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PREPARING FOR THE NEXT WAR: REFLECTIONS ON  
THE REVOLUTION IN MILITARY AFFAIRS\*

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All strategizing occurs under duress, e.g., in the context of the burden of defeat, permanently perceived threats, or simply the eternal scarcity of resources needed to materialize a vision of future war. Reality always constrains strategists' vision and nations' capabilities.

Commanders recognize that the actual clash of arms takes belligerents, as chessplayers say, "out of the books" into terra incognita or the fog of war. Since no plan survives actual combat, and the art of forecasting is imperfect, efforts to predict with certainty the future of today's revolution in military affairs (RMA) must inevitably fail. Any view of the RMA will necessarily be only a partial one. Indeed, despite the acceptance of the reality of the RMA, there is still a great deal of argument about its nature, extent, implications, and utility for all kinds of armed conflict.<sup>1</sup>

Nevertheless we must ponder those visible aspects of the revolution in military affairs if we hope to prevail in future wars. Obviously we cannot mechanically assume a linear progression from Operation Desert Storm to the next war. Indeed, some analysts believe that war on that scale is doomed to extinction.<sup>2</sup> If so, the militaries of the U.S. and most other major states face either wrenching and cataclysmic transformations, or future irrelevance as they become grossly mal-

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adapted to future small wars. Still, many analysts believe that Operation Desert Storm established the technological paradigm for future warfare in which information technologies, and electronic fire strikes are critical. According to that view, electronic operations will be decisive in their own right, and aero-space systems incorporating electronic and information technologies will take warfare into a third dimension.<sup>3</sup>

The costs of maximizing technology's potential impose serious socio-economic burdens as a consequence of the arduous effort necessary to keep abreast of an accelerating rate of change. During times of economic stringency such as our own, leaders concentrate on the immediate future, not on distant strategic horizons and unglamorous issues of economic preparedness and mobilization. But if we are to fight high-tech wars in the future, we must raise those issues now. Only then can we manufacture and procure technologies, systems, and forces that will allow us to perform credibly in future wars.

#### THE REVOLUTION IN MILITARY AFFAIRS

The impact of this revolution and its policy requirements are widely debated, not only in the U.S. but worldwide. For instance, it is not certain that the United States can maintain its technological superiority without substantial allied contributions. War games conducted by the Pentagon's Office of Net Assessment prominently featured advanced technology and systems in pitting China against the United States in the year 2020. Reportedly, the outcome of the game was unfavorable for the United States.<sup>4</sup>

Technology alone cannot guarantee victory. Future military success does not only mean obtaining high-tech platforms, but also effectively optimizing and organizing forces to supply, use, and command them. What strategies developed under the duress of technological competition will permit the United States to conduct future high-tech wars? What synergies and social changes are needed to stay ahead of the curve in this revolution?

Paul Bracken notes that to master military revolutions, an army or state must successfully move from a coherent, well-developed vision of future war to viable operational concepts that the armed forces can use in war. But those operational concepts are realizable only

when practical, substantive organizational transformations or adaptations that optimize the armed forces' ability to realize those concepts occur.<sup>5</sup> States seeking strategic superiority via technological superiority must undergo substantive organizational transformation that enhances adaptability. Today, states move from technological to strategic superiority by achieving organizational superiority. Organizational transformations translate superior technology into superior strategic performance because organization is itself a form of technology. Moreover, the importance of organizational change grows during periods of technological innovation.

The U.S. can no longer rely on technological advantages to sustain economic and military leadership . . . . The competition in both areas will focus on adaptations of new technologies in organizational structures that are flexible enough to continuously reinvent themselves and that can exploit the connections made possible by the information technology revolution. . . . the real constraints will increasingly shift, however, from access to advanced technology or physical networks to the ability to develop new organizations capable of exploiting precision, flexibility, and integration. The incentives to absorb the inevitable transition costs will come from dynamic, adaptive global organizational networks. The key will not be to protect U.S. institutions from today's competitors, but to nurture patterns of innovation that will exploit new opportunities.<sup>6</sup>

This becomes particularly difficult when trends in defense industry are forcing all defense firms to compete and diffuse their civilian and defense know-how and products globally to survive. Since much new defense technology is dual-use and stems from civilian innovations, techniques, and applications which are difficult to protect, production techniques and even innovation itself are undergoing constant global diffusion. Brisk global competition forces firms into constant struggles to innovate and maximize their organizational capabilities.

