

# IF WAR COMES TOMORROW?

The Contours of  
Future Armed  
Conflict

General Makhmut Gareev  
Edited by Jacob W. Kipp

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GENERAL  
MAKHMUT AKHMETOVICH GAREEV

Translated by  
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Edited and with an Introduction by  
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**Publisher's Note**

The publisher has gone to great lengths to ensure the quality of this reprint  
but points out that some imperfections in the original may be apparent

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General-Colonel Gareev among the Soviet delegation greeting US Secretary of Defense Frank Carlucci in June 1988.

General of the Army Makhmut Akhmetovich Gareev in his office in the early 1990s.

Strategic Operation (One Option)

General-Colonel Gareev as Senior Soviet military advisor to the government of Afghanistan after the withdrawal of Soviet forces.

## PREFACE

There is no lack of accusation that the military are preparing for the last war. This catch-phrase, by the way, was coined by a well-known politician only after the war, when many things had become obvious. Everybody understands that it would be more prudent to orient military structuring and war readiness towards the future. But when it is hard to draw appropriate conclusions from the past, it is even harder to foresee the future. History knows of many accurate predictions regarding certain aspects of future wars, but nobody has yet succeeded in foreseeing the nature of any forthcoming armed struggles in their totality.

And still this labor of Sisyphus goes on. Prognostications concerning the causes of war and the nature of armed struggle have become more topical nowadays, and not only with regard to defense issues, but first and foremost in order to prevent wars and armed conflicts. It is better to err in prediction than to yield to the impossibility of foreseeing the progress of military affairs. And if only someone venturing to resolve the problems of the future would manage to infer at least a small detail, or a trend, the number of oversights would be smaller.

Profiling future conflict, one is tempted to chastise, as usual, everything obsolete and currently exploited; jumping into the world of mysterious and thrilling technologies, and unheard of ways of their utilization. But just as throughout history dialectical consistency was preserved in the development of military affairs regardless of turbulent revolutionary changes; so there are no grounds for expecting the times to be out of joint. Therefore, researchers should balance their daring forecasts, because normally nothing jumps up out of nowhere. In the past, miscalculations were common, due to one-sided approaches and extreme assessments, and some theoreticians maintained that war could be won by tanks and aircraft alone, or by following one method of fighting, forgetting that a diversity of ways and means is characteristic of any given reality. Even staking on such an 'absolute' weapon as the nuclear one failed expectations.

Envisaging newly developing methods of war has always been one of the most important tasks of military art. Laying the theoretical foundations is now even more complicated as the qualitative disparity increases between weapons of the last war and those of the future wars.

In the sphere of rapid scientific progress in military affairs one has to make decisions without the necessary amount of relevant experience. War

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games in times of peace can only be of limited use: it is impossible to simulate everything, particularly in the nuclear arena.

In history, after any great war (Franco–Prussian, Russo–Japanese, World War I), it was often stated that the current military art was outdated. But the next war, though introducing new methods, still preserved many old ways. There has never yet been a war that totally negated all former gains of military art.

Neither current experience nor superficial knowledge of the future are requisites, rather foresight depends on deep-rooted, often-concealed directions and tendencies, which possess the ability to evolve into completely new forms. No war experience is without significance. And along with this, the next war tends not to resemble the previous one, but throws up progressively more novelties. This factor contains within itself the seeds of new potential.

It is important that both sides of this contradictory dialectical process are considered by scientific research. As the Polish philosopher Leszek Kolakowski said, ‘We need to remember two things: first, if not for new generations’ rebellions against old traditions, we would have been still living in caves; and second, if there had only been those rebellions, we would have been in the caves again.’<sup>1</sup>

Thus military science should rebel against obsolete views, but at the same time avoid leaving in our modern caves anything that might help shed light on the future.

As the Wall Street journal once put it, ‘the best Pentagon analysts worry not about Bosnia, Haiti or North Korea, but about timely apprehensions of possible cardinal changes of war fighting methods in the coming decades’.<sup>2</sup> This is also a burning issue for specialists in Russia and other countries.

