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Looking to the future: Canada needs to debate space control now if it is to operate tomorrow.

## THINKING THE UNTHINKABLE: ON REVOLUTION, OUTER SPACE AND CANADIAN POLICY

**F**or the moment, little public attention is being paid in Canada to developments concerning the military use of outer space. Canadian foreign policy is focussed on the Minister's human security agenda. National Defence continues to concentrate on dealing with the fiscal restraints facing its goal of maintaining multi-purpose, combat capable forces, especially with the looming major modernization and new equipment programmes. This is not to suggest, however, that outer space is being entirely ignored. On the commercial side, Canadian firms are developing new technologies to exploit outer space, and in conjunction with the Canadian Space Agency, are moving forward with RADARSAT II and participation in the International Space Station. Canada continues to raise the issue of the weaponization of outer space at the Conference of Disarmament. Finally, National Defence is proceeding

with the development of the Joint Space Project with the United States, MILSATCOM, and a contribution to the US Space Surveillance Network (SSN).

Nonetheless, the here and now focus of Canadian foreign and defence policy as a whole raises significant questions about whether or not Canada will be prepared to deal with the dramatic security and defence implications of outer space in the future. This is most evident in the absence of any clear understanding of the way in which outer space is likely, if it has not yet already begun, to revolutionize thinking about war and peace, and strategy. Central to this lack of understanding is a set of uncontested assumptions or beliefs that relegate space to the margins of interest and investment. Unless

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closer attention is paid to space in strategic and security terms, Canada's 'long-term strategic interests' may not be met.

## ON REVOLUTION

Much attention over the past several years has been paid to the so-called Revolution in Military Affairs (RMA). Academics debate what it is – whether or not such a revolution is underway and what are its implications for armed forces. Practitioners tend to concentrate upon the direct implications of emerging RMA technologies for force requirements, inter-operability, and military organizational structures and procedures. Also, both academics and practitioners tend to see the RMA in rather strict, technical terms surrounding the terrestrial employment of military force. However, both also tend to ignore the true nature of the revolution which concerns outer space. The centrality of outer space to the RMA has two key components; the first concerns the dominant strategic paradigm of deterrence, and the second concerns outer space as the necessary condition for understanding the true nature of the RMA as debated in the literature.

Regardless of the historical debate on military revolutions, there is general agreement that the development and deployment of nuclear weapons had a revolutionary impact on the conduct of international politics and the relationship between armed force and politics. As noted by Bernard Brodie almost immediately after

the use of atomic bombs against Japan, nuclear weapons changed the meaning and purpose of armed force:

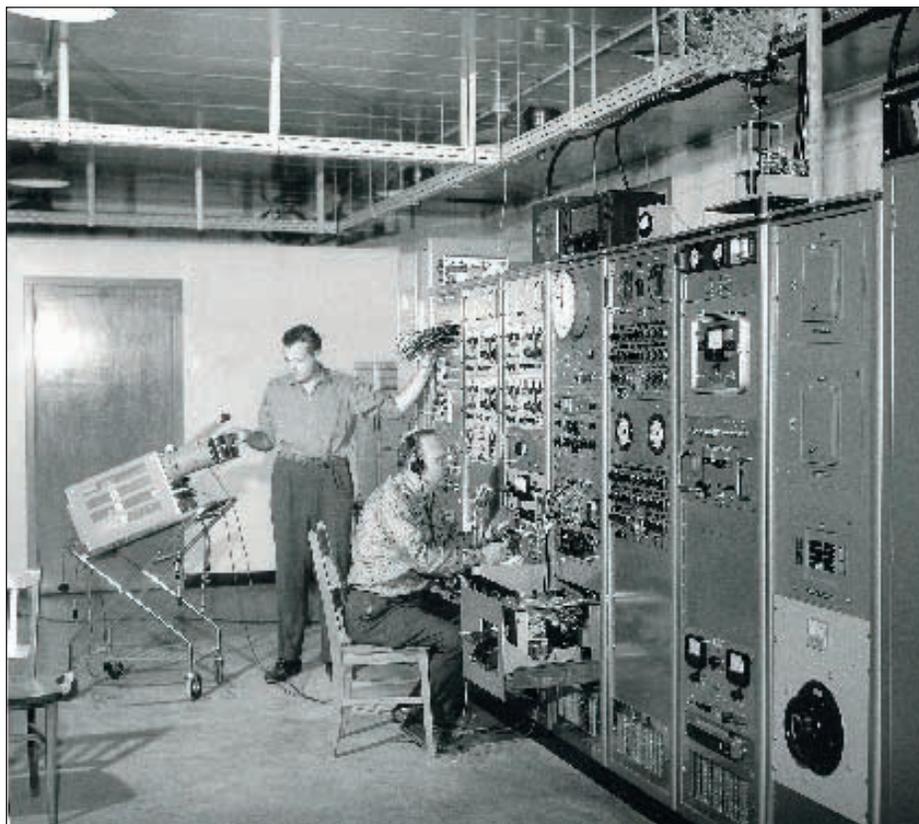
Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no other useful purpose.<sup>1</sup>

Nuclear weapons ushered in the era of deterrence as the dominant strategic concept as informed by the political context of the Cold War, and subsequent technological developments of which ballistic missiles in general and long-range Inter-Continental Ballistic Missiles (ICBMs) in particular were paramount.