This reality calls into question the viability of defense industrial sectors which fail to develop adequate links to global technology markets. The ability to achieve competence in civilian production and defense-industrial applications is becoming increasingly intertwined. At the same time, market access in the developing world (e.g. in East Asia) increasingly requires technology sharing as an instrument of commercial competition.<sup>7</sup>

Defense industries that cannot adapt, fail or are consolidated into fewer ones.<sup>8</sup> Technology approaches its potential only where a comparable organizational response exists.

Desert Storm illustrates the point that technological innovation alone does not answer strategists' and commanders' prayers. Despite the talk of Desert Storm's air war as a high-tech template validating Douhet's goal of an exclusively aerial strategic operation, most allied platforms dated from the 1960s and 1970s.<sup>9</sup> What was new was the ability to combine them effectively in a new operational plan using new concepts to optimize their strategic potential. The real innovations were organizational adaptation and new operational concepts. Those changes then let commanders think in new ways about using air power, space, and electronic warfare to achieve decisive results. Study of that war indicates that continuing organizational transformation to enhance individual and unit performance, C<sup>2</sup>, and new operational concepts is essential to maintain our edge.

Hence organizational imperatives allow field commanders to optimize current and projected technological trends. A recent study of the Air Operations Center ties this organizational and operational response to a new vision or template of warfare.

The 1991 war in the Middle East offered a new template for modern conflict—strategic conventional war. "Strategic," because many of the targets struck by the air were unrelated to immediate battlefield outcomes, and "conventional," since these targets were attacked with high explosive (and in some cases, non lethal) weapons. Since the advent of atomic weapons, most Air Force doctrine did not even include strategic attack as a mission for the conventional bomber force. In short, there was "no such animal" as strategic conventional war. Yet, six weeks of air war in the Gulf, followed by a short, conclusive ground campaign, energized Air Force proponents of a strategic conventional attack against the sources of enemy military capability.<sup>10</sup>

While these observations suggest the sterility of an Air Force strategic doctrine that, despite all the wars since 1945, denied the possibility of strategic conventional war, they also validate Bracken's insights. Only when forced "out of the books" did the Air Force formulate a new template of war and novel operational concepts. Those concepts were available and feasible because of prior innovations in avi-

ation, space, and electronic weaponry, even though doctrine denied their utility and feasibility in warfare. Now the changes wrought by the air campaign over Iraq must be buttressed and institutionalized by organizational changes.

#### TECHNOLOGY AND ORGANIZATION: LESSONS FROM SOVIET RUSSIA

It is not unprecedented for great strategic visionaries who forge profoundly innovative operational concepts to be unable to implement the policies and organizational adaptations needed to realize their vision in the defense, economic, social-organizational, and/or operational spheres. This happened twice in the Soviet Union: the first failure almost led to the country's demise in World War II; the second failure was instrumental in its ultimate collapse.

In the first instance of Soviet strategic failure, the military could not defend the strategic vision and operational concepts that it had created. Stalin's purges and suppression of independent thinking among commanders precluded viable organizational adaptation of the national command authority. Thus the farseeing ideas of the post-1917 generation, Triandafillov, Tukhachevsky, Svechin, Lapchinsky, etc., were suppressed or discarded. Although it was accepted that the coming war would be a mass war of machines intensely utilizing automotive, aviation, and tank technologies, the effects of the purges, the misapplication of the operational concepts developed during the Spanish Civil War, the belated, incomplete study of German successes in 1939-1940, and the complete incoherence of the command system in 1939-1941 greatly contributed to the Soviet disasters in 1941-1943.<sup>11</sup>

The miserable performance in Finland in 1939-1940 and during 1941-1943 were largely attributable to Stalin's refusal to delegate authority and power to a strategic command system that could enforce the changes needed to adapt to the current wars. Similarly, the economy, while organized for war, was territorially structured. Thus, it was vulnerable to immediate attack. Nor could the forces of 1939-1941 master contemporary high-technology.<sup>12</sup> Accordingly the Soviet military could not devise necessary modern tactics. The result was an appalling failure.

