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Source: *Medicine, Conflict and Survival*, Vol. 17, No. 3 (July-Sept. 2001), pp. 207-220

Published by: Taylor & Francis, Ltd.

Stable URL: <https://www.jstor.org/stable/45351899>

Accessed: 30-09-2025 17:37 UTC

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# The Revolution in Military Affairs Debate and Non-lethal Weapons

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This article introduces a discussion on developments in political and strategic thinking on the use of existing and emerging weapons (including Non-lethal Weapons) and their doctrinal operational implications in the context of present trends in international relations. It asserts the need to address both the strategic assumptions and the political implications of choosing military-led solutions to trends in international social conflict. The so-called Revolution in Military Affairs (RMA) must be considered in the light of the current debate on the military application of non-lethal weapons (NLWs) to present or future conflict. The issue is introduced from a politico-strategic perspective, with a critique of the RMA debate as a starting point for discussion of the role of NLWs in conflict. Questions are set out for the politicians and strategists who are asked to formulate policy based on technology to be used in new political/social conflicts. The danger of neglecting other important dimensions of politics and strategy *vis-à-vis* present conflict is noted.

## KEYWORDS

Asymmetric warfare

Non-lethal weapons

Strategy

Weapons of mass destruction

Information warfare

Revolution in military affairs

Technology

## Strategy and Politics

### *Strategy*

When considering strategy it is useful to be reminded what we are talking about and the parameters of discussion. Strategy is of course a contested concept. However, definitions abound and the British/American strategist, Colin S. Gray, has recently written that:

The complexity of strategy and war – conflict on land, at sea, and in the air, and in space and cyberspace – is modest compared with the complexity of the dimensions, factors, or elements that interactively comprise their nature.<sup>1</sup>

He describes ‘seventeen dimensions’ that are clustered into three categories. The first category, ‘People and Politics’, comprises people, society, culture, politics and ethics. The second category, ‘Preparation for War’, includes

MEDICINE, CONFLICT AND SURVIVAL, VOL. 17, 207–220 (2001)  
PUBLISHED BY FRANK CASS, LONDON

economics and logistics, organization (including defence and force planning), military administration (including recruitment, training and most aspects of armament), information and intelligence, strategic theory and doctrine and technology. The final category, 'War Proper', is composed of: military operations, command (political and military), geography, friction (including chance and uncertainty), the adversary and time.<sup>1</sup>

It is this holistic approach to understanding the complexity of modern conflict and the formulation of strategy that is necessary, according to Gray. He warns that without this: 'Strategy is seriously incomplete if considered in the absence of any one of them'. Gray argues that the preference for the technological persuasions of the RMA should be put in the context of such dimensions because, by its nature, the RMA leads 'to persuasion by unsound theories of miracle cures for strategic ills'.<sup>2</sup>

This approach to understanding strategy is similar to Michael Howard's four dimensions – social, logistical, operational and technological.<sup>3</sup> Both authors draw heavily on Clausewitz who described a typology of strategy in the 'elements of strategy' which includes moral, physical, mathematical, geographical and statistical aspects. This is important because RMA discussions, as I shall outline below, often emphasize one dimension, the technological, to the detriment of the complexity of strategy and modern conflict itself. Thus one question for consideration might be whether RMA discussions reflect the complexity of strategy and conflict or whether they over-rely on the importance of technology?

### *Politics as the Framework for Strategy*

Although Clausewitz (in his reference to *politi*) and Gray (in his reference to strategy as the bridge between military power and political purposes) both refer to the domain of the political, all too often the discussion of strategy (particularly in the context of RMA) neglects the framework of politics, in this case international politics.<sup>4</sup> Even though Gray can tell us that the United States dominated the last century and that it will continue to do so into the next century, he does not tell us how this relates to the role of the US and the nature of conflict. Paul Rogers describes the international system in terms of 'a violent peace' where the US and strong western allies can maintain 'a kind of peace and order' that assumes present patterns and attempts to keep them contained, *liddism*, rather than one that tries to understand and work towards their resolution.<sup>5</sup> This is central to the political context of the RMA and to the question of whether we intend to maintain a violent peace, or to ask whether other strategies or political futures are more desirable than the RMA's 'military futures study'.<sup>6</sup>