I define armed struggle as part of war – war being a complex social and political phenomenon embracing all spheres of life in the nations engaged, with diverse ways of fighting the enemy including industrial, political and psychological means, with armed struggle being paramount among them.

That is why in order to answer the question of what armed struggle will be like in the future, one needs to know to what extent the political and social essentials might change in the new military-political environment, and what the main causes of war are likely to be.

The ways and means of fighting wars will still be greatly affected by social, political and industrial factors; new discoveries in weapons technology; and changes in societies’ mentality with regard to war and the methods of manning them. An analysis of all these factors in the aggregate can more or less precisely outline tendencies and opportunities in the development of war-fighting methods. In doing this, and understanding the extensiveness

## PREFACE

of the subject, I intend to limit the scope of the analysis of future war-fighting methods only to those which look to acquire definite new facets, and which are scantily surveyed in recent military publications.

The thoughts presented in this book are not only the result of my personal reflections and research, but emerged in the course of discussions, meetings and debates at scientific conferences, which took place at the Military Academy of the General Staff, the Center of Military and Political Research of the General Staff, the Academy of Military Sciences, the department of Geopolitics and Security of the Academy of Natural Sciences of the RF (Russian Federation), and at the Russian Institute of Strategic Research; and have been influenced by meetings and joint discussions at NATO headquarters and research centers, the London International Institute of Strategic Studies, the American Marshall Center (in Munich), German–Russian veterans’ organizations, the US National Defense University, the American Space Transportation Association headed by Daniel O. Graham and Edward Teller, the American training centers at Ft. Leavenworth, Fort Sill and Benning, Knox, and the department of defense of Syria presided over by General M. Tlass. Such meetings and discussions almost never directly contribute to cognition of the truth, but as a rule they table new questions and fresh ideas fruitfully, and correlate opinions.

I express my gratitude to ONEKSIM-Bank, and the Russian Fund of Foreign Economics Policy and personally to Alexander Ivanovich Ageev, Sergey Anatoliyevich Batchikov, and Sviatoslav Yurievich Rybas.

M.A.G. 1995

## NOTES

1. Cited from *Ot strategii oborony k politike mira. Germanskije vooruzhennye sily v period peremen* (Moscow: Nauka Publications, 1993) p. 87.
2. *Kompas*, 1994, No. 119, pp. 3–7.

*The military have been always accused of making preparations for past wars. And it is true, that in spite of some accurate predictions, almost nobody managed to foresee the character of future war. Nevertheless, this labour of Sisyphus goes on. For it is better to err in forecasts, than yield to the idea that it is impossible to foresee the future of military affairs.*

## INTRODUCTION

# THE CONTOURS OF FUTURE ARMED CONFLICT AND THEIR INTERPRETER: Implications for National and International Security Policy

JACOB W. KIPP

## THE BOOK

The appearance of General Makhmut Akhmetovich Gareev's book on the contours of future armed conflicts is timely. General of the Army M.A. Gareev, Russian Army (retired), has authored a well-crafted study of those contours, focusing on the political, economic, social, and technological trends which will affect the evolution of military art of the next ten to fifteen years. The book is a well-argued case of the need for foresight to guide military doctrine, force structure, and force development. Gareev admits that the task of foresight is like 'the labor of Sisyphus' but sees an ongoing process of forecasting as a necessary element of military science.

Gareev focuses upon the application of foresight to resolve defense problems with an eye toward preventing wars and armed conflicts. He explicitly warns against two dangers. The first is the assumption that forecasting the development of military art is so complex that no forecast will have any real value. The second is the danger of turning a forecast into an advocacy exercise for a particular weapons system or military service, in which that weapon's proponents transform it into an absolute solution to all defense problems, and use it to legitimize the allocation of resources in the bureaucratic struggle for funding. Gareev's categories are those of Soviet military science and his primary focus is upon those changes which will bring about a break in the steady evolution of military art, and will create 'a qualitative break between the means of past and future war'. The key to this exercise is the search for 'law-governed patterns' (*zakonomernosti*), which identifies what is relevant from past combat experience and what is in the process of being radically transformed.