## POLITICAL-STRATEGIC IMPLICATIONS

One may also argue that the brilliant commanders who were purged or died before 1941, indeed Stalin himself, failed to thoroughly understand the political-strategic implications of their vision of future war. Evaluation is a necessary and constant feature of a well-oiled organizational system with a well-conceived vision of future war. In postulating mass, mechanized war, and the theory of the deep strike, Tukhachevsky et al. also postulated a revolutionary offensive, i.e. total war.<sup>13</sup> If Russia went to war with another country, it had to be a total war because the outcome of a Soviet victory was the revolution from above and outside of the defeated country. But these thinkers failed to realize that such a theory put the USSR itself at grave risk, because if the offensive failed, the destruction of the Soviet or Stalinist system then might ensue. Any Soviet posture that presumed total war isolated the USSR from potential allies in the West, making it vulnerable to attack, as in 1941, placing its own system at risk. This brilliant Soviet strategic and operational vision promoted only one kind of war: all-or-nothing conflict for both sides.

Opponents of so extreme an offensive vision, such as A.A. Svechin, preached the acceptance of an initial defensive posture during which full mobilization could transpire, i.e., when the Soviet state could fully adapt to total war.<sup>14</sup> Then and only then, could the enemy be annihilated by offensive action. Stalin's preference for avoiding intervention until all of Europe had exhausted itself perhaps owed something to his intuition that the entire system would be placed at risk by the Soviet vision of war.<sup>15</sup>

The failures that attended the war against Finland in 1939–1940 called even Soviet capacity in a war against weak states into question. The unchecked strategic and operational vision of Stalin and his commanders and theorists led to two intolerable scenarios that risked everything. Because nobody could or would articulate the purely organizational and policy innovations needed for the strategic vision to succeed, the USSR in 1941 was caught between incompatible deployments and strategies.<sup>16</sup>

## A POLICY-STRATEGY MISMATCH

The second, more recent Soviet failure is equally useful as a caution for forecasters. Only after fifty years could Soviet armed forces execute the operational concepts pioneered by Tukhachevsky et al. The expected Soviet offensive in Europe aimed to reach the Channel within days by means of coordinated deep strikes against NATO using a joint arms approach and even tactical nuclear strikes.<sup>17</sup> As formulated by Chief of Staff Nikolai Ogarkov (1917–1994), this offensive plan entailed a prior sweeping reorganization of command and force structures—with greatly expanded roles for airborne, air assault, naval infantry, and Spetsnaz forces and a greatly transformed relationship between air and ground forces—and Soviet defense industry.

Ogarkov's central point was that the world had entered a new, third revolution in military affairs. Conventional weapons could replace nuclear ones in their effects, while technologies of electronic components, information systems, third-generation nuclear weapons, and aero-space travel must be optimized to provide Soviet forces the means to defeat NATO. Ogarkov and his subordinates knew NATO was embracing those systems: new Soviet operational-strategies, e.g., the Maritime Strategy, Follow-on Forces Attack (FOFA), and Air-Land battle.<sup>18</sup> Indeed the last Soviet Chief of Staff, General Mikhail Moiseev confirmed this author's view that in Operation Desert Storm, the allies successfully executed an ideal version of the Soviet conventional theater offensive.<sup>19</sup>

Once again a brilliant forecast of warfare's future nature and of its associated operational concepts foundered on the shoals of organizational and political response. To realize Ogarkov's vision, Soviet defense industry and the armed forces had to be fundamentally overhauled by massive investments of capital and political will. Yet the regime could not afford the necessary expenses and lacked either the will or vision to transform defense industry. Additionally, other commanders obstructed Ogarkov's programs.<sup>20</sup> Moreover, most political leaders perceived the strategic implications of Ogarkov's script as entailing a vastly more dangerous strategic rivalry with the West.