A discussion of strategy alone does not help the policy-maker or the doctrine writer, both of whom also need to understand the political and social environment they are working in and the nature of war and present conflict. As Air Marshal Sir Timothy Garden pointed out in a recent review of Gray's *Modern Strategy*: 'whilst Gray points out the eternal nature of

strategy he does not tell us anything about modern conflict'.<sup>6</sup> If debates on the RMA are to have any meaning in the framework of international politics, they must be situated in an understanding of conflict environments as the means for pursuing the international communities' legal and moral obligation to seek the peaceful resolution of such conflicts.

This provides the second introductory point for this article. When considering the concept of RMA one must also be aware of the political, in this case the international political, and security environment when moving from concept to strategy, and then to operational and tactical deployment. This raises the question of whether the RMA discussions refer to the trends of contemporary conflict in the international system or to imagined 'military' future conflicts. That is, whether the RMA debate is strategic or political.

If the RMA is seen only as an exercise in military future studies that exclude the complexity of strategy and conflict or present and future projections of the international political and security environment, its limitations should be recognized when considering its application to policy and doctrine.

### The Revolution in Military Affairs

There are now many historical references to RMAs. The more one looks at each century the easier it is to find examples when technological developments and organizational and operational developments combine to create a new system of warfare or revolution in military affairs. One historical investigation noted that the first application of the term 'military revolution' dates at least from Michael Roberts' 1955 lecture on the Swedish adoption of massed rifle volleys in the sixteenth and seventeenth centuries; this raised Sweden's international status to a degree disproportionate to its demography and resources.<sup>7</sup>

History is littered with further instances of major shifts in military organization and strategic rationale that resulted in substantial changes in regional or international status and which could therefore be regarded as 'military revolutions'. There have also been a number of developments in the twentieth century which have significantly contributed to the lexicon of RMA. For example:

- The German *Blitzkrieg* during the Second World War (see below).
- The Soviet Union's concept of a Revolution in Military-Technical Affairs (RMTA), which, in the 1960s, foresaw the potential future application of the nuclear revolution. In the 1980s, the potential of the Strategic Defence Initiative (SDI) to exploit Soviet fears of Russian technological and economic inadequacy *vis-à-vis* the US, for example, the development of new remote space-based satellite technologies to intercept and destroy nuclear ballistic attacks against the US was recognized.

- The US Military Technical Revolution (MTR) perceived that overwhelming Soviet conventional forces were to be offset with 'technological' advances that enabled NATO to strike deep and accurately at Soviet follow-on forces.
- Spin-offs from the nuclear and 'space-race' programmes, such as precision guidance, ballistic missiles, electronic processing systems and the like, which have provided the basis of today's archetypal RMA technologies. Spin-off should not be read as accidental; this category includes Research and Development (RD) on military technology, stemming from radar and nuclear weapons research, which significantly forced the pace of innovation.

### *Defining RMA in the Present Debate*

RMA's have been defined as occurring:

when new technologies (internal combustion engines) are incorporated into militarily significant number of systems (main battle tanks) which are then combined with innovative operational concepts (Blitzkrieg tactic) and new organisational adaptation (Panzer divisions) to produce quantum improvements in military effectiveness. The twentieth century is marked by three military revolutions: mechanised warfare in the 1930s and 1940s; nuclear weapons and ballistic missiles in the 1950s and 1960s; and cybernetics and automated troop control (information technology) beginning in the 1970s and continuing into the twenty-first century.<sup>8</sup>

The absence of any one such characteristic could make the difference between a technological or strategic development having a revolutionary impact. For example, although the French tank divisions before the Second World War were very good, they lacked the organizational capability that was the key to the success of the German Blitzkrieg.

