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21st Century Deterrence Strategy



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Asia in the Second Nuclear Age

09/19/2018

By Paul Bracken

The second nuclear age wasn't supposed to happen.

That's the crux of the problem.

Nuclear rivalry was a defining feature of the first nuclear age, the Cold War. In the 1990s and 2000s it seemed to many people that repeating this a second time around, after the Cold War was over, was truly insane. It was beyond folly. On this there was wide agreement that crossed all political divisions of right and left, hawk and dove, in the United States and Europe.

Yet here we are.

The bomb has spread to three countries in Asia: India, Pakistan, and North Korea.

The United States went to war to disarm Iraq of WMD it did not have.

It is trying to stop Iran from getting the bomb now.

Major powers are modernizing their nuclear forces.

China and India are MIRVing their forces, and building SLBMs.

What is also missed, or is intentionally overlooked, is the way new “conventional” weapons relate to the nuclear forces.

The most strategic use of cyberwar hasn't been to hack intelligence. It's been to disrupt nuclear and missile programs in Iran and North Korea.

Hypersonic missiles, likewise, are strategically important because they can destroy nuclear missiles quickly, before there's time to fire them.

But let's return to crux of the problem: the second nuclear age wasn't supposed to happen.

There is reluctance in intellectual and academic circles to admit that nuclear weapons have returned, and that they play a major role in today's great power rivalry.

Because to acknowledge this would mean that the legacy framework of nuclear nonproliferation no longer describes important dynamics of our age.

Can anyone seriously look at India or Pakistan today and argue that the world's anti-nuclear regime needs to be patched up — by compelling both nations to give up their nuclear forces?

To argue this straightjackets international politics into nuclear nonproliferation theory.

It's unlikely that the United States would even allow it to happen. India is now critical to the United States effort to offset China's power.

A non-nuclear India couldn't do this. It wouldn't have the confidence to do so.

Reluctance to admit that we are in a second nuclear age, with new strategies, power dynamics, and technology, in a way makes a certain kind of sense.

It is sometimes useful to pretend that there are only a few bumps in the road, and that we're still in a post Cold War world where everyone understands the risks of nuclear weapons.

This argument might even encourage the view that old deterrence and nonproliferation frameworks are still working.

But at some point holding this view becomes like the Catholic Church and its child abuse scandal. One of the reasons these horrors went on for so long, and reached the catastrophic levels that they did, was because the issues raised were so unpleasant and upsetting. There was great resistance to even talking about them. In the absence of any higher level conversation, the Church fell back on whitewash reports, cursory investigation, and kicking the problem of abusive priests to another jurisdiction. The sad results of this are now well known. They are apparent for all to see.

In the same way the challenge of managing a second nuclear age that is structurally, technologically, and politically different from the Cold War are unpleasant and horrible to consider.

Like the Catholic hierarchy, we wish it would all go away. There are discernable problems and difficult situations that people do not want to talk about.

But we have to talk about them.

We have to think about them.

Because to do otherwise is avoid the central challenge of world order the 21st century: the return of great power rivalry in a *multipolar nuclear world*, a world also with weaker, insecure, dangerous, regional nuclear weapon states like North Korea.

As to how this second nuclear age plays out in Asia I would make two big points.

First, nuclear weapons are altering Asia's strategic geography. At one time Asia could be divided up into regions, like South Asia, Southwest Asia, Northeast Asia, and Southeast Asia. These divisions arose from the vocabulary of the Cold War. They were a way to neatly separate regions where the issues in each were only loosely related to one another. For example, Southeast Asia meant the Vietnam War, the domino theory, and counterinsurgency.

Now Asia is being stitched together as a larger strategic region.

Two forces seem to me to drive this.

First, business has gone from a national to a continental and global scale in Asia. Business is a major driver in China's One Belt, One Road initiative, because it expands China's export markets with improved roads, rail, and ports.

At a time when China fears an even larger trade war with the United States, and more severe curtailment of its exports to the EU, selling to the Asian market becomes much more important to Beijing. Not only is this to expand markets.

It is also to improve their bargaining power with Washington and Brussels on exports and future trade agreements.

The other factor stitching Asia together is military.

Here, nuclear weapons must be recognized.

China now has the capacity to reach deeply into the Pacific.

China can also cover all of India with missiles that may carry conventional or nuclear warheads. In the old Asia of the regions the Himalayas prevented the two giants from getting at each other. China was a land based infantry power, with no capacity to attack the U.S. maritime security system.

None of these things are true any longer.

