in the world. At a deeper level, the tendency of Americans to invest disproportionately in personal computers more sophisticated than they need, to sign up for on-line services they may never really master, and to read computer magazines they may not fully understand reveals a restless willingness to embrace the new technology. The military benefits from that technological culture.

There are also risks, however. Our military organizations are understandably rooted in the weapons systems they have mastered, and they don't feel the kind of pressure for radical change that only the existence of a serious competitor provides. Outspending any potential competitor by a factor of four or five, the United States appears to tower over anyone who might challenge us conventionally, while at the same time government is preoccupied with low-technology threats (guerrillas in Bosnia, warlords in Somalia, thugs in Haiti) that are not really amenable to remotely launched cruise missiles. There are, thus, few incentives to exploit the new technologies. On the other hand, these very same technologies are, in many cases, available to potential opponents: not to overwhelm the United States, but to stymie or stalemate us. The strategic objective of America's potential enemies is not to make our overseas intervention impossible, but merely to make it too difficult or too costly. To this end even relatively modest capabilities in the area of anti-ship missiles, mines, and the like can have a useful deterrent effect.

The military revolution makes the spread of military power harder to discern and harder to control. Whereas, in the past, improvements in military performance came chiefly from military technologies, in the future they will come from technologies in the civilian realm. Commercial firms now make available satellite pictures of a clarity that only American and possibly Soviet intelligence

services could have mastered two decades ago. Even flight simulators are being paced not by air forces but by commercial airlines, or even entertainment companies fitting out arcades for teenagers thirsting for mock combat. Increasingly what makes a weapon effective is not the visible platform, but the electronics and various add-ons that may be difficult to penetrate. For example, several countries now offer a complete remake of the MiG-21 fighter, a Soviet aircraft from the 1960s that in its original configuration would be virtually useless in modern combat. With new engines, cockpit, avionics, and weapons, it has gained a new lease on life. Moreover, the end of the Cold War has created overcapacity among defense contractors, diminished inhibitions about selling weapons to almost any country, and created dislocations in the former Soviet Union that have led many defense scientists to offer their services to the highest bidder. Instead of smaller countries' armies resembling, more or less, those of their superpower patrons and allies, they will increasingly be collages of technology and organizational forms, difficult to assess and predict.

The problem, in other words, is that should the United States ever face a determined enemy, we may find ourselves up against sophisticated threats which we do not fully understand. It is worth remembering that Japan in the 1930s was, by every standard economic and industrial measure, vastly inferior to the United States. It is not inconceivable that similar, if less dramatic, threats could emerge no less suddenly in the future. If the United States wishes to avoid that kind of challenge, it might have to look at a very different kind of military from the one that it has now.

IT IS impossible to say precisely what a new force structure based on thorough exploitation of the new technologies will look like. One necessary step, however, will be a willingness to denominate military power in new ways. In an age of stand-off weapons and remotely piloted vehicles, for example, traditionally defined Air Force ``wings'' may not be the best metric of military power. The Army division -- a formation of some 20,000 soldiers, which in its organizing concept is a half-century old or more -- may not be the best way of measuring ground power. These are more than semantic problems, because the defense establishment will have a natural inclination to measure its success by its ability to fund its current force structure, as opposed to developing new ones. Moreover, it is a strategic imperative that we understand fully what our military power really means. The United States paid no big price for its gross overestimation of Iraqi military power in advance of the Gulf War. In the future, however, when the United States will not have Cold War-sized forces to bring to bear in such a situation, it cannot afford to hold itself hostage to assessments of military power that do not adequately take into account new weapons and forms of warfare.

It is virtually certain that the new military will be smaller -- smaller even than the 1.4-million-man-and-woman force promised by the Clinton Administration. Barring a sudden infusion of funds (which appears unlikely, even if the Republicans regain control of the White House), the United States will have to shrink military manpower much further if it is to put together the military of the twenty-first century. Ultimately, this may put pressure on our commitments overseas. In East Asia, for example, the recent announcement that we would keep 100,000 troops stationed in the Pacific was warmly greeted as a symbol of American determination to shape the Asian security environment. It is indeed such, and in that narrow sense a good thing. Unfortunately, the chances are high that Asian countries will henceforth judge America's military commitment to the Pacific by the number of people we keep physically in the region. For foreign-policy purposes, therefore, we are committed to a measure of military power -- numbers of people in uniform -- more appropriate to the early nineteenth than to the early twenty-first century.

The transformation of the American military is, in some respects, already under way from within. The changes, however, will be incremental and possibly inadequate unless they are pushed by assertive civilian leadership working closely with those in the services who wish to see substantial change. Left to their own devices, the bulk of the uniformed military will, understandably and appropriately, concentrate on their numerous tasks of the moment, on the threats of the next year or two, and on the systems and organizational constructs they know best. Moreover, it is civilian political leadership alone that can limit the current intense operational requirements that eat up the resources of the armed forces. And, ultimately, it is the civilian leadership of the Department of Defense that is responsible to the American people for seeing that tomorrow's military is at least as well suited to its tasks as yesterday's was.