A nyone who has witnessed a fist fight, attended a hockey game, or read history knows that mankind will never attain peace and unity. On the contrary, rivalry, confrontation, and conflict are constants of the human state. Even advocates of information war, cyberwar, and psychological warfare admit that friendly data, controllers, and minds must be protected by the use of force.

Future events are unknown and unknowable, predictions merely guesswork, and forecasts often nothing more than coherent fiction masquerading as fact. Trends and megatrends, which are linear extrapolations, defy the reality of a world characterized by nonlinearity and exponential change. No one knows with certainty what surprises may lurk in the waves of the future. Yet, domestic and international interests compel us to stretch, look ahead, try to thwart surprise, and be prepared. This article dares to think aloud about conflict in the next millennium.

Visions of the Future

After decades of confrontation with the Soviet Union, each service announced its vision of the post-Cold War world. Moreover, stirred by a speech that Sam Nunn delivered, the United Nations will succeed because it must, and the military may be earmarked for exclusive duty as peacekeepers. Special Operations Forces will bear the brunt of the Nation’s violent encounters, but precisely how will remain a mystery. Conflict will be keyed on the behavior that we attempt to ensure or expunge, the precise conditions of combat cessation, and the attributes that we want to prevail in a post-conflict world when waves collide.
When Waves Collide: Future Conflict

National Defense University, Institute for National Strategic Studies, Fort Lesley J. McNair, Washington, DC, 20319

Approved for public release; distribution unlimited

Security classification of:

a. Report: Unclassified
b. Abstract: Unclassified
c. This page: Unclassified

Limitation of abstract: Same as report (SAR)

Number of pages: 8
on the Senate floor about military redundancy and waste—impelled by rapidly declining budgets and in the wake of the Chairman’s assessment of roles, missions, and functions—Secretary of Defense Les Aspin ordered a bottom-to-top evaluation. The resulting Report on the Bottom-Up Review: New Forces for a New Era described the forces required by the services until the end of the century. If there is a unifying thread running through these visionary documents, it is the incredible notion that even in an era of exponential change the future will closely resemble the present or recent past. In other words, it appears that the dinosaur that we know as the Armed Forces hopes to escape extinction or radical alteration by becoming a minidinosaur. It is unlikely that this approach will succeed.

Things will change. The Armed Forces are likely to destroy, sell, retire, or slowly give the Reserve components much of their Desert Storm-vintage weapons and equipment. The Reserve and National Guard will preserve and train with them in peacetime employing antiquated tactics to the extent that obsolete materiel, reduced funding, and piecemeal formations permit. Adversaries, sometimes-friends, and sometimes-allies will take stock of this situation and factor it into scenarios and defense budgets. The threat is gone. We now face only dangers.

Will the United States maintain large forces if there is no urgent threat to national survival? It is likely that the American people will eventually think otherwise. Congress may even pass laws limiting the President’s authority as Commander in Chief. The Nation may complement armed members of the military with unarmed trainers and technocrats. Some unarmed personnel may be trained in martial arts. They would exercise choice, an essential part of recruiting in a segmented society. All forces deployed outside the United States would be guests and their hosts would fully grasp the consequences of acting inhospitably. For the Nation, access will be global and electronic while presence will be virtual in every major market or forum and real when America so chooses.

Colonel Richard Szafranski, USAF, is professor of national security studies at the Air War College and research director for Spacecast 2020, an Air University study on future military space requirements. His former assignments include command of a bomb wing.
standoff Army aircraft, will provide what today is understood as close air support, with antiaircraft defenses rendering the air nearly too lethal or confusing for pilots. The Army will draw on generations of mind-nimble (not necessarily literate), fingertip-quick youth and their years of experience as heroes and killers in violent, virtually real interactive videos. The multifunctional squad will be a production unit of lethality on the ground. All-weather day and night multispectral sensors and precision-guided rounds will replace the iron gunsight and mass-produced rifle of the old paradigm. Nothing will replace the knife, wielded by a cohort of young, hot-blooded killers.