The new military technology, things like cyber, drones, hypersonic missiles, AI, etc. make the risk of something "nuclear" going wrong that much greater.

Let me explain this.

In the Cold War nuclear weapons were mainly, overwhelmingly in fact, looked at as necessary to offset the other side's nuclear forces. Deterrence was the core strategy, of course.

But even here, it was a *defensive deterrence*, intended so the other side couldn't exploit any one sided advantages it might obtain with nuclear blackmail, which in any case never arose a single time in the Cold War.

Both sides were risk averse, prudent when it came to nuclear threats, yet willing to keep nuclear arms at hand to counterbalance the other.

In contrast, the second nuclear age offers many opportunities for an *offensive deterrent*.

This is because there are so many different strategic cultures and personalities in it. And because new technologies make this possible.

Nuclear forces could be used to deter others from interfering with operations of much lower intensity.

Strikes that use conventional precision weapons, cyber, and hypersonic missiles are altogether more threatening if they are backed up with a nuclear hammer.

Unfortunately, there is historical precedent for this type of second-strike force. Hitler used his air force and army as a threat to deter Britain and France from interfering with his moves into the Rhineland, Austria, Czechoslovakia, and other places.

But there was nothing comparable to this in the Cold War.

The prospect of offensive nuclear deterrence is just one of many ways that the new nuclear order is different.

This brings up another way the second nuclear age plays out in Asia.

The old Cold War categories of deterrence do not adequately conceptualize the problems of a second nuclear age.

Consider the fundamental idea of central war. Central war was a conflict that had strikes on the homeland of the enemy.

In the Cold War this meant nuclear attack.

Now there are many ways to strike the enemy homeland, that is, to wage central war.

EMP, cyber strikes, precision strike, anti-satellite attacks. Attack on the U.S. financial, transportation, and electric systems could cause enormous chaos. It would be an act of central war.

In the context of a crisis showdown it's also a way to raise the risks that never existed in the Cold War.

New technologies can also be used to attack nuclear forces. They can destroy a nuclear deterrent with conventional weapons alone. Conventional counterforce is going to be one of the big businesses in the second nuclear age.

Nuclear forces depend on commercial power from the electric grid, have connections to headquarters, and require a lengthy setup time to use them.

All of these create large new vulnerabilities.

It is hard to imagine that intelligence services won't focus on just these weaknesses.

In sum, it isn't that targeting strategies are changing.

It's that the underlying target categories themselves have changed.

Central war, counterforce, counter value, and even threats that "leave something to chance" have ambiguous meaning now.

Is an ASAT attack "a threat that leaves something to chance", to use the astute phrase of Tom Schelling to describe NATO's tactical nuclear weapons in the 1960s?

A Chinese ability to degrade U.S. precision strike with anti-satellite attack could easily spill into upsetting the stability of the entire U.S. command structure.

Nothing remotely like this existed in Cold War targeting categories which provided a “clean” separation of target classes, and were used to build operational war plans.

We are in a world where technology is far ahead of strategy.

I would go further.

With the reluctance to acknowledge that we’re in a second nuclear age, the dominating strategy today in many quarters seems to be one of “ignorance is bliss.”

It is surely better to think about these things before a crisis hits.

Now, the risk of an eruption to nuclear use seems low.

There are no serious crises like the ones of the Cold War. It is precisely this time when we need to focus on the important but not necessarily urgent questions of national security and nuclear order.

The US Reworks Its China Strategy

09/21/2018

By Ross Babbage

The tensions between Washington and Beijing are much deeper and longer lasting than many Australians assume.

They spring partly from a deep sense of grievance in the US that China has been exploiting holes in World Trade Organisation rules and has been gaining free access to the American market while simultaneously imposing unfair restrictions on US companies seeking to reach Chinese consumers.

Especially troubling to Americans have been the forced transfer of technologies, highly restrictive investment regimes and massive Chinese government subsidies. These distortions contribute decisively to China’s vast trade surplus with the US and both Republicans and Democrats now insist that this needs to change.

Reinforcing this negative sentiment has been a rapidly-growing American distaste for the recent behaviour of the Chinese Communist regime. The imprisonment of one million Muslim Uyghurs and Kazakhs in “re-education camps”, the destruction of churches and the harassment of Christians, the fusion of data from some 200 million CCTV cameras and scores of computer databases to produce a 1984-type police state that coerces citizen loyalty to the Party have all triggered revulsion across the American political spectrum.

While Beijing may still have some sympathisers in Hollywood and in parts of the American technology sector, China now has few friends in Washington.

