

The implications of the revolution in military affairs for arms control, non-proliferation and disarmament

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We are faced with many reasons why we should think much more flexibly about arms control, non-proliferation and disarmament in the twenty-first century: the revolution in military affairs (RMA) is only one of them. We must think in new ways about the subject because the structural arms control of the Cold War period is no longer adequate to cover the current spectrum of arms control requirements, and because the nature of arms control processes in the twenty-first century is likely to be a hybrid of treaties, regime-based behaviour, unilateral initiatives and even counter-proliferation in some guise or other. This may not be the most satisfactory state of affairs but it is the reality with which we have to deal. RMA is therefore only one major driver of the changes in world politics that arms controllers have to encompass in some way. Indeed, we may have to think in quite new ways about arms control because of the trends indicated by RMA. In order to substantiate this claim, we can identify three particular relationships that should guide our thinking: RMA and warfare, RMA and arms control, and the challenges for arms control in relation to RMA.

RMA and warfare

The revolution in military affairs is not driven merely by a series of technologies. Technology is certainly a necessary, but by no means sufficient, condition in RMA. Insofar as it constitutes a 'revolution', RMA is the growing ability of major states—and particularly the United States—to integrate different technologies.¹ The integration of technologies also suggests changes in social organizations and in the skills base and other human resource aspects of developed society. What is revolutionary, therefore, about RMA is the integration of technological elements and an ability to handle some of the social and organizational changes that accompany such integration. Whether this constitutes a genuine revolution is a matter of perception, but there is a general consensus that at the very least this represents a rapid and dramatic change in the potential for war-fighting on the part of the United States and of some of its major allies. The United States sets the war-fighting trend which affects the military development policies of many other nations in the world and which comes to shape the reactions of most other military powers in one way or another.²

There are six main areas in which the revolution in military affairs has already had some effect and where its implications are beginning to be manifest in ways that arms controllers have to encompass. Firstly, RMA has created a great deal more precision in certain key elements of war-fighting. Precision guided munitions are now commonplace among the major Western allies—

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though not in as great numbers or capacities as is commonly thought—but now Western powers do not contemplate major military operations except where they can deliver ordnance in precise ways.

Secondly, RMA provides an ability for the major military powers to use such potential in stand-off or stealth weapons platforms. Stand-off weapons platforms such as aircraft, missiles, ships or long-range artillery of various forms allow military powers to deliver precision ordnance without taking undue risks themselves. The use of stealth technologies offers the promise of deploying weapons platforms in potentially dangerous proximity to an adversary, but reducing the risk by making the platforms near invisible to tracking radars or other sensors.

Thirdly, RMA is driven by remarkable developments in communications technologies and the ability to integrate different forms of communication and sensors. It is possible—at least in principle—for the major military powers to obtain an accurate and total picture of the battlefield in which they are interested. If knowledge is power, then knowledge of the battle-space during a military engagement is war-winning power of a very high order. Traditionally, battles have been won by those who can penetrate the ‘fog of war’ most successfully and quickly and those who make the fewest mistakes. In the RMA age to come, certain powers will be capable of penetrating the fog instantly, imposing it as a one-way problem on an adversary, and dramatically cutting down on the potential for tactical (though not strategic) mistakes on their own part.³ What the military refers to as the ‘sensor-to-shooter’ relationship has entered a realm where commanders may have a high ability to see almost all that an adversary is doing and target it accurately at very short notice: this is the ‘Holy Grail’ of military command.

The fourth element of RMA rests in what might be termed suppression technologies—the ability to restrict or suppress the military capacities of an opponent without destroying them or otherwise frustrating their effectiveness. The potential of such technologies is enormous and raises the possibility that a dominant power could effectively hobble the traditional military capacities of an opponent, without large-scale civilian or even military casualties, and without risk to its own forces.