In the construction of the what may be labelled the 'Deterrence RMA', the central focus has been nuclear weapons, which, in turn, has also been expanded with reference to the other two legs of the Weapons of Mass Destruction triad – chemical and biological. Thus, the central driving feature of this RMA concerned warheads. While one cannot ignore the exponential growth in destructive power brought on by nuclear weapons – whose very nature undermined their war-fighting utility – these weapons did not produce the Deterrence RMA. It was only with the development and deployment of ICBMs in the context of the American-Soviet adversarial relationship that the full meaning and implications of nuclear weapons and, thus, deterrence resulted. Prior to then, the idea of defence still had some meaning, given

the prospects of intercepting bombers carrying nuclear payloads, notwithstanding tactical short-range missiles. ICBMs could not be intercepted, and thus national defence for the two superpowers came to rely strictly upon the offence; the ability to deliver an 'assured destruction' second strike. The triumph of the offence married to nuclear weapons – the Deterrence RMA – was symbolically sealed politically and strategically with the negotiation and signing of the Anti-Ballistic Missile (ABM) Treaty in 1972.

Of course, this did not foreclose research and investment in strategic missile defence on the part of either the Soviet Union or the US, nor into anti-satellite (ASAT) programmes. Reagan's Strategic Defence Initiative (SDI) was clearly directed at escaping from the Deterrence RMA, and part of the SDI research programme was based upon the earlier ASAT Homing Overlay Experiments. Ostensibly, the critique of SDI centred around the destabilizing nature of strategic defences in

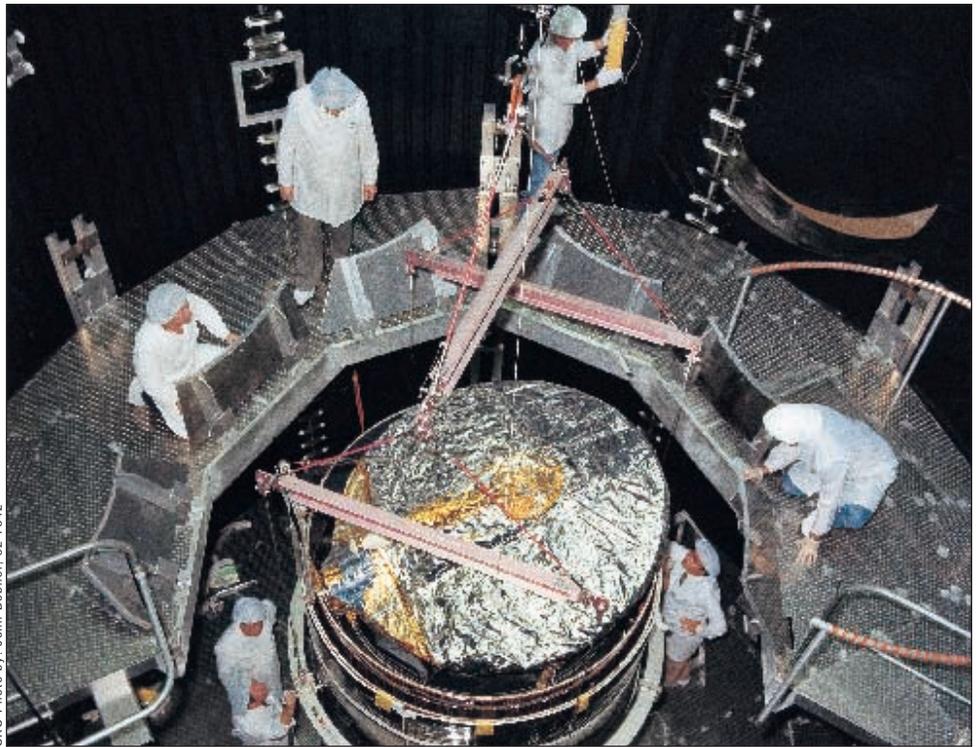


The first RMA - Canada joined the space age in 1962, developing advanced scientific and communications satellites.

promoting first strike incentives and arms races, notwithstanding technological feasibility and cost questions. In reality, this critique largely masked a much deeper phenomenon—the social triumph of the Deterrence RMA. Many, if not all, of the proponents of SDI or some limited form of missile defences constructed their arguments around this belief system.