American leaders have also been affronted by China’s aggressive international behaviour, especially since Xi Jinping gained power in 2012. The theft of vast quantities of American and allied intellectual property, the surge of Chinese espionage operations to exceed that experienced at the height of the Cold War, the accelerated expansion of Chinese military and militia forces and the aggressive use of these forces to bully regional states has not gone unnoticed.

Senior Americans have also been deeply troubled by China's effective seizure of the South China Sea. Despite Xi Jinping's promise to President Barack Obama that China would not militarise its newly created islands, they now see the finishing touches being made to three major fighter-bomber and naval bases and an extensive military surveillance network on the Spratly Islands in the middle of the South China Sea.

Key decision-makers in Washington have also expressed dismay at Chinese Communist Party interference in the political processes and the exercise of democratic freedoms in Australia, New Zealand and other close allies.

Reinforcing these concerns is Xi's new narrative about China's strategic goals. Expressions of China's "peaceful rise" and Beijing "biding its time" have been replaced by statements of its determination to achieve the "China dream" of becoming an equal, if not a superior, power to the United States.

Xi has also spelt out a "Make in 2025" strategy, revealing that Beijing plans to dramatically accelerate technological development in 10 key sectors of the economy so as to refocus the country's manufacturing sector, reserve market share for domestic market champions and seize the high ground in future international markets. American business executives have already seen evidence of stolen intellectual property being used to turbo-charge this sprint to global economic leadership.

Strategic Threat

While Beijing may still have some sympathisers in Hollywood and in parts of the American technology sector, China now has few friends in Washington.

The impact of these developments on Washington has been profound. The lead intelligence agencies have briefed Congressional committees on the broad range of Chinese operations and this has altered the tone of many debates. There is a clear sense that the era of American dithering is over.

These issues were prominently canvassed in the recent US National Security and National Defense Strategy documents with a significant stiffening of backbones apparent.

There may not be many issues that unite both sides of Congress but the need to counter China is certainly one. A broad consensus has now been reached that Beijing poses the most serious strategic threat to the United States and its allies and strong and sustained action is needed.

What has yet to emerge is a clear American and allied counter-strategy. How can the West most effectively deter further expansionary, interfering and unfair behaviour by Beijing?

All indications are that both sides of American politics are digging in for the long haul. Donald Trump and his close colleagues appear determined to thwart Xi's campaign to make the world safe for authoritarianism and, in so doing, they have seized the initiative. Trump's announcement that the US would levy tariffs of 10 per cent on 5700 goods imported from China from next Monday and threatening a further rise to 25 per cent by the end of the year is driven by a belief that such steps will hurt China much more than the US.

But this week's American imposition of expanded tariffs on Chinese imports needs to be seen as just one of a series of steps. Even if Beijing manages to conclude a ceasefire in the trade war, Washington has tighter technology transfer controls and a range of other economic and geo-strategic measures under development and is unlikely to be satisfied until China's economic transformation is liberalised and Beijing's international and domestic behaviour is moderated.

Profound Implications

The psychological impact has already been profound. For the first time in decades Washington appears to be out-manoeuvring Beijing. Some Chinese commentators are suggesting that Xi has over-reached and expressing the fear that Trump is a far more formidable adversary than they had anticipated.

The implications for Australia, and especially for Australian companies, are profound. China's assertive and intrusive behaviour has woken the great American eagle and Beijing may come to rue the day.

We are witnessing the emergence of a geo-strategic struggle that is likely to be intense and long-lasting. There is little appetite in Washington or in the capitals of the other close allies to compromise on core democratic values, principles or practices, nor on the West's geo-strategic pre-eminence.

The imperatives for corporates to review past assumptions, risk assessments and investment plans are strong. For those enterprises that have grown over-dependent on China, the logic of market diversification is compelling. We are entering a new era.

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Deterrence in the Australian Evolving Strategic Environment: The Perspective of Dr. Stephan Fruehling

09/19/2018

We have focused for some time on the question of the return of the nuclear issue for US and allied defense.

Our colleague, Paul Bracken, has forcefully focused on this issue in his work on the second nuclear age, and his work has certainly underscored the forceful return of the nuclear factor in great power considerations as well as for states which may well find the acquisition of nuclear capabilities to be an effective way to gain financial and diplomatic advantage.

But is clear that the great power conflict we are now focused upon involves powers which possess nuclear weapons. How then does the return of the nuclear dimension affect allies of the United States who do not possess them but rely upon the United States to possess an effective arsenal and strategy to deal with return of the nuclear dimension.

Certainly, the last Administration clearly did not want to think about this and the President pursued a nuclear free world, which certainly does not seem to be any more realistic than his Syrian red line.