As forces shrink so will the number of bases. Loss of housing, commissaries, exchanges, hospitals, etc., is likely. The bases that survive closure and realignment will evolve. Conversion and consolidation will cause functions like administration, finance, law, education, maintenance, transport, etc., to be automated, privatized, or done by prison labor. Out-sourcing and downsizing will be the buzzwords of the day. The force that survives will meet itself going and coming from deployments that keep the United States engaged in the world.

Some of our best forces—though not the very best—may serve with the United Nations as there will be no alternative to making the current ineffective unifying architecture effective. If there is large-scale conflict, it will almost certainly involve coalition warfare. Day-to-day experience in smaller, less violent coalition operations will help insure the success of larger, more violent ones. Member nations will charge multinational, multifunctional U.N. forces with counterproliferation, transportation, on-site inspection, and environmental cleanup—including radiological, chemical, and biological—as well as enforcement of the peacekeeping dictates of the family of nations. Their existence will evolve as America comes to understand and accept the big needs for the management of collective security on a small planet.

What of the Air Force? Airpower and spacepower are at the heart of the roles, missions, and functions debate. Some observers warn that the Air Force as the only service without any pre-Cold War experience may not survive. It was founded to help contain Soviet expansion by threatening long-range nuclear bombardment. The Soviet Union is gone. Containment by threat of nuclear weapons is also gone. What perhaps has gone as well is the raison d'être for a separate air force. Small aircraft with a tactical function and bombers designed to deliver nuclear weapons may be reorganized into non-nuclear composite wings that mimic smaller air wings of carrier battle groups. But it is no longer apparent that the Air Force—with its unshakable dependence on and preference for human fighter pilots and jet-delivered air supremacy—has irreplaceable utility. The transport and aerial refueling functions must and will survive, but it is arguable whether these alone can provide sufficient justification for preserving a separate air force. Long-range naval airpower can protect air-delivered forces in transit. Unless the Air Force becomes the space force, it may not survive beyond 2010. Since a better organized space force is required, the window of opportunity for the survival of the Air Force may be fleeting. Will it grasp the opportunity?
Performance may be a good—though not flawless—indicator of future prospects. Aircraft acquisition has a checkered record since the development of the F-16. Procurement problems with the C-17 program, the cost of the B-2, the always-under-modification B-1B, depots that compete with a private aerospace industry at a time of defense conversion, and the beyond-air-supremacy F-22 have drawn much attention. None of it seems favorable. The Army wants more predictable, better coordinated close air support.

Some Navy and Marine aviators have their own views on the Joint Force Air Component Commander. The success of the Desert Storm air campaign threatens to become a liability to the Air Force as brilliant but seemingly thoughtless “air alone” airpower advocates take up their pens or speak out. Their arguments sound increasingly desperate. To the other services, perhaps only the Air Force Air Mobility Command has lasting value.

Critics also portray military spacecraft acquisition and launch functions as disappointing. Parochial blue ribbon panels and special studies have done little beyond adding more arrows to the quivers of skeptics. Wonderful satellites have not been complemented by equally wonderful data distribution systems. Military space customers in an era of quality cannot all be called satisfied. Moreover, they do not even know to which command to register complaints. Do they take them, wonder, to the Air Force space command in Los Angeles that does acquisition, or the one in Dayton that does procurement, or perhaps the one in Colorado Springs that does planning and some (by no means all) operations? It depends, they learn, on the specific spacecraft or problem. This is not just an Air Force issue. It appears there are as many space forces as there are air arms. The time to abandon much of the air and contentious “aerospace” for space may be now for the Air Force.