Gareev emphasizes two profound changes that are making for a radical break in military art: The first is the transformation of the international

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system resulting from the end of the Cold War, and the associated political, social, and economic realignments that have occurred. The second is the revolution in military affairs based on the appearance of advanced, high-accuracy conventional weapons, electronic warfare, and information warfare. Taken together, these developments call for a 'total analysis' of 'socio-political and economic factors, the development of armaments on the basis of the latest technological innovations, changes in the human material associated with the relationship of society to war, and to the methods of raising the armed forces'. Gareev reasserts the relevance of Clausewitz to post-Cold War security issues, saying that states, not weapons, make war. 'Therefore it is more correct to say that under contemporary conditions war – nuclear and conventional – should not be a means and continuation of politics.'

Concerning changes in the international system, Gareev notes the sharp decline of ideology as a source of conflict, but warns that 'new, quite sharp socio-political, economic, territorial, and ethno-national contradictions between various states and regions' have emerged as dangers and threats. Gareev criticizes the Russian government for making one-sided concessions and failing to act in a manner that would protect and support Russian national interests. Defense on the cheap is an invitation to loss of sovereignty, independence and territorial integrity.

Gareev begins by addressing the need to emancipate military art from nuclear weapons, which he describes as weapons that are impossible to use. He notes that for the foreseeable future nuclear weapons will remain 'a cheap and reliable means of deterring aggression'. He sees serious political liabilities in the provisions of Russia's current military doctrine which reject a declaratory policy of no-first-use. In a political crisis, an assured second-strike capability reduces the risk of either side gambling on preemption. While Gareev sees a low probability of a conventional world war over the next decade and a half, he does note the trend among states to use subversive actions and local wars to achieve political objectives, and warns that such conflicts could evolve into large-scale armed conflicts. In this context, strategy will be dominated by B.H. Liddell Hart's 'indirect approach', to achieve limited ends with limited means. Conflict prevention and localization take on increased significance in this environment and involve 'economic sanctions, naval, air, and ground blockade of communications, demonstrations of force, the deployment of peacekeeping forces for the separation of the sides and other means of action'. Failure to prevent conflicts or bring about their isolation will lead to escalation, including offensive actions aimed at the military power of the offending party. The model here is the Gulf War, with its initial independent air operation followed by a ground offensive to take and control key terrain and crucial

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military objectives. Gareev sees a major challenge before military art in addressing those problems that arise in conflicts between more technologically-advanced and less-advanced states.

On the revolution in military affairs, Gareev foresees profound shifts in strategy, operational art and tactics as a result of technological innovations which will shift the balance among fire, strike and maneuver; because advanced precision weapons, electronic warfare, and modern troop control systems will allow simultaneous fire and strike maneuvers throughout the depths of an enemy's dispositions, in a theater Gareev calls 'sea-air-land operations'. Such an operation could lead to the disruption and destruction of important enemy combat groupings. Such combat actions would link together battles on the front, flanks and rear of an opponent in a non-linear battlefield of great extent, without stable front lines, and involve significant maneuvers in depth. The impact of these changes would be felt most in the initial period of war, and would place great stress on systems of troop control, requiring greater reliance on automated control systems by commanders and staff. Gareev raises the issue of seeking international arms control agreements to deal with 'strategic conventional weapons', by which he means advanced precision systems that could be used for strategic decapitation of national command and control capabilities in the initial period of a future war, thereby forcing nuclear states without adequate means to defend against such strikes to rely on strategic preemption in a crisis period.