The acknowledgement that the present RMA stems from the 1970s and will run into the twenty-first century raises the question of whether this process is *evolutionary* rather than *revolutionary*. Whether we are in fact witnessing revolutionary change socially and politically, let alone militarily, remains a moot point. This suggests caution in applying premature conclusions to the under-studied relationships between the ongoing political, social and military changes and the nature of conflict.

### *What is Information Warfare (IW)?*

RMA technologies can be divided into two groups: first, the 'hard technologies' including 'smart weapons' and sophisticated weapons platforms, second, the information technologies that enable the functioning and accuracy of 'smart weapons' and the integration of Command, Control, Communications, Computers and Intelligence (C<sub>4</sub>I<sub>2</sub>) in sophisticated weapons platforms.

Information has undoubtedly had a significant impact on the way in which warfare is conducted and how its outcome is shaped. Examples include: information interception, such as that achieved at Bletchley Park during the Second World War; information-manipulation, such as Bismarck's use of William I's telegram in the 'Dispatch of Ems' to unify support for war with France, and information for action such as Eisenhower's decision to commence with D-Day based on his weather forecasters' predictions. Innovations in technology and process have allowed an increase in the use and accuracy of information as a weapon of war.

One important form of information warfare is decision-making warfare, in which a defender or attacker uses information acquisition or processing technology to complete their decision-making cycle quicker than an opponent can to maintain the initiative in the battle.<sup>9</sup>

Disrupting or defending the decision-making process to achieve 'Information Dominance' is the goal. It is imperative to process decisions quicker than an adversary. The 'real-time' aspect of this information acquisition and processing technology 'is creating a revolution in the way military operations are conducted'. However, agreement over the exact form of this revolution remains contentious.

In its purest sense, IW involves a radical shift away from the traditional confrontation of mass armies to conflict 'behind the lines', aimed principally at the adversary's infrastructure and leadership. However, this is far from the present reality. For example, the Gulf War was a hybrid version of a conventional military operation in which IW was used as a partial, but not the sole, means of achieving military objectives.

#### *RMA and the US debate*

In the US the RMA appears to have become the most significant driving-force for defence policy, such that we see: 'the executive and legislative branches eagerly, even if at times ignorantly, urging on a military already driven by its own inexorable organisational impulses.'<sup>7</sup>

The presentation of future wars conducted from a distance with stand-off weapons and satellite remote sensors, often associated with the RMA, must be attractive to US political elite. 'Full of promise, it [RMA] seems to offer Americans an answer to many enduring strategic dilemmas, whether intolerance of casualties, impatience, or the shrinking military manpower base.'<sup>10</sup>

This is echoed by Gray's assessment of US cultural bias whereby:

Strategy and war are holistic enterprises. US strategic culture is wont to function taking one thing at a time on its own merits. Monochronic defense performance leads to a focus on only one or two dimensions of what is almost always a more complex challenge.<sup>2</sup>

It is a basic premise of RMA purists that information and its technologies are the key to power status and success in future warfare. Although information itself cannot win a battle, it can influence whether or not and where a confrontation takes place. This has fuelled concern that the RMA may be elevated to the status of a doctrine.

*The Legacy of the 1991 Gulf War*

The Gulf War is essentially the departure point for advocates and detractors of RMA alike. The speed, accuracy and lethality of the weaponry and the management of the multi-dimensional battlefield, excited, impressed and astounded those watching real-time media despatches. We were told that the Allies rendered Iraq impotent by incapacitating its communications. Such was the apparent success of the new technologies and the disabling of Iraqi command and control, that Alan D. Campen (former Director of Command and Control Policy in the US Defence Department), wrote that in the Gulf War:

knowledge came to rival weapons and tactics in importance, giving credence to the notion that an enemy might be brought to its knees principally through destruction and disruption of the means for command and control.<sup>11</sup>

Information-domination was complemented by domination of the air which resulted in a quick and decisive land-campaign. These features are viewed as indicative of how future wars would be conducted, that is, in a three-dimensional conflict zone where traditional lines of conflict are replaced by multi-dimensional real-time conflicts targeting an enemy's C<sub>4</sub>I<sub>2</sub> in the rear as well as engaging his troops with both long-range, precision-guided missiles (incapacitators) and rapid, close counter-attacks. In the Gulf this was achieved with cruise missiles, smart bombs and stealth technologies.