The Air Force may, for whatever reason, let this opportunity get away. Then what? Since the Army has the longest association with rockets and missiles, it can together with NASA and the private sector place large satellites in orbit on schedule. This would not appear to be disagreeable to the Navy, as Sonata—the service’s space and electronic warfare vision for the future—seems to indicate. Both the Army and Navy could launch smaller “tactical” satellites on demand. It is unlikely that Congress or the international community will assent to building, let alone deploying, space-to-earth strike weapons. Armaments may leave the earth and transit space, but the United States will probably never find the resolve to station arms in space. Navigation, communications, and surveillance activities will likely remain the limits of space-based capabilities. Even though we are nowhere near the limits of those capabilities, the boundaries are not being pushed by the Air Force or any of the military space commands, but instead by industry. There is money to be made by providing communications, navigational information, and products of space-based surveillance. The private sector, with its ability to satisfy customer demands and turn a profit, may ultimately provide most of the “space command” the United States needs.

The most likely course is that military, civil, and commercial space assets will be combined to command the electromagnetic spectrum. Such a partnership would create a
virtual, interactive space-to-earth and earth-to-space data or infosphere. Micro-minia-
turization, nano-technology, advances in super-computing, artificial intelligence, fu-
ture lasers and fiber optics, and computer-
graphic integration would make cyberwar
and information war the distinguishing fea-
tures of future conflict. It would be possible
to construct an alternative truth from the in-
finitive combinations that zeroes, ones, and
pixels allow. Knowing the real truth would
require access to, and verification by, multi-
ple phenomena. Targeteers and combatants
would both need topsight to confirm that a
tank or building is neither a hologram nor
visual consequence of an adversary’s inser-
tion into our data stream. That technologies
and discoveries fail to come together before
the realization that our guess about major
regional contingencies was wrong (albeit po-
litically necessary) does not mean that they
will not follow apace. We may have to fight
before they come together.

The jewel in the military’s crown will be
U.S. Special Operations Command (SOCOM).
It will perform international housekeeping
and wet-work. Special Operations Forces
(SOF) are the first truly joint and combined
forces and the most elite in the Nation, per-
haps the world. Capable of precisely applying
technologically superior weapons and novel
tactics, SOF still will be able to effectively
conduct the age-old tradition of hand-to-
hand combat. Suitable for nonlethal use
against a high-tech foe, SOF will also employ
tremendous violence to deal with terrorists,
brigands, drug-traffickers, and pirates. They
will be compensated generously for the abil-
ity to kill reliably and the repeated willing-
ness to take calculated risks. They will form
an indistinct image of terror looming just
below the level of consciousness of a political
adversary. The United States will use them to
solve small problems rapidly and bring big-
ger ones to closure suddenly. SOCOM will
continue to have its small, highly specialized,
and forever-out-of-the-mainstream air force.
What SOF do and how they do it will remain
a mystery to many Americans including
members of the Armed Forces.

Beyond the Horizon or Over the Edge?
If you are a military realist it should not
seem odd to define forces and discuss them
before determining the conflicts which they
will face. If you are not a realist, however,
consider the facts. America usually defines
the functions of forces after fixing their size
and form. Strategy—or what passes for it—
also follows the budget determinations on
the size of forces which the services then try
to shape separately. It is illusory to expect
anything else. But in the future the United
States must better rationalize its forces be-
cause of the different kinds of conflict that
will arise.

What forces will affect nations? There
will be a wider gap between rich and com-
fortable, on the one hand, and poor and
miserable, on the other. Acquisitiveness will
drive the world, the rich seeking a con-
stantly improving quality of life and the
less-rich seeking the means for greater
wealth. Theft will be a problem. The biomass
will move toward depletion as more and
more people crowd the planet. We will not
leave earth for life elsewhere. We dwell on a
rather comfortable and certainly habitable
rock spinning in deep space. Unless there is
the promise of acquiring greater wealth on
another rock, we will stay on this one. As
we become more crowded and compete for
resources and the means of production, we
will continue to affect the weather and pollute the air and water. Failed nuclear reactors, episodes of serious cross-border environmental pollution, and squabbles over water rights in the Indus Valley and along the Tigris and Euphrates will fuel some fights. Extremist factions will have many opportunities to do battle. If cold fusion replaces fossil and nuclear fuels, many will covet the discovery, and the definition of “have not” could change overnight. What will the Gulf Cooperation Council find to cooperate about if oil is less valuable or nearly worthless? When that possibility dawns on them, will they more actively pursue the celebrity status that acquisition of nuclear weapons allows? Will they seek big—maybe even too big to tolerate—oil profits in the near term, expecting devastating losses later? Are there not already some sources of conflict in that region?