Gareev recognizes that Russia's military is in a complex process of reform and restructuring following the end of the Cold War and the disintegration of the USSR. And that the socio-economic and political transformation of Russia will either guide the creation of a post-Soviet military, or be held captive by the inherited military structures that are too large to be reformed and too ossified to undertake reform themselves. Those who focus on the present might dismiss this volume on the simple basis that Russia, with all its internal problems, and the armed forces' tragic performance in Chechnya, is in no position to address the issues or carry out the economic transformations to be an effective military competitor in the first decades of the next century. Based on historical experience, such a view would be very short-sighted. Defense analysts, statesmen, and soldiers will find much food for thought in this volume. Part of the credentials of this forecast belong to the author himself, a soldier with more than fifty years of active service.

## THE MAN

General Gareev, one of the leading military theorists of the Soviet Union and the Russian Federation, brings to his chosen topic a wealth of practical experience as a soldier, trainer, military historian and forecaster. Born in

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1923 in Chelyabinsk, Gareev is one of the last of the famous 'cohort of 1923', the young men born in that year who went off to fight in 1941, survived the Great Patriotic War, and went on to lead the Soviet armed forces during the Cold War.<sup>1</sup> His generation was shaped by the Stalinist revolution from above that began in the late 1920s with industrialization and collectivization. His family left Chelyabinsk in 1932 in the midst of famine and traveled for six months to Tashkent, where his two older brothers had reported better conditions. On the trip the family lived in shanty towns at rail junctions, barely making do. When the family arrived in Tashkent they found hard times there too.

In 1935 Gareev's father placed him in a military school in Tashkent to reduce the economic burden on his large family. The young Gareev attended a cavalry school, where he played in the band, before he was accepted into officers school in 1939. He completed officers school in the spring of 1941 in time to join the fighting of winter 1941 before Moscow.<sup>2</sup> General Gareev's prognoses on the changing trends in armed struggle are, therefore, informed by his own extensive experiences as a soldier, and reach back almost six decades to Soviet Central Asia and the cavalry that fought the Basmachi. These include his experiences as a combat soldier with the Western, Third Belorussian, and Far Eastern Fronts during the Great Patriotic War. Gareev experienced the transformation of the Red Army from an infantry army that fought before Moscow, into the tank and mechanized forces that liberated Soviet territory and carried the war into Eastern Europe and Germany. He was in the Far East for the lightning operation of August 1945 that defeated Japan's Kwantung Army. Like most of his cohort, he was wounded several times in the course of the war.

In the post-war years Gareev held positions of increasing importance in the Soviet armed forces: various command and staff positions in the Far Eastern, Belorussian and Ural military districts, and with the Soviet Forces in Germany. He was an active participant in the nuclear revolution as a rational instrument of policy, with its expanding arsenals of destructive power and narrowing utility. He served as chief of staff to the main Soviet military adviser in Egypt in the early 1970s, including during the air war of attrition over the Suez Canal. In early February 1989 Gareev assumed the post of chief Soviet military adviser to the president of Afghanistan. He held that post until 1990. With a small operational staff, Gareev advised the Kabul government's forces how to conduct local war after the departure of the Soviet 40th Army.<sup>3</sup> In both Egypt and Afghanistan Gareev displayed an attention to training that gave combat stability to unstable armies. Within the Soviet general staff Gareev was noted for his work on training and military science. He is the author of *Tactical Exercises and Maneuvers* and *Combined Arms Exercises*. Western audiences are familiar with his study of

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the military theorist M.V. Frunze which has been translated into English. During Marshal Ogarkov's tenure as chief of the Soviet general staff, General Gareev played a leading role in the development of the operational-maneuver group concept, for the conduct of deep, air-mechanized operations.