Accordingly, only the most halting and ill-conceived organizational adaptations were undertaken, and they helped undermine the entire system. The strategic implications of Ogarkov's scenarios for Europe and Asia also arrayed the USSR against the entire world: NATO, the United States, China, Japan, South Korea, Israel, etc. The regime could not sustain the resulting arms race, militarily, economically, or industrially. Consequently Gorbachev was forced into one strategic retreat after another to reduce the burden of a defense industry suited for World War II. Meanwhile, in Afghanistan, the Soviet army showed that in its internal organization, it still could not adapt tactically, strategically, or organizationally to the wars it had to fight. Strategically, the most notable failure of strategic leadership and command was the fact that the USSR began this war apparently against its best professional military advice.

Once again a brilliant strategic forecast of future war and related operational concepts ran aground. The system could not respond to the requirements of a military revolution and make the necessary adaptations. Because there was no scope for organizational innovation, visions of future war could not be materialized nor could anyone show where they ran unwarranted risks or where reality contradicted them. Absent the necessary flexibility, the vision of future war increasingly diverged from the practical means available to implement them. And Russia's invasion of Chechnya, in December 1994 showed a far more advanced state of organizational decomposition and disarray than previously realized.

## LESSONS FOR CONSIDERATION

Forecasters of future war and implementers of necessary organizational changes and institutional reforms must ponder these lessons to ensure that we fight our wars and not someone else's. These lessons translate into propositions that are simply stated but difficult to carry out.

First, the acid test of any vision of future war is the capacity of a state's political leadership and elites to restructure its defense industry, strategic leadership, policy process, and related organizations to realize that vision. That restructuring process, in turn, must clarify what aspects of the new vision and associated operational concepts are too strategically risky or beyond a state's foreseeable capacity.



Second, even under conditions of technological superiority, failure to undertake organizational and social innovations or restructuring guarantees that this superiority's impact will be blunted if not negated. In other words, no technology can make up for basic errors in making or implementing strategy.

States with such superiority have lost wars in which they could not formulate a strategy appropriate to reality. Their organizational and tactical innovations were either misconceived or only partly successful. Vietnam and Bosnia, each in their own way, testify to the result. The ubiquity of such experiences suggests how truly difficult and rare it is to marry vision and a purposeful policy of institutional changes when confronted by a new strategic vision.

## BUDGETS AND THE RMA

This returns us to our opening point. Everywhere states are grappling with the RMA's impact when their means of doing so are increasingly circumscribed and their military budgets declining. The U.S. only faces the duress of declining budgets. Others, like Russia, face not only budgetary decline but also the burden of defeat and a pervasive sense of threat. Russia still cannot forge a usable military force.<sup>21</sup> While the United States is sacrificing future systems to current readiness and peace operations, other states may be forging new doctrines, force packages, and economic transformations to maximize their potential. In developing states,

One of the factors revealed by this perspective on technological diffusion is the importance of organizational and institutional factors to successful defense production and innovation. In particular, domestic systems-integration capabilities are extremely valuable in increasing the technical absorption capabilities of a defense industrial sector. Import substitution in systems integration is thus an important factor in rendering weapons program development efforts robust in the face of foreign technology denial efforts. Not surprisingly, emerging defense industrializers have set the goal of increasing synergies from horizontal technology borrowing and integration within their own defense sectors. This helps foster cooperation and innovation at home, and helps a country to develop indigenous modifications to weapons and related technologies which may in turn create exportable products or processes in the future.

Co-production and co-development in North-South arms transfer agreements intensify the potential for such gains.<sup>22</sup>

The foregoing observations suggest a third lesson; organization, in and of itself, should also be viewed as a form of applied technology for warfighting purposes. Only if effective military, political, and defense industrial structures are built can states obtain the force multipliers inherent in new technologies.

The next lesson flows logically from the third one. Technological superiority, i.e., superior platforms and weapons, mean little without organizational superiority. And organizational superiority alone probably is worth more than superior platforms and weapons. It, not weapons' superiority, is the contemporary equivalent, at least to some degree, of the commander's operational art. Without this, superior weapons have only a tactical significance.