All of this, fifthly, is based on an ability to generate and absorb continuous technical innovation and to apply that innovation in a very short time. In the industrial warfare of the twentieth century our perspectives were of technological changes which took twenty to thirty years to find applicability and perhaps another ten years to be introduced and operationalized in a military sense. In the post-modern warfare of the twenty-first century, we will increasingly think of innovation over a ten-year period and operationalization over perhaps two to three years. As military technology becomes more knowledge-based and subject to software innovation, the gap will grow between industrial-age military machines and post-industrial military powers.

Finally, not least, RMA is based on the ability of modern societies to integrate many of these aspects into total systems and ‘systems of systems’—precision technologies, stand-off technologies, communications, suppression technologies and modern research and development techniques—capacities that can have, in theory, a potentially devastating war-fighting effect. The point is not only that technologies change quickly, but that they go on changing quickly in a continuous cycle of innovation. Those societies who can cope with such a demanding cycle and adjust to it, never living merely on a particular technological plateau, will be the beneficiaries of revolutionary military change that is likely to separate them from other societies more completely than the industrial age separated the imperialists from the subject peoples of the nineteenth century.⁴ Of course, the reality of RMA always falls somewhat short of the potential and even the American military machine is still, to a large extent, an industrial-age organization with corresponding equipment, organizational and personnel features. Nevertheless, the road sketched out above is one that the United States clearly intends to embark upon and in some key respects—certainly with airpower and new force structures

for deploying it—the United States has demonstrated that it has already developed some core competence in RMA and is close to making parts of it a reality.

Such developments have created a paradoxical set of pressures. Faced with the messy realities of conflict in the contemporary world, the problems of peace-support operations, interventions in complex emergencies, and the overwhelming political constraints in which military power normally has to be used, military establishments—particularly in the Western world—have been trying to get back to the concept of decisive battle. Rather than prosecute warfare in the way in which they have been trained, the military has found itself locked into situations where they have been part of ‘the process of destruction’ rather than the winning of a campaign.⁵ And the militaries of the Western world tend to think of the revolution in military affairs as a set of decisive technologies that can create battle-winning potential and produce a campaign victory and a political conclusion very quickly. From the military’s point of view, therefore, RMA promises an alternative to political attritional warfare and a shift towards decisive military action. Such aspirations are unlikely to be realized in the reality of modern peace-support operations and other sorts of low-intensity military campaigns short of war. The view of the military, of course, is that in order to undertake any type of operation, the military has to have decisive war-winning capacities from which particular abilities can be extracted to meet lesser needs. But RMA has exacerbated a central paradox here: it has been driven and fed by a military attitude that is very conservative. The American military, in particular, is keen to embrace a technical revolution in order to re-establish a traditional military order.⁶

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The problems RMA raises for arms control

The first problem that RMA raises for arms control arises from the very nature of civil technologies and their military applications. RMA is based on civilian-led technologies rather than specific military technologies. In fact, there are now very few technologies that are purely military or which have a purely military application. The technologies of explosives and ordnance, key technologies in rocketry and missiles, passive surveillance and passive sensors can all be regarded as almost exclusively military technologies. But these are almost the only examples: the vast majority of those technologies crucial to warfare are now, in reality, derived from the civil sector. Such technologies include communications, transport, aerospace, logistics, software—even chemical, biological and nuclear technologies—and are essentially driven by civilian breakthroughs in the application and integration of technical innovation. RMA, therefore, is driven by the imperatives of the developed post-industrial society and the globalized economy in which it exists.⁷

The second problem which RMA poses for arms control resides in its short- to medium-term effects. In the short- to medium-term, RMA is likely to create an overwhelming battlefield superiority for the United States and some of its key allies. This is not to say that the United States and some of its allies cannot lose battles or even lose wars, but they almost certainly will not lose them for reasons connected to their weaponry and supporting systems. If they lose battles and wars, it will be for political reasons. What this means, however, is that there is not natural military symmetry between potential arms control protagonists. The arms control of the 1930s, and during the Cold War, was based on a certain sense of symmetry between some of the main protagonists—the types of weapons they employed, their relative sizes, and the infrastructures which backed them up. This provided a comprehensible framework in which structural arms control could take place among certain common

categories of weapon systems. At least in pure military hardware terms, RMA will make such symmetry very hard to discern between the United States and most other powers in the world. In this situation, it will be much more difficult to devise regimes in which everyone may be regarded as having a technical stake.