The Russian military, and especially the general staff, inherited from the Soviet military the firm belief that revolutionary changes in the nature of warfare are afoot, and that these innovations demand significant changes in the military-technical side of military doctrine and in the approach to military force structure. Beginning with Marshal Ogarkov's tenure as chief of the general staff, Soviet military analysts began to speak of a revolution in military affairs. They associated it with a new generation of nuclear weapons and the appearance of advanced, high-precision conventional weapons. General Gareev, then deputy chief of the Soviet general staff and chief of the directorate for military science, described the RMA (revolution in military affairs) in the following terms:

Now we can speak about a turning point in the development of military science and military art. In general, a new qualitative leap in the development of military affairs, connected with the modernization of nuclear weapons and especially the appearance of new types of conventional weapons, is ripening. In connection with this [process] there has arisen the need to rethink the basic military-political and operational-strategic problems of the defense of the socialist Fatherland.<sup>4</sup>

Gareev's last active duty assignment was as deputy chief of the general staff and head of the directorate of military science. General Gareev is the organizer and first elected president of the recently founded Academy of Military Sciences. He continues to write on military history and military theory and is presently completing his study of Marshal G.K. Zhukov's operational art. His military experience spans the era from cavalry to information warfare. He has confronted the challenge of change, which has so often recast the art of war in this century.

## THE ISSUE

Gareev's book should be seen against the backdrop of an intense debate over the revolution in military affairs (RMA) and the impact of information warfare on the conduct of war. The Gulf War initiated an intense debate in the United States, the Soviet Union/Russia and elsewhere over the very

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existence of a 'revolution in military affairs'. Since the end of the Cold War the RMA's significance for US defense planning has become part of the ongoing conflict over military downsizing, funding of current operations, and maintenance of the US's technological initiative into the next century. These exchanges have become increasingly intense. The two positions, pitting advocates against doubting Thomases, contrast a revolutionary interpretation as opposed to an evolutionary one. In the former case, the Gulf War represents the harbinger of radical changes, transforming warfare as profoundly as have mechanization and the introduction of nuclear weapons.<sup>5</sup>

This revolutionary interpretation sees the RMA as a transformer of combat through the appearance of advanced, high-accuracy precision strike weapons, advanced systems of C3I [command, control, communication and intelligence], electronic warfare, and computer simulation. Quality forces will be those equipped, organized, and trained to make use of advantages in information, penetration, and precision against an opposing force. Describing the operational environment of land warfare in the twenty-first century, General Gordon Sullivan, former chief of staff of the US Army, and his co-author, LTC James M. Dubik, spoke of five trends:

- Greater lethality and dispersion.
- Increased volume and precision of fire.
- Better integrative technology leading to increased efficiency and effectiveness.
- Increasing ability of smaller units to create decisive results.
- Greater invisibility and increased detectability.<sup>6</sup>

These trends are reshaping warfare towards a joint endeavor in which synergy is achieved through simultaneity.

Forces of these kinds will be able to achieve 'a qualitatively different way of fighting – the ability not only to strike the enemy deep, but to see the enemy deep in real time'.<sup>7</sup> General Gordon Sullivan, former chief of staff of the US Army, and his co-author, LTC Anthony Corrales, have pointed out: 'With this capability, commanders can now blend previously separate and discrete operations into a single and seamless whole'.<sup>8</sup> They identified this as the strategic-theater operation, and pointed to Operation Urgent Fury in Panama in December 1989, and Desert Storm in the Persian Gulf in early 1991 as examples of modern operations by joint forces using 'simultaneous employment of overwhelming combat power throughout the breadth and depth of the operational area to paralyze the enemy'.<sup>9</sup> By linking surprise, simultaneity 'in time, over time and throughout the levels of war' with an assault on the enemy's decision cycle, the Allies in the Gulf War 'achieved the effect of simultaneity over the Iraqis at *all levels of war*'.<sup>10</sup>