## TECHNOLOGY AND SOCIAL ORGANIZATION

These insights may seem unoriginal, even banal. Such a perception makes them no less useful or fruitful. Modernity's continuous and profound technological changes are inseparable from the parallel revolution in social organization. This is a central seminal insight of pioneers of modern social thought, such as Durkheim and Weber. And the primacy of organizational factors of masses of men and materiel in modern warfare links so disparate a group of "great captains" as Mao Zedong, Lenin and Trotsky, Ho Chi Minh and Vo Nguyen Giap, and Ulysses S. Grant as successful practitioners of far-reaching transformations, if not revolutions in modern warfare. Each in his own way successfully optimized the resources available to them as nobody before them had done.

Current events also validate this insight. In October 1994, anxious to intimidate the allies and the UN into lifting sanctions on Iraq. Saddam Hussein mobilized his forces on Kuwait's border. Within 72 hours thousands of U.S. troops, ships, planes, missiles, etc. were either in the theater or on the way, leading Iraq to retreat. This episode shows the importance of flexible organization. Although U.S. forces are undoubtedly technologically superior and forward deployed against just this possibility, their ability to deploy as a combined force on land, sea, and air within 72-96 hours sufficed to deter Iraq.

Our ability to organize a cohesive, joint, combined arms force that is more than the sum of its parts was crucial. This episode also suggests that organizational flexibility is a greater deterrent than an arsenal of smart bombs and high tech-assets. What counts is usable military power.<sup>23</sup>

Because revolutions transform our understanding of what constitutes usable military power and how it may best be deployed, we cannot simply rely on the information revolution or the digitized battlefield, etc. Technological change increases the importance of strategic vision and operational art (or their functional equivalents) because the boundaries between tactical, operational, and strategic operations or levels are steadily disappearing. In Desert Storm there was only a “first strike,” not a campaign.

The October 1994 episode also suggests the dangers lurking in the necessary but risky impending defense cuts. If future developments are to be cut to maintain readiness, we might retain our organizational and technological superiority only to forfeit them in future conflicts. Worse, we may saddle ourselves, not with a hollow force, but rather with one maladapted to many future contingencies.<sup>24</sup> Of course, there is no easy answer to or consensus around the question of how to avoid either danger.

#### THE UTILITY OF TECHNOLOGICAL SUPERIORITY

Technological superiority as an end in itself has dubious utility and probably is beyond even our means. If not combined with an organizational framework (or frameworks) to optimize the synergies obtained from new technologies and organizations, superior technology possesses only tactical significance. Its initial deployment in war, like the use of mustard gas in 1915, achieves only a tactical local superiority that is not translatable into broader operational or strategic superiority. As with nuclear arms, what ensues is a race to achieve ever more deterrents to the other side’s capabilities, few, if any, of which can be safely used.

This is not only a nuclear phenomenon. It happened with the German Navy before World War I, provoking British arms-racing and hostility to Germany. Yet, once war was joined, the German Navy was never used with any strategic effectiveness lest it be lost in battle.

Analogously in 1940, German tanks were neither numerically nor qualitatively superior to Franco-British tanks, but were organized much more effectively at the strategic and operational level. Here organizational superiority based on innovative views of modern war and associated operational concepts was a telling, if not decisive, factor.

Indeed, if the demands of keeping pace with an ever costlier technological revolution outpace a state's organizational and material means for doing so, that state may keep apace with its rivals in perceived military power only to fall further behind in actually usable military power. This was Russia's fate under both Tsarist and Soviet rule: Russia faced an intolerable military burden and its forces became progressively unsustainable. Its military leadership could not accept the requirement to scale back military plans and strategies.