The Deterrence RMA also extended into the conceptualization and understanding of outer space. It became embedded in two ways. First, ballistic missiles were conceptually not part of outer space, even though Medium-Range (MR) through Long-Range (LR) ballistic missiles transited through space. The conceptual exclusion of ballistic missiles from space was legally codified in the 1967 Outer Space Treaty, in which space was defined relative to an object completing a single orbit. Certainly, the US and the Soviet Union agreed to this definition for practical strategic reasons. But underneath these reasons was the incontestable triumph of the belief system. The implications, of course, have been, and continue to be, a de-linkage of space from the core element of the dominant strategic belief system – ballistic missiles.

Second, the way in which space was exploited for military purposes was driven by the same belief system. Notwithstanding the significant costs and technological barriers to the full exploitation of space, exploitation was driven by strategic deterrence beliefs and subsequent requirements. Once again, the decision to prohibit the deployment of weapons of mass destruction in space in the Outer Space Treaty was not necessarily a function of cost and technological barriers, but more of the presumed dangers such deployments posed to strategic stability considerations as defined within the belief system. Moreover, the development and deployment of satellite early warning, intelligence, surveillance and communications were also a function of the belief system. Even though both superpowers invested in ASAT research and development for fear of the other, both also logically realized that any attack on early warning assets in particular would be interpreted by the other as the precursor to a strategic attack. Thus, space evolved as a function of the Cold War-informed Deterrence RMA. Its non-weaponization and current manifestation developing as a sanctuary from weapons are as much a function of the belief system as are cost and technology. In so doing, space conceptually was moved to the background or margin of strategic thought.



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Electronics and information modernization have driven RMA technologies.

Even with the collapse of the Cold War context that informed the specific manifestation of the belief system, deterrence has remained dominant. New strategic planning, capability requirements, and new technologies have remained framed within the context of the Deterrence RMA. Any cursory examination of official national security and military documents today reveals the continued strength of the deterrence mindset. For example, the US Department of Defense *Report of the Quadrennial Defense Review* states:

The third aspect of the military's key role in shaping the international security environment is deterring aggression and coercion in key regions of the world on a day-to-day basis through the peacetime deployment of US military forces abroad.<sup>2</sup>

Most interestingly, the requirements in this document to undertake this role are the classic components of the deterrence belief system: political will, the communication of commitments/threat, and the conventional and nuclear, including strategic, forces to carry out the threat.

Of course, these components, and a generic notion of deterrence, have been in existence throughout history, and long before the Deterrence RMA. Moreover, the use of conventional military force did not disappear during the Cold War, even for the superpowers. However, the generic notion of deterrence is, in effect, a meaningless one because it is divorced from any specific understanding of the relationship of war to the societies that engage in it, and this relationship has changed historically. Also, the application of conventional military

force during the Cold War and under the Deterrence RMA was significantly constrained by, and directly related to, the conditions emanating from the triumph of the strategic offence, such as in the case of the Vietnam War, and

While such assets would likely create a more effective missile defence capability, the key is the development and deployment of new space-based early warning, tracking, cueing, and target discrimination capabilities (Space-Based Infrared High and Low) linked to terrestrial/air/sea-based kinetic-kill interceptors, a new generation of ground-based radars, and sophisticated command and control/battle management (C<sup>2</sup>/BM) capabilities. Even if such defences are not perfect – as no defence ever is – their existence will alter the political calculus of nations. During the age of nuclear deterrence, the key revolutionary transformation was the impact of vulnerability (no defence) on political action. In the future, missile defences married to a new generation of these space-based assets will transform and reverse this relationship, at least for the US and possibly for Russia as well if cooperative efforts are fully realized. Deterrence may remain the ‘rhetorical concept’, but it will not be deterrence in the same sense as the past. At a minimum, it will be a one-way street that contains a variety of unique political-strategic conditions.



Achievement: Canada's presence in space continues to grow.

superpower involvement in the October 1973 Arab-Israeli War. Even in Europe, conventional forces were not there for classical war-fighting purposes, but rather as the first rung of the seamless web of US strategic deterrence.

For most observers, the Gulf War is the central empirical case surrounding the current RMA debate. On the pro-RMA side, the Gulf War is seen as a harbinger of the revolution. On the con-RMA side, the Gulf War is seen as the product of an evolution of American military capabilities and strategies, in effect the American way-of-war, generally dated back to Vietnam. However, this debate, interesting in itself, largely misses the point. The actual revolution is the negation of the no-defence condition of the Deterrence RMA, and this is occurring not simply through the development of missile defences, such as the US National Missile Defence (NMD) programme and the various Theatre Missile Defence (TMD) programmes. It is also occurring through key developments concerning the military use of outer space, which amount to a transformation from deterrence to a defence belief system.