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Yet the Gulf War was only a 'glimpse' of those capabilities that are now, and will continue, to reshape warfare in the information age. That this glimpse coincides with the end of the Cold War, a general reduction in forces, and a radical recasting of the international environment makes foresight particularly difficult. In this regard the examination of the historical record on other revolutions in military affairs is both interesting and rewarding. There are two distinct positions in such revolutions. One position sees such revolutions as infrequent events, resulting more from profound changes in societies which generate military power. This minimalist view would accept the term revolutionary to deal with shifts in the dominant organizing power behind the military instrument: animal, mechanical, industrial, nuclear, and informational. Each revolution in this scheme of things turns out to have been a complex, protracted, and ultimately profound process, leading to the transformation of warfare and military art. From this viewpoint most of the changes in military art are, in fact, evolutionary. The other, maximalist position, sees modern industrial war throwing up the challenge of persistent change, fed by the transformations in societies' economic orders and social organizations. Permanent revolution in this case becomes the very model for change. Both models explicitly recognize that the nuclear revolution, which they both accept, has worked a profound change in the relevance of war as a rational instrument of politics. By creating the means for absolute war in such weapons of mass destruction, the states possessing such weapons were forced to contemplate the limitation of war as an instrument of policy. The very possession of such arsenals imposed a deterrence posture and an acute need to limit the escalation of conflicts into general wars. The situation did not lead to the end of armed conflict, but it did drive such conflicts in new directions and gave such conflicts new contours. It is in this context that the Gulf War takes on new importance as a harbinger of things to come.

## THE INFORMATION RMA AND THE HISTORICAL RECORD

Twentieth-century warfare, up until the Gulf, was dominated by changes wrought by the industrial revolution. With regard to military art, industrialization had two immediate and profound consequences. First, it made possible the really massive armies of the late nineteenth century. While the French Revolution had promoted the concept of the nation-in-arms through the *levee en masse*, industrialization created the wealth that states could draw upon to mobilize, train, and arm their citizens/subjects. Second, industrialization provided the material to sustain massive military efforts, reducing the decisiveness of major battles and transforming strategy

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from the art of concentration of combat power at a single point, into a linear battle in which each side sought to exploit an open flank until none existed. Jan Bloch, born Ivan Bliokh, the Warsaw banker and railroad entrepreneur, saw this trend almost two decades before World War I began and noted the grave risk that such a defense-dominated, industrial war posed for the societies fighting it. The front could be maintained, but at the risk of revolutionary upheaval in the rear.<sup>11</sup> At that juncture, the core issue of mass industrial war became the ability to strike the opponent deep by negating his linear defense before stalemate brought about socio-economic and political collapse. What happened in the Gulf War is analogous to the use of new technology and tactical techniques in the final year of World War I to overcome that linear stalemate of trench warfare. New techniques and weapons restored tactical maneuver, and opened the prospect of breakthroughs and operational success in that theater. The German Army relied on tactical innovation, associated with the use of shock troops. The Allies, following the British lead, embraced technological innovation through the introduction of the tank and its massed employment in support of infantry assaults. At the end of World War I the full implications of these innovations remained unclear. Theory outran existing capabilities, and military innovation in a time of reduced funding and low threat perception proved slow. Only two decades later did a synthesis of these innovations emerge as *Blitzkrieg* in Nazi Germany. Here, the massed employment of panzer divisions, embodying the tactical integration of tanks, radio communications, and aviation attack, restored maneuver and defeated opponents who fought a positional war. By the final stages of World War II the Soviet Army had achieved the organizational maturity and material support to put deep operations into practice. The mature Soviet approach to mechanized warfare had an operational focus. Tank and mechanized formations, airborne forces, and air armies conducted deep-battle, and deep successive operations to achieve the destruction of the enemy force throughout the depths of its deployment and across vast continental theaters. These capabilities had a solid pre-war foundation in Soviet studies of operational art in the inter-war years, in preparation for a general war in eastern Europe, and in the draconian industrialization carried out during Stalin's 'revolution from above'.<sup>12</sup>

A similar argument can be made for a revolution in military affairs with regard to the development of carrier aviation and amphibious warfare capabilities by the United States and Japan in the inter-war years. Once again Britain had the lead in both fields at the end of World War I, and for a host of geo-strategic, fiscal, organizational, and doctrinal reasons abdicated leadership in these areas to the United State and Japan, whose naval élites in preparing for an eventual confrontation in the Pacific could

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appreciate the radical implications of these instruments for that theater. Here again wartime experience brought a maturation of the concepts, techniques, organizations, and instruments to bring the revolution to full maturity, as embodied by the carrier task forces and invasion fleets of 1944–45.