Meanwhile the Russian army expanded—even during a period of financial stringency—to meet what St. Petersburg perceived as a threat of the first magnitude on the Empire's western borders. Problems of western defense also resurrected the expensive issue of border fortifications. In addition, as the Russians expanded their influence in the Balkans, their boundaries in Central Asia, and their sphere of influence in the Far East, the requirements for military security seemed to grow exponentially. Unfortunately for the Russians, neither the army nor the treasury could keep pace with the combined growth of boundaries, influence, and interest, and once again a dangerous gap opened between state policy and military capability. Rapid technological change contributed to the increasing political, financial, and military complexities of the situation.<sup>25</sup>

Despite repeated lessons, Tsarist leaders rejected the need to choose priorities and cut losses. Thus they triggered a catastrophe that has not yet been overcome. Sadly, this quotation could be written for today with nothing changed, signifying thereby Russia's intractable strategic dilemmas. Indeed, the Soviet leadership had fallen into the same trap by the 1980s.<sup>26</sup>

## LESSONS FOR THE U.S.

Our point is not to gloat over Russia's miseries but to encourage constructive thinking about our own intractable dilemmas. We too

have spiraling domestic commitments that must be met to maintain the organizational, human, and technological bases of our superiority. And they cannot be met along with multiple peace operations for present contingencies unless the future is sacrificed. To say this is not just a critique of the policy of the current administration. To begin with, some valuable organizational initiatives in procurement are already underway.<sup>27</sup> Nor are all peace operations inherently counterproductive. Rather we recognize an accepted fact that already influences policy. We too must strategize under duress, set priorities, cut losses, etc. Business as usual and preserving obsolete or unsustainable military plant as allegedly still happens, will not save us.

Recent writers have broadened the definition of security to include its economic, ecological, and human bases. In an age of technological explosion and global interdependence, this is probably the appropriate way to treat the question of security. But it offers precious little in the way of an answer. Where warfare has already become five dimensional—land, sea, air, space, electronic (and one could make submarines into a separate dimension)—not only might the volume of information duly obtained overwhelm commanders' ability to exercise command and control or give strategic guidance, ultimately it might prove impossible to organize armed forces to execute a unified strategic vision. Similarly, absent any consensus on the wars and contingencies we might expect, how can we build organizations flexible enough to respond to any threat to national or vital interests?

No definitive answer is possible before actual operations. The Air Force's example strongly confirms this.<sup>28</sup> This is one reason for maneuvers, exercises, etc., as well as for testing operational concepts and organizational adaptations that really do validate new visions of warfare. Undoubtedly there are experiments underway to create new force packages to meet unique contingencies such as in Haiti in 1994.<sup>29</sup> Their relevance to the Persian Gulf or Yugoslavia resides in the creative thinking about tailoring forces to contingencies and to create flexible means of organizing, delivering, and projecting timely military power. Our preexisting superiorities help commanders devise creative replies to unique or unforeseen tactical and strategic challenges. As former Chief of Staff of the Army General Gordon Sullivan wrote, the Army's success in organizing relief efforts for Rwanda's crisis in 1994 represented a triumph of improvisation and flexi-

ble organization, not doctrinal foresight or strategic vision about such conflicts.<sup>30</sup>

Accordingly, one cannot stress enough the need for continued, flexible, organizational adaptiveness under current stringent conditions. By striving for technological superiority, we have committed ourselves to achieving a technological surprise on the battlefield, which itself is being revolutionized. But in an age of the globalization of science and of ever higher costs of technology and weapons systems, it seems unlikely that technological surprise will be strategically decisive in the future as it was, e.g., in 1945 with the advent of the atomic bomb.

## ORGANIZATIONAL TRANSFORMATION

The United States' progressive inability to fund the cost of protracted theater war, present peace operations, and new platforms has become clear since 1990. Today we rely increasingly on others to supply us with the finances and technologies, or the forward bases and logistical infrastructure needed for military operations. Our quest for qualitative superiority is an ever elusive one whose pursuit entails costs whose implications are only dimly perceived. Thus we have also bound ourselves over to a process that demands continuous organizational transformation, if not revolution, if we are to stay ahead technically. To master the necessary organizational transformations requires much more fidelity to coalition warfare; new, more flexible force packages; dependence on foreign suppliers, organization and coordination of multidimensional warfare; information gathering and dissemination; constant readiness to project power, etc. This in turn requires the constant transformation of our military and political structure, defense industrial base, and overall economy and society.