If one believes, as Martin van Creveld does, that the era of trinitarian warfare has ended, or that hyperwar, parallel war, or the revolution in military affairs will deter large-scale warfare, it is wise to anticipate different kinds of conflict. In addition to war on the mind, future conflict is likely to be more homeopathic or antidotal. This means that a small, standing, hyperprofessional force will in actuality be the Nation’s first and last line of defense. A militia is a fine tradition, but the cost of training and technology along with difficulties in mobilizing and mainstreaming such a politically-potent force will insure their obsolescence for extraterritorial combat. Consequently, U.S. forces must fight earlier, more covertly, and more often than in the past. Moreover, combat may be, as van Creveld implies, more against non-state groups than with states. As the world gets smaller and more crowded, armed elements of both the United Nations and SOCOM may intervene more quickly to prevent catalytic conflict. (Hence, the terms homeopathic and antidotal.) Many, perhaps most, engagements will be small and armed at group leaders and elite guards surrounding them. These engagements will be risky and ferocious. They will be won or lost in darkness or bad weather. If the United States, alone or with partners, is unable to use less violent political and economic instruments to compel good behavior, the next action will come from the sea, even if air and space are the enabling media. SOF are expert at “getting in, getting done.” If, however, they are frustrated and we are unwilling to let them die in place or be tried in foreign lands as criminals (before the eyes of CNN), it will take heavier regular forces to bail them out. SOF very likely will have to learn to bail themselves out.

There are three paramount questions about future conflict: What is the specific behavior we want to compel or prevent? What are the specific criteria for conflict termination? What specific characteristics do we desire a post-conflict environment to have? While the answers determine the targets, reversibility of means employed, and limits of force needed, they are not posed in national military strategy. Unless these political questions are answered for the military leadership, killing and destruction are likely to do more harm than good. That it would be foolhardy to undertake any combat without clear objectives and an unclouded vision of the post-conflict environment does not suggest that the United States will suddenly become immune to episodes of stupidity. It suggests, however, that indiscreet behavior could be catastrophic. Whatever we give up or fail to acquire, our forces must maintain and enhance the capability for coordinated action inside an adversary’s “decision loop.” Some military actions in the future may be as difficult as they are chilling.

It is especially difficult to ponder actions that are anti-traditional. Might not Americans harden their hearts further if they are convinced that their wealth or their quality of life are at risk? Will they be hardened to the point of sealing borders to keep out the starving, confine cannibalism or internecine warfare to hungry or warring states, or violate another nation’s sovereignty, maybe even seizing nuclear weapons or the means of producing weapons of mass destruction as part of a counterproliferation strategy? Many would probably decline to participate in such actions while some would take part. Given lawful orders, members of the Armed Forces must do as ordered. Even so, this might not be work for amateurs or citizen-soldiers who are much more citizen than soldier. It might be more suited to mercenaries
or hyper-professionals. Given a choice between those two terms, citizens probably will call such forces hyper-professionals. Comforting as the term sounds, it may epitomize a distinction without much difference. But since the Nation could command the future's dataphere, it could also portray unsavory realities any way it likes.