## CRITICS AND PRECURSORS

In all previous cases, practitioners have adapted their RMA to the requirements of a particular theater, and have depended upon a theater infrastructure to sustain and support its successful application. Thus the situation after the Gulf War, in this interpretation, was a challenge to innovation. The revolution in military affairs being the product of the information society only now being born, the very pace and scope of change within that society provide the form and substance to an ongoing, but still undefined, military revolution.<sup>13</sup> Critics dismiss this interpretation of the revolution in military affairs. They portray it as a slick device the US military is using to retain a disproportionate share of reduced federal spending in the aftermath of the Cold War.<sup>14</sup> Changes are happening, but are they evolutionary or revolutionary?

Critics disagree on the interpretation of the Gulf War and its significance. But even before that conflict, a debate over a new revolution in military affairs was under way. Some analysts drew on military history to identify a qualitative change in the evolution of military art, and began forecasting a significant shift in the nature of war. The essence of modern war as a social phenomenon changed radically over the last century. The twentieth century began in August 1914 with the arrival of mass industrial war, and total war. The instruments of war then outgrew their political utility until a major military confrontation between the two militarized blocs became unthinkable. Military power could be, and was, used in local conflicts. In their strategic forms nuclear arsenals deterred the use of other forms of military power to resolve the core contradictions between the west and the Soviet bloc in Europe. Conventional weapons also evolved in response to new technologies, and began to reshape military art. In the mid-1980s the late Brigadier Richard Simpkin, drawing heavily on Soviet military theory, made a compelling case for the need for military theory to lead technological innovation. He pointed to the further adaptation of deep battle to the emerging concepts of operational maneuver and air mobility associated with the Soviet operational-maneuver group (OMG).<sup>15</sup> With the development of deep-strike precision systems associated with NATO's follow-on forces attack (FOFA) concept, new discussions over a shift in the

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nature of fire and maneuver emerged.<sup>16</sup> Writing on the eve of the Gulf War, Christopher Bellamy called attention to the changes in technology that are reshaping warfare.

Advanced military forces are dependent on computers, radio and other communications, and satellites, for reconnaissance, navigation, and communications. Attacking the enemy's 'brain and stomach' need no longer depend on tanks racing round a flank, or aircraft pounding headquarters and industrial centres from above. The enemy's brain and nerve system can be seared and paralyzed by jamming, and various types of electromagnetic weapons. Electronic warfare, and other 'soft kill' weapons are likely to usurp the position envisaged for tanks and aircraft in much of the 1930s military theory. Low-frequency weapons and application of bioelectronics may severely reduce the effectiveness and alertness of enemy forces, commanders, and political leaders.<sup>17</sup>

Bellamy asserted that large-scale land warfare among major powers had evolved to a dead end by the finish of the Cold War. Mass warfare will give way to local wars, fought by forces configured for such special operations. Political changes, especially the emergence of a multipolar world, will push military forces toward greater professionalism and new technologies.

#### ARMED CONFLICT AND THE INFORMATION AGE

The core issue in this debate is the relationship between war and society. The unrelenting pace of technological innovation, fundamental shifts in the subject and organization of production, the vast recasting of institutions, and rapid shifts in social values raise the prospect of a self-organizing, adaptive society in a state of becoming, making the current era truly revolutionary. Military institutions must adapt to this challenge within their own societies and prepare for the emergence of new and potential conflicts within and among states and non-states. Ethno-national conflicts, ecological threats, demographic catastrophes (mass internal migrations, famine, epidemics, and the flight of refugees affecting entire states and regions) and large-scale social pathologies with transnational dimensions (drug-trafficking, organized crime as a social movement, and terrorism) form the new matrix of threats in an unstable world. How military institutions might adapt to these challenges is at the very core of the discussion of the revolution in military affairs. It is here that technological and social change meet.