We have willingly given ourselves over to a revolution whose end is inconceivable, whose nature is under acute debate, whose parameters are also a matter of argument, and whose challenges are perhaps more formidable than ever before. Henceforth, we do not have the luxury of being able to think about these problems before they come. Given the time necessary for weapons development and the other processes involved, we must start serious planning for the years 2015–2020 now. We need to master both the technological and or-

ganizational challenges that can already be glimpsed in order to be capable of a viable strategic response to the threats of the future, be they small, protracted theater, and even nuclear wars. Despite our present technological superiority, it is not clear that we fully grasp all the implications of our chosen course.

## NOTES

<sup>1</sup>Jeffrey R. Cooper, *Another View of the Revolution in Military Affairs* (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 1994), pp. 1-2.

<sup>2</sup>For example Martin van Creveld, *The Transformation of War* (New York: The Free Press, 1991); and *Nuclear Proliferation and the Future of Conflict* (New York: The Free Press, 1994).

<sup>3</sup>Raoul Henri Alcalá, "Guiding Principles for Revolution, Evolution, and Continuity in Military Affairs," in Paul Bracken and Raoul Henri Alcalá, *Whither the RMA: Two Perspectives on Tomorrow's Army* (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 1994), pp. 27-29. As for foreign armed forces, see Jacob W. Kipp, "The General Staff Looks at 'Desert Storm': Through the Prism of Contemporary Politics," Stephen J. Blank and Jacob W. Kipp, eds., *The Soviet Military and the Future* (Westport, CT: Greenwood Publishing Group, 1992), pp. 115-144. See also Mary C. Fitzgerald, "The Russian Image of Future War" *Comparative Strategy*, XIII, No. 2, Spring, 1994, pp. 167-180.

<sup>4</sup>Thomas E. Ricks, "How Wars Are Fought Will Change Radically, Pentagon Planner Says," *Wall Street Journal*, July 15, 1994, p. 1; and "Top Pentagon Thinker Sees Dramatic Changes for Warfighting Strategy," *Inside the Navy*, August 22, 1994, p. 1.

<sup>5</sup>Paul Bracken, "Future Directions for the Army," in Bracken and Alcalá, pp. 1-14. This formulation was taken, however, from his presentation to the U.S. Army War College V Conference on Strategy, April 25-27, 1994. Cooper, pp. 16-26, also emphasizes the importance of organizational adaptation. Andrew Latham, "Military-Technical Revolution: Implications for the Defense Industry," *Canadian Defense Quarterly*, XXIV, No. 4, Summer, 1995, p. 18, conceptualizes these elements as technology, technique (or doctrine), and organization. Eliot Cohen, "The Mystique of U.S. Air Power," *Foreign Affairs*, LXXIII, No. 1, January-February 1994, pp. 116-118, shows the importance in practice of organizational adaptability in Operation Desert Storm.

<sup>6</sup>James R. Golden, *Economics and National Strategy in the Information Age: Global Networks, Technology Policy, and Cooperative competition* (Westport CT: Praeger Publishing Co., 1994) p. 266.

<sup>7</sup>David Mussington, *Arms Unbound: The Globalization of Defense Production* (Cambridge, MA and Washington D.C.: Brassey's 1994), Center for Science and International Affairs, John F. Kennedy School of Government, Harvard University, CSIA Studies in International Security No. 4, pp. 47-48.

<sup>8</sup>This was already apparent in 1992. See Debra Polsky, "Asia States Challenging U.S. Firms," *Defense News*, March 2, 1992, pp. 1,10.

<sup>9</sup>Cohen, p. 112.

<sup>10</sup>Lt. Col. J. Taylor Sink, USAF, *Rethinking the Air Operations Center: Air Force Command and Control in Conventional War*, Thesis Presented to the School of Advanced Airpower Studies, Maxwell AFB, Alabama, September 1994. Sink concludes

by stressing that his suggested remedies are answers to doctrinal and organizational problems. Sink, p. 52 (*Italics in original*).

<sup>11</sup>Jacob W. Kipp, "Barbarossa, Soviet Covering Forces and the Initial Period War: Military History and Airland Battle," Soviet Army Studies Office, Ft. Leavenworth, KS, 1987.