Some analysts claim that such technologies will allow future wars to be fought from greater distances without the need for massing at theatre entry points, thus removing the tell-tale signs of an impending strike and thereby reducing the likelihood of casualties and collateral damage. However, not everyone has been convinced that the Gulf War represents a model for future conflict or that it justifies elevating the RMA above other factors.

It was reported that Iraqi ineptitude did not require the Coalition to really test new technologies such as the Joint Surveillance Target Attack Radar System (JSTARS). However, the authors did investigate five technologies used during the military operation (including stealth/low observability laser-guided bombs, air-refuelling, the high-speed anti-radiation missile and the Secure-Telephone Unit (STU) III). They concluded that 'For the most part, these technologies were not really new and were available in less sophisticated forms during the Vietnam War.'<sup>12</sup> Their conclusions raise a serious question mark about the revolutionary nature of the Gulf War and subsequent careless assertions about revolutionary doctrines based on the

promise of technology. The RMA's influence was of a hybrid rather than purist nature. After all, 'some of the aspects of the war that seemed most dramatic at the time appear less so than they did in the immediate afterglow of one of the most one-sided campaigns in military history'.<sup>13</sup>

### *Asymmetrical Warfare*

Arquilla warned of the 'diffusion effects' of imitation.<sup>7</sup> Whilst the present RMA-technologies represent a great challenge to would-be imitators, it is not an insurmountable one. Yet even if states outside the transatlantic community do develop limited RMA-type technologies, the strategic balance will still reflect the dominant role of the US as the sole superpower. It is inconceivable that any state could seriously challenge US superiority in a Major Regional Contingency (MRC) during the foreseeable future.

The costs associated with adopting large, technologically advanced military platforms and integrating them with C<sub>4</sub>I<sub>2</sub> systems in order to counter (or keep up with) the US and its allies may prompt some states to conclude, as did an Indian General, that the main lesson of the Gulf war was never to fight the US without nuclear weapons.<sup>14</sup> Whilst a nuclear programme is not only challenging financially and technically, chemical and in particular biological weapons are more affordable and less technically challenging alternative weapons of mass destruction (WMD). Future adversaries are more likely to pursue the current trend away from the concept of a 'decisive battle'.

### *RMA and Weapons of Mass Destruction (WMD)*

The link between the RMA and WMD is detectable in discussions within US policy-making circles. As the US National Defense Panel concluded:

WMD will require us to increase dramatically the means to project lethal power from extended ranges. We must provide a conventional, non-nuclear deterrent capability against the use of weapons of mass destruction.<sup>15</sup>

Yet RMA as a counter-force to WMD raises as many problems as it solves. For example, during the recent stand-off between the US and Iraq it was acknowledged that precision-guided smart bombs would have been unable to target and successfully destroy all of Iraq's known biological capabilities. More research following the Gulf War is raising questions about the impact of Iraq's known chemical and biological weapons (CBW) programme in deterring the US from pursuing Saddam to Baghdad and intervening in his actions against the Kurds immediately following the Gulf War.<sup>4</sup>

Lawrence Freedman, who has examined RMA in the context of a 'Western Way of War', acknowledges that there has been a shift away from the 'decisive battle' to a 'process of destruction'<sup>16</sup> and that:

The effort to reverse this tendency, so that war can again become a fight, is the core theme of much of the strategic theory of the past



quarter-century, even in the nuclear sphere. The RMA represents the culmination of these efforts.<sup>17</sup>

Nuclear weapons have had a major influence on shaping this situation:

From Central Europe to Kashmir, and from the Middle East to Korea, nuclear weapons are making it impossible for large sovereign units, or states, to fight each other in earnest without running the risk of mutual suicide.<sup>18</sup>

In comparison to Iraq's biological warfare programme with its relative ease of development, production and storage undetected by the international community, the RMA rationale for conventional war appears very risky.