Space-based assets are central to this transformation. This does not necessarily imply the deployment of space-based interceptor assets, of which many fear NMD and TMD are the precursors (the ghost of SDI).

The transformation underway as a function of ballistic missile defence within the broader outer space development envelope is not simply a function of technology. It also is the product of the post-Cold War international system of US political-strategic dominance. Central to this is the explicit American goal to develop new technologies to ensure its political-strategic superiority. These new technologies, centred on space, promise to eliminate, or at least significantly undermine, the traditional set of beliefs that underpinned the Deterrence RMA. In the future, the US, and thus western security, will no longer exclusively rely upon national and operational vulnerability and the threat of nuclear retaliation. Instead, the US will be able to act with a significant degree of impunity in relation to direct threats to its national territory and national interests. National vulnerability as the extant condition of the nuclear age is being replaced by national survival: defence or the Defence RMA.

Nonetheless, the continuing influence of deterrence is evident in several ways. As ballistic missiles are conceived outside of space, so ballistic missile defence is as well. In fact, missile defence discussions, especially among academics, make no reference to its revolutionary implications. On one hand, apparently it is not part of the RMA. On the other hand, implicitly it is concep-

tualized as one of many components of operational support to the 'warfighter'. Missile defence facilitates the political will to intervene by providing protection to forces-in-the-field. In enhancing political will, hence credibility, missile defence is portrayed as a support for deterrence. In other words, missile defence, when implicitly linked to other space-based capabilities, is placed on the margins in the same manner in which space was during the Cold War.

At one level, the marginalization of missile defence and space may simply reflect the classical conceptualization of the strategic dominance of territory. Humans are land creatures and war is won or lost on land. Missile defence and space, like the Navy and the Air Force, are strategic enablers for the prosecution of war on land. Missile defence and outer space as a whole are seen as support for the 'warfighter'. Yet more interesting within this context has been the emergence of the concept of 'warfighter' in the past decade. This concept did not exist in the public lexicon, at least during the Cold War, and it turns Brodie's dictum on its head.

The conjunction of missile defence, outer space, and support to the 'warfighter' speak to an emerging new belief system about the relationship between armed force and politics. This system is not simply a return to the pre-deterrence system for two reasons. Socio-political attitudes to war and peace, and the utility of armed force remain embedded in deterrence thought. This is most clearly evident in the assumed sensitivity of Western societies to casualties. At the same time, it also reflects the liberating nature of the end of the Cold War for military institutions, whose cultural predispositions were directly undermined by deterrence. In other words, the 'defence-warfighter' image of the military side of the equation must be blended with socio-political attitudes towards the costs of engaging in war.

## **OUTER SPACE AND STRATEGIC THOUGHT**

**A**s noted above, missile defence is excluded from space as a product of the triumph of the Deterrence RMA as informed by technology (nuclear weapons and ICBMs) and the political context of the Cold War. At the same time, space itself, like missile defence, is conceptualized as simply an enabler for the 'warfighter' and outside of the dominant conceptualization of the RMA. Yet, new generations of space-based assets, in fact the evolution of these capabilities since the 1980s, are the key to the RMA regardless of how one conceptualizes and understands the term. Eliminating the 'fog' and 'friction' of war, or at least significantly constraining their effect, is fundamentally dependent upon space-based assets. Full integration of these assets into strategic, theatre, and operational command, con-

trol, and battle management is the key to its realization. Real-time situational awareness of an enemy on the battlefield, combined with the ability to undertake precision strikes, thus reducing the size, and re-structuring the nature of military forces and their logistic trains, set the stage for realizing a strategic political-level transformation of war. However, they only set the stage, because the dominant belief system remains unchallenged. This is evident, as argued above, in the failure to conceptualize missile defence and space outside of the deterrence belief system. It is, perhaps, most evident in the failure to develop, or least propose, an independent body of strategic thought for space.

Understanding strategy in the emerging strategic space era remains at best embryonic.<sup>3</sup> Whereas students of strategy and the western way of war turn to the classics of Clausewitz (land), Mahan and Corbett (sea), and Douhet (air), there is as of yet no equivalent for outer space. Certainly, the outline of such strategic thought is present, not least of all in the US Space Command's Long Range Plan.<sup>4</sup> But within these outlines there are several factors that need to be further developed and, with them, certain tensions that have to be resolved.

Generally, the starting point, usually more implicit than explicit, is that space should be understood in naval terms. This point stems primarily from two considerations. First of all, the legal status of outer space is similar to the high seas; open to all and the possession of none. In this sense, the legal differentiation between outer space and sovereign air space is analogous to the differentiation between the high seas and sovereign territorial waters. Although space is defined with reference to an orbit rather than the point in which the atmosphere transits into the vacuum of outer space, it is an issue that may emerge in the future, especially as a function of growing commercial exploitation. Here, one could potentially see reference made to 'exclusive economic zones' as in law of the sea in the context of orbits and constellations. One can expect further developments in international law governing outer space, and it is possible that the law governing the 'high seas' could also become the template for legally defining belligerent rights in space.