<sup>12</sup>*Ibid.*

<sup>13</sup>Mikhail Tukhachevsky, "A Collection of Articles by the Red Army's Leading Military Theoretician," Art of War Colloquium, U.S. Army War College May 1983, pp. 52–58.

<sup>14</sup>Alexander A. Svechin, *Strategy*, ed. and trans. by Kent D. Lee, with Introductory Essays by Andrei A. Kokoshin, Valentin V. Larionov, Vladimir N. Lobov, Jacob W. Kipp (Minneapolis MN: East View Publications, 1992).

<sup>15</sup>In his famous speech of February 9, 1946, Stalin claimed that the imperialists thought the whole system was a "house of cards." Given his penchant for projecting his fears onto others, this may have reflected his deepest concern.

<sup>16</sup>Kipp, "Barbarossa," pp. 23–31.

<sup>17</sup>Lothar Ruehl, "Offensive Defense in the Warsaw Pact," *Survival*, XXXIII, No. 4, September–October 1991, pp. 442–450; Michael Boll, "The Evolution in Soviet Military Doctrine, 1984–1994," in LTC James F. Holcomb and Michael M. Boll, *Russia's New Doctrine: Two Views* (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 1994), pp. 18–19; and Beatrice Heuser, "Warsaw Pact Military Doctrine in the 1970's and 1980's: Findings in the East German Archives," *Comparative Strategy*, XII No. 4, October–December 1993, p. 451.

<sup>18</sup>This is precisely the way Cooper too understands Ogarkov. See Cooper, p. 27; and Dale Herspring, *The Soviet High Command 1967–1989: Personalities and Politics* (Princeton, NJ: Princeton University Press, 1990); Rose Gottemoeller, "Intramilitary Conflict in the Soviet Armed Forces," Bruce Parrot, Ed., *The Dynamics of Soviet Defense Policy* (Washington, DC: Wilson Center Press, 1990), pp. 79–118.

<sup>19</sup>Stephen J. Blank, *The Soviet Military Views Operation Desert Storm: A Preliminary Assessment* (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 1991), pp. 31–33. Moiseev's reaction was related by Dr. Tyrus Cobb, then of the Center for Naval Analyses.

<sup>20</sup>Herspring, *passim*; Gottemoeller, pp. 79–118; Stephen J. Blank, "New Strategists Who Demand the Old System," *Orbis*, XXXVI, No. 3, Summer 1992, pp. 365–378.

<sup>21</sup>This is still the case, as Russia's crisis in military spending shows. Stephen J. Blank, *Reform and the Revolution in Russia's Defense Economics* (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 1995), pp. 24–28.

<sup>22</sup>Mussington, p. 62.

<sup>23</sup>Bradley Graham, "Rapid Deployment Plans in the Crucible," *Washington Post*, October 11, 1994, p. A12.

<sup>24</sup>Dov Zakheim, "Haiti Deployment Has Many Costs," *Defense News*, October 10–16, 1994, pp. 23–24.

<sup>25</sup>Bruce W. Menning, *Bayonets Before Bullets, The Imperial Russian Army, 1861–1914* (Bloomington, IN: Indiana University Press, 1992), p. 92.



<sup>26</sup>Blank, "New Strategists," pp. 365-378. Victor Glukhikh, Chairman of the Russian State Committee for the Defense Industry, recently stated that if Russia cannot sell arms abroad, it could not afford to develop new weapons with which to defend itself. See Foreign Broadcast Information Service, Central Eurasia, September 26, 1994, p. 23.

<sup>27</sup>Kenneth Allard, "It's Not Very Flashy, But the Payoff Is Real," *Washington Post Weekly*, October 10-16, 1994, p. 41.

<sup>28</sup>Sink, pp. 47-48.

<sup>29</sup>John F. Harris, "Military's Rapid Switch in Haiti a Tactical Win for Joint-force Planner," *Washington Post*, September 28, 1994, p. A21.

<sup>30</sup>General Gordon R. Sullivan and Lt. Anthony M. Coroalles, *Seeing the Elephant: Leading America's Army into the Twenty-First Century* (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 1995), pp. 42-43.