Another effect of RMA in the short- to medium-term is the encouragement it is likely to provide to the proliferation of weapons of mass destruction (WMD). If countries who would compete with the United States cannot do so in conventional military terms, then it becomes even more attractive to take the WMD shortcut as a way of achieving military credibility and being taken seriously as a military power. R.A. Manning in his *Foreign Policy* article of 1997 quoted the famous—so far

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unnamed—Indian general who said that the lesson he drew from the Gulf War was that, ‘you don’t go to war with the United States unless you are a nuclear power’.⁸ There is every reason to believe that American conventional superiority, and that of its allies, may create greater motives for other states to develop WMD—particularly non-nuclear WMD such as chemical and biological devices.

A further effect of RMA in the short- to medium-term might also be to encourage asymmetrical responses to Western conventional superiority. Countries or groups who become adversaries of the Western powers constantly look for unconventional ways of affecting the political equation over which they are fighting: even those powers who have some capability in WMD technologies may look for ways of using them asymmetrically in order to gain some military leverage against the dominant powers. Asymmetrical warfare involves the development of different ways of achieving military advantage by identifying new sorts of targets and attacking them in more politicized ways. This adds a further element of uncertainty to any attempts by arms controllers to restrict the effects of weapons and their use.

Finally, what is the long-term effect of RMA likely to be? In the long-term RMA is likely to become—in itself—a new category of WMD. It may well be possible over a thirty to fifty year period to develop technologies in which total societal attacks are possible without fighting a decisive battle. That, after all, is what WMD attempts to do—to hold societies at risk without defeat on the battlefield, going over the heads of defending military forces in order to hurt the population or disable society and its infrastructures. It is entirely possible that the technologies involved in RMA will in their most developed form allow for a societal attack of quite devastating proportions, in which infrastructure can be destroyed or rendered useless, information erased or corrupted and the basics of human survival—food, water, shelter, et cetera—either rendered unusable or totally controlled and made conditional. In essence, RMA in its most developed form might facilitate a physical superiority that makes it *the* greatest weapon of mass destruction known to history.

The nature of arms control challenges in RMA

The picture that RMA paints for arms controllers is, at this juncture, a fairly gloomy one. The primary requirement, however, is to understand the nature of the challenges clearly so that the responses we articulate to them offer some greater hope of success. The first challenge that RMA poses for arms controllers is that of holding on to the present global regimes which already exist in relation to WMD. Those regimes as legacies of the twentieth century are, we know, under severe pressure and it is vital that they are maintained and strengthened as RMA creates more motives to

the development of WMD. This is particularly true in the case of the threshold states in South Asia and the Gulf. The nuclear non-proliferation regime took a major hit with the crossing of the nuclear threshold by India and Pakistan during the 1990s: it may not recover if it takes another hit during the coming decade with the nuclearization of Iraq and Iran. The Western powers are faced with a choice in response to such breaches in the nuclear non-proliferation regime, either to try to strengthen the regime or to engage in more assertive counter-proliferation in ways that are partly facilitated by improvements in RMA technologies. So far, Western powers have engaged in hybrid action that encompasses both approaches, and whether or not this is a sustainable balance the fact remains that the maintenance of non-proliferation regimes must be regarded as vitally important either in their own right or as an essential leg of this dual approach.