The pre-occupation of RMAs with Major Regional Contingencies (MRCs) also neglects current trends towards intra-state rather than inter-state conflicts. As the *Stockholm International Peace Research Institute (SIPRI) Annual Yearbook* concluded: 'All but one of the conflicts recorded for 1996 were internal, that is, the incompatibility concerned control over the government or the territory of one state.'<sup>19</sup>

What then are the most likely conflict scenarios and what provisions does RMA afford them?

### *Conflict Short of War*

Compared to MRCs, some analysts conclude that: 'With a few exceptions the impact of the RMA on conflict short of war is far less clear.'<sup>1</sup> Whatever the technological merits of large and expensive military hardware, the fact remains that in many present operations involving US and UK troops, such as United Nations Peace Support Operations (PSOs), the human element of troops in the field is essential to their success. UN peacekeepers on the ground represent a visible, as well as political, commitment to resolve a conflict. This would be very difficult to replace through long distance force projection. Once again, a balance is required to integrate technological advances into doctrines designed for such conflict scenarios as PSOs. Here, the RMA is no substitute for doctrine.

Many analysts point out that weapons designed for High Intensity Conflicts (HIC) can be equally effective in Low Intensity Conflicts (LIC), for example, the peace-support role of British Challenger tanks in Bosnia. However, certain capabilities bracketed with the RMA, such as stand-off precision weapons, have had their value questioned in conflicts short of war.<sup>10</sup> Another concern is that the RMA debate may overshadow the needs of soldiers in zones of conflict that do not rely just on technology but on 'contact skills' that are essential for their success in peacekeeping operations.

During the cold war a peacekeeper was traditionally conceived of as having an inter-positional role. Today the role of a peacekeeper has been broadened to cover Peace Support Operations (PSOs) including inter-positional roles as well as peace-enforcement. The broadening of the peacekeeper's role has highlighted the need for weapons and weapons

systems (both for self-defence and for peace-enforcement, in other words fighting) and the need for the development of contact skills for peacekeepers on the ground (to support their *de facto* mediation and negotiation activities). In the context of the RMA and NLWs debates, the focus is on weapons and weapons systems for peacekeepers, rather than on the less developed focus on the day-to-day needs of soldiers on the ground, that is, contact skills.

It is in the niche market for a spectrum of war-fighting capabilities and platforms applied to PSOs in urban environments that the debate on the RMA and NLWs are attracting the attention of policy-makers and doctrine writers. This represents the bias of weapons-based debates on the RMA and NLW, and their military utility, which overlooks other important needs of soldiers today.

### *The Role of Technology in Conflict*

The recent Carnegie Report, *Preventing Deadly Conflict*, acknowledged the impact of technology in today's society and observed that:

Historically, technological advances have resulted in social and economic transformations on a vast scale. This is especially likely when fundamental new technologies are unfolding across the entire frontier of scientific and engineering research and are rapidly disseminated throughout the world. The impact over the longer term has been positive. Along the way, there have been massive dislocations. In this context, it is worth recalling the severe disruptions of the industrial revolution; they had much to do with the emergence of communism and fascism, especially the Nazi catastrophe.<sup>20</sup>

The main problem today, as the Carnegie Commission emphasizes, is not necessarily identifying potential areas of conflict but actually acting on that information. Co-ordinating activities quickly and decisively could minimize Bosnia, Rwanda and Burundi-type conflicts degenerating to the levels they did. Such conflicts also highlight the deficit between information and action at a political level which contrasts with RMA debates on military integration for information systems and military systems for rapid response.