Arthur Clarke takes a rather more optimistic view. Proliferation of global information and communications, the sub-meter resolution in Peasesat pictures of the earth, and awareness that conflict is self-destructive could enlighten the minds of the world. If so, America will not need vast forces to protect the Nation or police planet Earth. But even though the future may transform war, it will not likely eliminate it. People are not moving toward enlightenment in lockstep. While the United States may be alert to the danger of environmental pollution, for example, slash-and-burn developing nations appear to have few such concerns. Thus this country will face others who are, or who are trying to be, the mirror-image of the Nation ten, twenty, thirty, or more years ago. America developed nuclear weapons and then used them in combat. It became a great power. Even though the linkage is coincidental and not causal, might not others see arms as paving the way to greatness, or at least to greater self-determination? When these waves collide, what will be the consequences? People are not moving toward enlightenment in lockstep. While the United States may be alert to the danger of environmental pollution, for example, slash-and-burn developing nations appear to have few such concerns. Thus this country will face others who are, or who are trying to be, the mirror-image of the Nation ten, twenty, thirty, or more years ago. America developed nuclear weapons and then used them in combat. It became a great power. Even though the linkage is coincidental and not causal, might not others see arms as paving the way to greatness, or at least to greater self-determination? When these waves collide, what will be the consequences? Wild cards fill the deck. America appears to lack the political will to name the trump suit. Indeed, it is doubtful that it could do so even if it did have the will. Demographic shifts and changes in the United States will make the House of Representatives of middle-aged Caucasian males that for-merly governed or sought to govern. How these yet-to-be-elected members will vote on North-South or East-West issues makes the course of policymaking and lawmaking diffi-cult to predict from the vantage point of 1995. How these future representatives of the people will constitute or employ the Armed Forces may differ in ways no one can anticipate. This is not to lament change, merely to note that it is likely to affect the military.

What are the limits of optimism? It is restricted by awareness that though humans may be, in Shakespeare's words, the paragon of animals, they do have an animal side nonetheless. What are the limits of cynicism? At the extreme are three thoughts. First, the Nation will not intentionally render itself militarily impotent. Plato's observation that only the dead have seen the end of war is no doubt true. Second is the awareness that the United States is more often smart than stupid. Lastly, we can possess the certain knowledge that nothing is ever as good as it seems or as bad as it might be. Things could turn out fine. No one knows. But waves will collide and we will be transformed in the process. Thinking about how to cope now is preferable to being surprised later. In the end, the biggest conflict in the next century is likely to be the one within ourselves.

NOTES
4 These were Land Warfare in the 21st Century for the Army, . . . From the Sea for the Navy, and Global Reach: Global Power for the Air Force. See also Tom Donnelly, "Services Outline Their Futures in High-Stakes Era," Army Times, April 26, 1993, p. 25.

Internet users who want to share their thoughts on "When Waves Collide" with the author can forward them to: rsc@au.af.mil.
This description of inappropriate responses to change demanded at "the bifurcation point" is used by Alvin and Heidi Toffler. See also Ilya Prigogine and Isabelle Stengers, Order Out of Chaos: Man's New Dialogue with Nature (Boulder, Colo.: New Science Library, 1984), pp. 171-76, 297-313.

14 Mark Clodfelter, "Do We Need an Information Corps?" Joint Force Quarterly, no. 2 (Autumn 1993), pp. 88-97. This corps may be an attempt to inflict a new idea on force-structuring. Information war may ultimately prove to have more dire consequences than nuclear weapons.


16 Martin C. Libicki and James A. Hazlett, "Do We Need an Information Corps?" Joint Force Quarterly, no. 2 (Autumn 1993), pp. 88-97. This corps may be an attempt to inflict a new idea on force-structuring. Information war may ultimately prove to have more dire consequences than nuclear weapons.

17 This description of inappropriate responses to change demanded at "the bifurcation point" is used by Alvin and Heidi Toffler. See also Ilya Prigogine and Isabelle Stengers, Order Out of Chaos: Man’s New Dialogue with Nature (Boulder, Colo.: New Science Library, 1984), pp. 171-76, 297-313.

18 Bottom-Up Review. See also Les Aspin, "Four Challenges to the New World Order," Defense Issues, vol. 8 (February 1, 1993), p. 2. Dangers have now replaced threats; and peace operations, engagement, and enlargement must be added to the strategic lexicon.


20 To be effective the Reserve components must be organized, trained, and equipped with the same rigor as the active components.

21 John R. Boyd, "A Discourse on Winning and Losing," August 1987. This analysis of strategy, tactics, and the operational art led to the so-called OODA loop—a cycle of observation, orientation, decision, and action.