A second challenge for arms control is that there is no obvious 'handle' on RMA as a phenomenon. As we have indicated, RMA is not about individual weapons systems or means of delivery. Rather, it is about the technical integration of a series of civil technologies that would allow relatively crude weapons to be delivered with devastating effect or new technologies to be employed in the role of effective weapons of war. In the twentieth century it was possible to gain some leverage in arms control since weapons were observable and their capabilities were finite. They could be regulated, therefore, by number, weight, range or other criteria, which allowed them to be balanced off against each other. Insofar as RMA is about the application and integration of essentially civil technical systems, however, it will be correspondingly difficult to agree on a currency of control and exchange. Not least, small numbers of weapons and delivery systems will have disproportionate effects when they are part of an integrated RMA infrastructure and as all negotiators know, arms control becomes most difficult when the numbers at issue are low. It is possible, therefore, that we might have to approach future arms control not in terms of the restrictions on weapons and instruments of war so much as what Michael Krepon has called 'red lines': the creation of certain taboos concerning the effects of weapons rather than the weapons themselves. Hypothetical examples of such taboos might be a red line drawn on 'bio-killing', or on the destruction of societal infrastructures, or on the deliberate targeting of civilians. In short, there is a good case for arms controllers to revisit the Geneva Conventions on the effects of warfare if it proves impossible to more clearly grasp control of the weapons of war themselves.⁹ Such an approach would be full of ambiguities and difficult to operationalize, but international taboos have exerted powerful effects in the past and an attempt to gain general agreement—particularly among the 'RMA states' themselves—to certain red lines which they have no plans and no intention of crossing, might constitute significant confidence-building measures within a more hybrid arms control approach.

Finally it is clear that RMA also dramatizes the choice which arms controllers face in the contemporary world. At a superficial level it may seem that we are caught between an internationalist regime approach to arms control and a more unilateralist counter-proliferation approach taken by the United States and some of its close allies. More realistically, however, we are almost certainly caught already in a hybrid of regulatory regimes and unilateral and enforcement action. Though RMA undoubtedly enhances the attraction of counter-proliferation for those who are militarily dominant, it also highlights the fact that it is clearly in the interests of the United States not to produce unintended consequences from its military development now that it is already so superior to all other potential adversaries. The powerful will only lose in a relative sense if RMA increases their superiority to such a point that it produces such unintended consequences as the rapid deployment of asymmetrical techniques of warfare, a move towards cheap and effective WMD, or the adoption of wide-scale terrorist tactics.

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RMA powers, in other words, need to set their pursuit of technical excellence within the overall context of what does and does not seem likely to make them more secure. This, of course, assumes a prior need for a clear sense on the part of the major powers of their strategic interests in relation to each other and the rest of the world. In essence, RMA ought to be set in the context of a strategic dialogue between the major military actors in the world from which it might be possible to think through the implications for other powers and anticipate the ways in which RMA might be applied. Needless to say, this is not happening. The imperative, therefore, is to get the revolution in military affairs out of the hands of only military and technical thinkers and to set it in its broader political context, which should encompass expectations of war-fighting, the legitimate security concerns of the major powers, and the place of arms control within that strategic order. If war is too serious a business to be left to the generals, then the revolution in military affairs is certainly too serious to be left to the technocrats. Arms controllers must confront this concept, not only at the technical level but in the broadest political terms.

Notes

- 1 P.L. Richardson, 'The Future of Military Affairs: Revolution or Evolution?' *Strategic Review*, vol. 24, no. 2.
- 2 J. Arquilla, 1997/98, 'The Velvet Revolution in Military Affairs', *World Policy Journal*, vol. XIV, no. 4.
- 3 M. Libbiki, 1996, 'The Emerging Primacy of Information', *Orbis*, vol. 40, no. 2.
- 4 W.A. Owens, 1995, 'The Emerging System of Systems', *US Naval Institute Proceedings*, vol. 121, no. 5.
- 5 Lawrence Freedman, 1998, 'The Revolution in Strategic Affairs', *Adelphi Paper 318*, Oxford University Press/IISS, p. 45.
- 6 W. Caldwell, 1996, 'Promises, Promises', *US Naval Institute Proceedings*, vol. 122, no. 1.
- 7 Paul Bracken, 1993, 'The Military After Next', *The Washington Quarterly*, vol. 16, no. 4.
- 8 R.A. Manning, 1997–98, 'The Nuclear Age: The Next Chapter', *Foreign Policy*, vol. 109, p. 71.
- 9 François Bugnion, 2000, 'The Geneva Conventions of 12 August 1949: From the 1949 Diplomatic Conference to the Dawn of the New Millennium', *International Affairs*, vol. 76, no. 1, pp. 47–50.