Second, this naval analogy is further reinforced by the references in the literature to space-faring nations. Popular culture has also tended to portray military force in space as a naval activity, and one should not completely disregard the impact of popular images because they do serve to frame the way societies think and act. Thus, as a strategic naval domain, it is possible to conceive of space in terms of Mahan and Corbett.

However, space is not simply portrayed in naval terms. It is also conceived in air force and army terms.



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RADARSAT tracking station at St. Hubert. Canadian space assets are impressive but few.

In the context of air force thought, outer space has long been its domain, or at least it has dominated the domain as a natural extension of its role in the air, and its technology dominant culture. Although elements of the other services participate in outer space activities including their own sub-commands, the US Space Command is clearly an air force command. Thinking related to the impact of the Air Force becoming both space and air force with its affect on air force culture is clearly underway.<sup>5</sup>

More importantly, outer space strike assets hold the promise of bringing Douhet's vision to fruition: a truly independent strategic force. As many observers have recognized, the new Air Forces of the Second World War lacked the capacity for a strategic strike that would bring quick victory independent of a ground campaign. The ability to do so was acquired with nuclear weapons, but these very weapons made war politically meaningless—the aforementioned postulate of the deterrence era. However, new strike assets, that could include a range of new technologies located in outer space constellations, hold the promise of destroying the capacity of a nation to wage war without a ground/naval campaign, and such an ability would transform the practice of international politics.

However, the Air Force strategic case must be balanced by the Army one as well. Arguably, the Army has been the least directly involved in space activity, and the least technologically driven culture. But, this has begun to change even though the idea of taking ground as the *sine qua non* of war remains. Space for the Army is the ultimate high ground. Thus, from an army per-

spective reinforced by current RMA-related work on army activities, the strategic value of space is not inconsistent with a land strategic perspective. Even futuristic ideas of reusable space vehicles may be seen in airborne/air mobile terms; able to appear at any point in an operational theatre to exploit the element of surprise.

In many ways, all three strategic perspectives are evident in the US Space Command's Long Range Plan. Despite the recognition of the need to weave a seamless web for the proper exploitation of outer space, its analysis more transfers the unstated strategic logic of each of the services without integrating them into a new body of strategic thought. Thus, control of space draws on naval and air thought, force enhancement in the Army, and force application in the Air Force. In addition, the emphasis is primarily technological.

Perhaps, it is much too early to expect the development of a body of new strategic thought. Until the various new technologies are actually deployed, their strategic implications will be difficult to understand and exploit fully. It was only after the initial use of the aeroplane during the First World War that a body of strategic thought about airpower emerged. Similarly, it took nearly a decade before the full strategic implications of nuclear weapons came to be understood. Until then, and despite the work of Brodie and others, nuclear weapons were largely seen as just another weapon, albeit exponentially more destructive.

At the same time, it is not surprising that each of the services conceptualize space according to their dominant cultures. Similarly, it is not surprising that the broader political, academic, and public discourse, when it does engage space, conceptualizes it within the deterrence belief system. However, neither the services nor the broader discourse have come to grips in a meaningful way with the strategic and security implications of space in the foreseeable future. Certainly, the long range plan posits that space will become an economic and military 'centre-of-gravity' for the US. In so doing, the idea of space control has emerged with its traditional air and naval connotations; the surveillance of space, the negation or denial of adversarial use, and the protection or defence of one's own use. In addition, doctrinal concerns, largely dominated up to now by passive measures, are now starting to transition into the consideration of active measures as well.

However, deterrence remains a significant barrier to a full understanding of the strategic and security implications of space. Several examples are evident. First of all, the exclusion of ballistic missiles from the space envelope, and with them ballistic missile defence has led to two interesting views. At one level, the belief that missile defences will produce greater incentives for states to acquire larger and more sophisticated arsenals of ballistic missiles remains intact. Although this view is largely seen today in the context of Russia and China relative to NMD, it is also enunciated with regard to the proliferation as a whole; witness the regular retort that the non-proliferation regime will collapse if NMD goes ahead. Yet, missile defence is a not just part of a counter-proliferation strategy, but is also central to a non-proliferation strategy. It affects opportunity costs for missile and WMD proliferators, and can be understood as creating a disincentive.

More directly relevant to space itself is the dominant assumption that missile proliferation is an attempt by states to obtain the ability to practise Cold War-type deterrence as a means to dissuade the US/West from intervening. In so doing, the belief that such states are undeterrable reinforces this very logic by portraying their leadership as irrational and 'mad'—the ideal posture to create credibility. However, perhaps missile proliferation is not solely directed towards replicating deterrence. Perhaps it is also directed towards acquiring an ability to practise space denial, and warfighting itself. By excluding missiles from space, one easily forgets that missiles are the means of accessing space. Moreover, the increasing exploitation of Low Earth Orbit (LEO) for military and commercial purposes is an inviting target for even rudimentary launch and warhead technology. In fact, this technology may be much less demanding and costly than that required for delivering warheads to terrestrial targets thousands of kilometres away.