Technological advances have played a part in peacekeeping situations, such as the success of tele-medicine in Bosnia, where peacekeepers and civilians benefited from the 'primary diagnosis of radiology exams performed by radiologists stationed in Hungary and Germany'.<sup>21</sup>

We must avoid adopting the slogan of the RMA in place of a doctrine because of a misplaced desire to enhance the credibility of expensive military platforms that may not significantly contribute to present and probable future conflicts. As Freedman warns, 'It will ... hardly be a revolution in military affairs if it leads those who embrace it to avoid most contemporary conflicts, and only take on those that promise certain and relatively painless victories.'<sup>22</sup>

PSOs in densely populated urban environments offer a greater and more urgent challenge to military and political decision-makers than the prospect of large armies face-to-face in large open spaces, such as the desert in the Gulf. Urban warfare environments represent a pressing area for discussion by military planners because, in support of the SIPRI figures above, the world's population is becoming more urbanized. It has been estimated that approximately 44 per cent of the total world population will reside in urban areas by the year 2005. Examples in an operational context are the strategic importance of Grozny in Chechnya, the towns and cities of Kosovo for NATO after the air war, and Freetown in Sierra Leone for the British recently. Nevertheless, the preference of RMA proponents to focus on Major Regional Contingencies (MRCs) reflects the observation that urban environments are amongst the least preferred operational settings. The difficulties of an urban environment range from the terrain to the problem of distinguishing civilians and combatants. In such environments technological advances in sensors and reconnaissance will be welcome but the application of NLWs for urban warfare is in a preliminary stage and the implications of it are far from clear in operational and legal senses.

#### *The RMA and Implications for the UK*

The RMA debate can be considered as a derivative of the US political and defence identity. The combination of an inherent abhorrence of casualties, along with a tradition of seeking major technological breakthroughs (specifically military ones), has propelled the current RMA beyond concept and debate and toward its present doctrinal heights.

However, NATO allies should have some concern about the implications of the RMA debate in the US. If the US sees itself as the sole supplier of heavy-lift capabilities (a reality at present) and certain command and control systems including stand-off and Precision-Guided Munitions (PGMs), how does it perceive its allies' role *vis-à-vis* such technologies? Do US policy-makers now envisage their forces remaining dislocated from the potential bloody battlefield? Instead, will the US facilitate allied forces in the field, using its command and control systems backed up by long-range surgical strikes, whilst the less technologically endowed allies roll up their sleeves and engage the adversary in the battle-zone? In other words, the US will play an anaesthetic role with its allies doing the close-up and/or clean-up operations. Allies are unlikely to regard such a division of labour as politically acceptable.

#### *Will a United States-RMA leave its Allies behind?*

The UK's 1998 Strategic Defence Review (SDR) acknowledges the possibility of the US leaving its less technologically endowed Allies behind by asking: 'How do we and our Allies retain interoperability with US forces given the radical changes they envisage?'<sup>23</sup> On the other hand, the US will not want to deploy any technological systems or platforms that impair co-

operating with its allies. The White Paper asks: 'will technological changes also require radical changes in the way our forces are organised and fight?'

### RMA Phase 2: a Role for Non-lethal Weapons?

The prospect of NLWs as incapacitators of humans and machinery is attractive when considering the operational problems of urban warfare environments.<sup>5</sup> Ullman and Wade<sup>24</sup> outline how such a system might develop and be integrated with NLWs through a strategy entitled: 'Rapid Dominance – A Force for All Seasons':

Since 'rapidity' means exactly that, we sought to provide a range of nearly instantaneous responses for the president, capable of delivering lethal or non-lethal weaponry as well as other significant actions to affect the will and perception of an adversary.<sup>24</sup>

They envisage that such a concept could be operational in 15 years including research and development time-scales. The applications of the strategy of rapid dominance applying 'shock and awe' would be:

designed to be employed in a series of unrelenting 'waves' of powerful strikes across many targets combining sea air, land and space forces to affect and influence an adversary's will and perception independently of whether or not US and allied forces are forward deployed. Rapid Dominance includes, however, the capacity for the physical capture and occupation of territory should that be required.<sup>24</sup>

Military interest in incapacitants is not new. However, weapons such as anti-personnel mines (APMs) and cluster munitions have attracted adverse publicity that may have contributed to the attractiveness of the so-called non-lethal technologies. To this is added the trend toward urban conflict environments that military thinkers perceive to be important and the high likelihood of urban warfare becoming more common. The potential for non-lethal or smart technologies that can differentiate between civilian and adversary is another driver.