To illustrate the value of breaking away from deterrence and re-thinking space in strategic terms, the August 1998 North Korean three-stage missile test is useful. The test is seen as a step towards acquiring the capability to threaten the continental US, and thus deter the US. Critics, in keeping with deterrence thinking, in part argue that even North Korea would not be foolish enough to believe that the US wouldn't retaliate if attacked. North Korea stated that the purpose of the test was to launch a satellite into orbit. From a strategic space perspective, perhaps the North Korean explanation is closer to the truth; the acquisition of a space-launch capability married to a crude nuclear warhead to interdict US space-assets in the case of war, and/or threaten US/Western commercial space assets.

Thinking about alternative explanations for long-range missile proliferation is excluded by deterrence. It

is only possible when one begins to think in terms of the independent strategic world of space. A similar case is found in the old deterrence-based dichotomy between offensive and defensive weapons as enshrined in the ABM and SALT/START agreements. Even in the Missile Technology Control Regime (MTCR) world, the issue is missiles for terrestrial purposes. When missiles are linked to space, the division is between missile defence and ASATs. Both have negative connotations because defence is 'bad' and offence is 'good'. But from a strategic space perspective, the distinction is meaningless. In one way, missile defences are also ASATs in disguise. However, the most effective missile defence for terrestrial purposes may not be the most effective ASAT system for space defence purposes. If threats to space assets are the future, missile defence investments need to be geared more to space defence than to terrestrial defence. A strategic space perspective leads one to this type of conclusion. Certainly, the current programmes and NMD are important to break the psychological barrier with regard to missile defence. But, the current programmes remain informed by deterrence, rather than an alternative space-centric strategic one.

A final example of the problem in developing a strategic vision of space as a function of its emergence as a military and commercial 'centre-of-gravity' is the idea of space as a sanctuary. Drawing on the Outer Space Treaty and the absence of weapons in space, as informed by Cold War Deterrence, political thought today assumes that space is a sanctuary, and nations concerned with future US designs seek to codify it as such. However, space is not a sanctuary and since the beginnings of the space age has never been one. It may be illegal to deploy and test nuclear weapons in space, but it is not illegal to use them in space. Thinking that 'criminalizing' the deployment of weapons in space resolves the problem, in actuality may undermine Western security. It permits all states to practice space denial, but no states to practice space defence outside of passive measures and limited dual-purpose missile defence. Strategically, it makes no sense, except as a function of deterrence which has framed the entire strategic debate, including arms control and disarmament.

In the end, there are many barriers to developing a strategic vision of space. Notwithstanding cost and technology considerations, one of the core barriers is the deterrence legacy both in terms of understanding the RMA and the way in which even advocates of space construct their own visions. Space control, as recognized by the US Space Command among others, will be the key doctrinal and political battlefield of the next two decades. Already the organizational fight for jurisdiction is appearing. For many, space is a 'purple' domain that includes all of the services, and a new independent

Area of Operations (AOR). Even though it is organizationally dominated by the Air Force, notwithstanding Navy and Army participation, its functional value and strategic nature indicate that no single service necessarily should dominate the domain of outer space. As the Second World War would lead to the creation of the Air Force as a new independent service in the US, so outer space developments may create the pre-conditions for another new service. In fact, the conditions may already be in place with the growing emphasis in the last decade on 'jointness', and the development of joint doctrine among the services.

However, thinking of space in independent, strategic terms is problematic relative to the way in which space continues to be conceptualized by the services as informed by their distinct cultures within the context of deterrence. Indications of a new conceptualization are indeed present, not least of all as a function of the public emergence of the concept of space control. Perhaps, space does not truly hold the promise of an independent strategic role. But unless this idea is explored, opportunities may be lost. At a minimum, space holds significant strategic and security implications for all nations, and while the US strategic community is beginning to become engaged, many other nations are not.

## CANADA IN THE PAST

Towards the end of the Second World War the conditions were set in place for a revolutionary transformation in Canada's approach to the outside world. Recognizing Canada's contribution to the war effort, policy-makers began the process of shifting Canadian policy from isolationist to internationalist. In so doing, it was clearly recognized that Canada's long-term strategic interests resided in a free and stable Europe. This interest was further extended, particularly since the end of the Cold War, to a global basis. In effect, Canada benefited from a peaceful and stable international system. It had, and continues to have, a stake in the international order. With such an interest and stake, it thus followed that Canada has had an obligation and responsibility to commit itself to the international order as it has evolved.

During the Cold War, this commitment primarily manifested itself in Europe through NATO, on the continent through NORAD, and globally through the UN and the practice of peacekeeping. Over this same period of time, Canada's military capabilities and investments declined. The commitments relative to declining capabilities created the conditions for the identification of the commitment-capability gap critique.<sup>6</sup> While on paper such a gap clearly existed, the critique failed to recognize one vital point from the deterrence standpoint of 'no defence' – it was largely irrelevant. In many

ways, Canadian policy-makers, sometime consciously and many times unconsciously, acted from this standpoint in making decisions about investments.

It is this very standpoint that has continued in Canadian thought since the end of the Cold War. It is perhaps most clearly evident in the current agenda of Foreign Minister Axworthy, and the failure of post-Cold War governments to recognize the revolutionary changes that are underway. These changes are a combination of the new strategic environment and the emerging revolution in the relationship between armed force and politics. The former has removed the structural constraints on the utility of armed force for the defence of the West's strategic interests, and thus Canada's long-term strategic interests. The latter, through the domain of outer space, is resurrecting the political conditions supporting the actual employment of armed force in a socially acceptable manner.

For Canada, this revolution, whether viewed from the deterrence perspective or the current RMA debate in the literature, has direct implications for Canadian requirements to meet its fundamental commitment to the existing international order. From the former perspective, there is a need to recognize a future of deployed ballistic missile defences with space-based tracking, cueing, and target discrimination assets for the defence of North America against ICBM threats from states other than Russia and perhaps China, for the defence of Europe, and for deployed Western coalition forces in the field. All these missile defence capabilities are essential for ensure that western decision-makers are willing to deploy forces against regional adversaries, particularly under the social constraints left over from deterrence: the unwillingness of Western societies, perceived or real, to accept high levels of casualties.<sup>7</sup>

The deployment of missile defences with their vital space-based assets represents the escape from deterrence under the new political environment. In so doing, capabilities to participate meaningfully in coalition campaigns become essential for Canada. Whereas in the Cold War simply being there sufficed militarily, in the emerging environment of defence, being there is not enough. It also demands making a meaningful combat contribution.

However, the nature of a meaningful contribution has to be considered. The key requirement for Canadian Forces to be inter-operable with other coalition forces, primarily American, is changing. While the logic of combat-capable forces remains in place, the specific requirements and investments necessary to be combat-capable is likely to be significantly different. These will probably require in particular the ability of Canadian Forces to integrate into the new battlefield created by

emerging space-based capabilities as under development in the US, as well as military structures that are emerging to exploit these new capabilities.

Both perspectives tend to indicate that Canadian elites must increase investment in defence capabilities. While there is logic to this need, current political conditions also indicate that the probability of a significant 'true' increase is near zero. The public political agenda is dominated by demands to increase investment in social programmes, even within defence as demonstrated by the Quality of Life report of the Standing Committee on National Defence and Veterans Affairs (SCONDVA). Furthermore, the emphasis in the Foreign Policy agenda on human security with its development underpinning and emphasis on intra-state conflict largely relegates the revolution to the margins.

Of course, Canada could choose to ignore the ongoing revolution, and in so doing undertake a limited or specialized role in the international system, a role suggested by the Canada 21 Report.<sup>8</sup> In many ways, the Canadian Forces are already drifting in this direction. However, such a limited role carries potential political costs. It is in effect a posture of limited liability, and with limited liability comes a limited political role and commitment to the international order. In other words, it potentially implies a return to a marginalized isolationist reality with an internationalist rhetoric of commitment.

More importantly, there is a dangerous belief that Canadian policy developed for the Cold War under the label of internationalism remains immune from geo-strategic and technical changes. With regard to missile defence, for example, concerns expressed by the Foreign Minister are deeply embedded in Cold War deterrence. Canada had been able to side-step earlier US missile defence issues – ABM and SDI – largely because of the geo-strategic value of Canadian territory and existing technology. Today, Canadian territory has become strategically irrelevant by the conjunction of the end of the Cold War and emerging space-based surveillance technology. In other words, Canada is likely to pay a significant political price, if it attempts to side-step NMD.<sup>9</sup>

Beyond missile defence in general and NMD in particular, there are several more key issues emerging which cannot be managed by the old Cold War policy

parameters. Paramount among them is the emerging issue of space control. Longstanding Canadian policy opposition to the weaponization of outer space has been politically viable under the deterrence conditions of the Cold War. Opposition was cost-free, as neither the US nor Soviet Union possessed the strategic need, or technological capability, to weaponize. In the future, the strategic need and technological capability will likely exist, especially if space does emerge as the centre of military and commercial gravity for the US and the West. Canadian opposition in this situation will not be politically cost-free, relative to the way in which Canada managed its defence interests, with its arms control and disarmament emphasis under deterrence.