The direct relationship between larger-scale RMA technologies (communications and weapons platforms and integrated through systems) and NLWs has been identified as the beginning of what could be a second radical phase of the RMA.<sup>5</sup> This phase would include far more advanced technological applications to future warfare. Its developments include the following stages:

- *Cyber-warfare and 'strategic information warfare'* – Increased use of networks and information connections.
- *Robotics* – Essentially about the integration of robotic networks with miniaturization such as micro-electromechanical systems or MEMS

(Darpa). Use of tiny mechanical devices coupled to electrical sensors and actuators, when combined with nano-technology, could lead to bio-mimicry developments such as a robotic tick to gather information.

- *Cyborgs* – Simple cyborgs such as cameras and sensors on rats controlled by some kind of implants. This could be the beginning of a more complex form whereby developments in molecular biology, nano-technology and information technology will be combined and could lead to ‘things like biological warfare weapons that are selective in targets and are triggered only by specific signals or circumstances’.
- *‘Psychotechnology’* – Technology to alter beliefs, perceptions and feelings of enemies.<sup>5</sup>

This integration of military operational needs in urban environments with NLW deployment is being given serious consideration by the RAND Arroyo team. Questions still remain about the conflict environment envisaged, whether war-fighting or enforcement rather than peacekeeping, and about the deployed weapons where surveillance is a traditional approach but chemical or biological incapacitants are new. On the latter, the implications of deployment against existing legal provisions such as those under the Biological and Toxin Weapons Convention of 1972 must be addressed. Furthermore:

Beyond technological obstacles, the potential for effective battlefield robots raises a whole series of strategic, operational, and ethical issues, particularly when robots change from being lifters to killers. The idea of a killing system without direct human control is frightening. Because of this, developing the ‘rules of engagement’ for robotic warfare is likely to be extraordinarily contentious.<sup>5</sup>

Concern also arises about the reliability of such systems, given that they emphasize the need for speed and lethality, not just in distinguishing between civilian and combatant but also with regard to the margin of error or transparency in decision-making. This has implications for what that might mean for an ‘info’ attack to trigger such weapons without human input or oversight.

The combination of political, strategic, legal, social and proliferation concerns along with questions about the real needs of peacekeepers on the ground, should be enough to urge caution in any further movement from concept to operational provisions without careful and thorough debate.

### Conclusion

If this debate is to be fruitful, those interested in NLWs must be aware of the direction of the RMA debate and some of its most contentious aspects.

There is an increasing need to include a politico-strategic understanding of the implications of applying NLWs in what is already a problematic approach covered by the RMA.

If we are to clarify the emerging trends in conflict to help enhance a stable and sustainable security environment this century, the politico-strategic aspects of the debate should be re-opened in order to understand the objectives of the international community. This will avoid becoming locked into a military-technology-driven exercise in future studies.

The distinction between the two debates is central to the political context of the RMA. Do we intend to maintain a violent peace or are other strategies or political futures more desirable than the RMA's 'military futures study'?<sup>5</sup> The distinction is important and will determine the pattern of relations between great power states in both north and south and groups within areas of conflict (conflict complexes). The RMA promises to support an approach to conflict that emphasizes keeping the violent peace, that is, *liddism*. On the other hand, a broader political understanding of the nexus of conflict, development and societal security offers an understanding that demands shorter and longer-term thinking about the path towards individual security, regional stability and a stronger international community. Neither approach will see the end of conflict nor of military intervention in the short-term but the latter offers the deeper understanding of conflict that is necessary to move towards its transformation, rather than its costly continuation, in both human and economic terms.

In summary, when considering the role of non-lethal weapons for the military in present and future conflicts, the concerns surrounding the 'heavier and organizing' end of the military-technology debate, the Revolution in Military Affairs, must be taken into account in their development.

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(Accepted 30 April 2001)

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