This emerging issue, which is the broader policy revolution facing Canada, also spills down into the way in which Canada has itself marginalized space. Not only is there a need to re-examine current Canadian space policy overall, and the relationship between National Defence and the Canadian Space Agency in particular in



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Canadian ground stations are effective but vulnerable. NMD may protect these sites in the future.

light of the ongoing revolution, but there is also a need to re-examine the way in which space is conceptualized. Briefly, National Defence continues to conceive of space as a marginal investment requirement. Selective limited contributions to US space requirements will enable the Canadian Forces to access US space systems.<sup>10</sup> While such an approach is understandable, not least for budgetary reasons, it also will pre-determine Canada's response to space control. Limited, selective space investments into the American space envelope largely dictate that Canada will have no choice but to accept the outcome of the US policy debate on space control. This may be in Canada's long-term strategic interests. However, it also ends any independent debate years before it would begin.



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Missiles and launchers - which way will Canada go?

As Canada engaged too late in the debate on NMD today, the current space investment strategy, unless debated today, ensures that Canada will not engage in a functional manner in terms of space control.

Re-evaluating Canadian foreign and defence policy under the emerging Defence RMA is complicated. These brief examples provide only a basic indication of the tensions which exist and will continue to develop. The problem is that under the dominant RMA viewpoint, which remains informed by the Deterrence RMA, they are being ignored entirely. Worst of all, Canadian policy-makers continue to think that the fundamentals of its policy for the Cold War transcend time and place. Certainly, given the past, investments are unlikely to increase. The answer lies in reconsidering investment patterns within defence on the basis of understanding the Defence RMA underway. This entails two compo-

nents. The first is assessing the revolutionary change underway in the relationship between war, politics, and society. The second is evaluating the revolutionary changes concerning the requirements for combat-capable forces in the future. Both of these must begin with a clear understanding of the developments occurring in space-based capabilities and their implications for the use and nature of armed forces. While the logic of combat-capable forces may remain in place, the logic of ensuring that all three services – Army, Navy and Air Force – are combat-capable under the current and future fiscal environment does not necessarily follow.

## CONCLUSION

Regardless of one's view on whether an RMA is actually underway, it is evident that developments with regard to outer space – commercial and military – raise significant implications for Canada and the Canadian Forces.<sup>11</sup> Neither outer space nor the RMA is being completely neglected or ignored within DND, and concerns about the weaponization of outer space are evident in DFAIT. Nonetheless, the ability to understand and respond to either or both are significantly constrained. At the highest political levels, it appears that no attention is being paid whatsoever, especially given the absence of a cabinet sub-committee dealing with foreign and defence policy issues. More importantly, the here and now focus of DFAIT and DND under the current political conditions, especially with regard to investments, is a significant barrier to long-term strategic considerations. However, the implications for Canada of failing to move beyond the immediate horizon may be extremely significant. The political-strategic world of 2020 and beyond, and Canada's place within it, is likely to be much different from today, especially if the future, and with it outer space, is relegated to the margins in Canadian political-strategic thought and investment. The embryonic first stage of this new strategic world is emerging with missile defence. The next stage will be space control.



## NOTES

1. Bernard Brodie. *The Absolute Weapon: Atomic Power and World Order*. New York: Harcourt, Brace, 1946. p. 76.
2. Department of Defense. *The Report of the Quadrennial Defense Review*. Section III, 1997.
3. A recent attempt is James Oberg. *Space Power Theory*. Washington: Government Printing Office. 1999.
4. US Space Command. *Long Range Plan: Implementing USSPACECOM Vision for 2020*. Colorado Springs: US Space Command. 1998.
5. See James M. Smith. *USAF Culture and Cohesion: Building an Air and Space Force for the 21st Century*. Institute for National Security Studies. Occasional Paper 19. Colorado: U.S. Air Force Academy. 1998.
6. See Rod Byers, *Canadian Security and Defence: The Legacy and the Challenges*. Adelphi Paper No. 214. London: International Institute for Strategic Studies. 1986.
7. According to Sean Maloney, the Canadian decision not to send ground forces to the Gulf was primarily a function of casualty estimates. Sean Maloney. *War without Battles: Canada's NATO Brigade in Germany 1951-1993*. Whitby: McGraw-Ryerson. 1997.
8. Canada 21. *Canada and Common Security in the Twenty-First Century*. Toronto: Centre for International Studies. 1994.
9. For details, see James Fergusson. *Deja Vu: Canada, NORAD, and NMD*. Occasional Paper No. 38. Winnipeg: Centre for Defence and Security Studies. 1999.
10. This is evident in Department of National Defence. *Vision 2020*. 1999.
11. For a detailed analysis, see Steve James and James Fergusson. *Space Appreciation 2000*. Ottawa: Directorate of Space Development. DND. 2000.