Now we have a new Administration which has focused on the return of the nuclear dimension and in its recent nuclear posture review looked at options and discussed the need to reintroduce nuclear cruise missiles as part of the effective combat force.

But how does the return of the nuclear dimension and evolving US policy affect Australian options and ways ahead?

At the recent Williams Foundation seminar on independent strike, one of the speakers, Dr. Stephen Fruehling from the Strategic and Defence Studies Centre of the Australian National University, provided an insightful look at the options and impacts upon Australia of the new strategic situation.

His presentation follows:

Australian Strike Capability and Nuclear Deterrence

It's certainly remarkable that nuclear weapons have made a return to Australia's defence debate, if you can call this what's going on in the relevant blogosphere, not least following more or less subtle hints by Hugh White, Paul Dibb and Richard

Brabin-Smith that Australia might need to consider looking at relevant lead-times again, in the way the Defence Committee recommended to Governments from the late 1950s to the last Strategic Basis Paper of 1983.

Australian nuclear weapons is not what I will discuss today, however, although I might point you to an upcoming edition of Australian Foreign Policy, available in your well-stocked neighbourhood bookstore, for more on that issue.

That said, the question of what circumstances and to what end Australia might acquire nuclear weapons is an interesting one, since it really draws us to think about when not just our current force and posture, but also credible increases and a conventional posture in general would stretched to breaking point – and that certainly is of relevance to discussing the future of Australian independent strike.

But the current revival of interest in nuclear weapons is real, and it goes far beyond Australia – if anything, I would say the debate here as usual lags that of the northern hemisphere by several years.

At the heart of this is the return of great power conflict to the centre of Western security concerns, and this is something where nuclear weapons simply cannot be ignored as an integral part of the problem, and how we will manage it.

NATO's re-focus on collective defence since 2014 has brought with it a revival of institutional and governmental interest in, and engagement with the practical and political aspects of the Alliance's nuclear posture and deterrence, in a way we have last seen during the Cold War 30 years ago.

At its recent Brussels summit, the alliance reiterated that "If the fundamental security of any of its members were to be threatened, NATO has the capabilities and resolve to impose costs on an adversary that would be unacceptable and far outweigh the benefits that any adversary could hope to achieve".

As the Alliance re-examines the role of nuclear weapons in a coherent deterrence posture, it re-discovers old realizations such as that nuclear use by NATO should be remote, but should also not be left to the point where it ceases to be a choice; and that if there is not to be an option for conventional victory over NATO, NATO does need a credible nuclear option.

In Asia, the return of nuclear weapons is less obvious since there is no nuclear alliance in the way that NATO is. Interest in nuclear deterrence, and possibly a domestic capability, in Japan and South Korea has now been part of the regional security landscape for quite some time.

What is different today however is that we have in Washington an administration, if one looks beyond the tweets, that has stopped pretending that business as usual would be enough to deal with the shifting conventional balance in Asia; that dealing with that balance is a genuine challenge in which the United States cannot assume it will by some natural right succeed; and that it is a challenge they are determined to take on within the constraints that competing fiscal demands in DC place up the US defence effort.

We've been there before. 65 years ago President Eisenhower was in essentially the same situation, and he looked to nuclear weapons as the great equalizer. I don't propose that we are about to return to the heady days of the early atomic age, but I will put it to you that the United States will face a choice between increasing once again the role of nuclear weapons in regional deterrence, or reducing its role as a security guarantor.

The proposal to develop a new generation of submarine-launched nuclear cruise missiles in the last Nuclear Posture Review demonstrates where the current defence leadership wants to come down on that choice.

Any of those who argue that nuclear weapons are essentially useless will, sooner or later, be confronted with some basic facts of physics, such as that nuclear weapons remain the only way to stop an amphibious invasion of a defended island by delivering a single piece of ordnance.

What does all of this mean for Australia though?

First, in a world in which we are concerned primarily about conflict with and between nuclear great powers, and the role of Australian strike in such a situation, we need to think seriously about war termination. When we look at long range and

precision strike in a defence force that has some of the most shiny kit available in its inventory, there is always a danger of tactical enthusiasm trumping strategic logic.

This isn't a completely new problem, in that strategic guidance during the 1970s and 1980s was always somewhat cautious about the role of strategic strike in a conflict with Indonesia. But that was a question not about what Australia could do in a war with Jakarta, but what would be prudent to do, given that war is ultimately about the nature of the peace that follows.

Now, however, we also need to acknowledge the operational limits of a conventional force. At the time of the 2009 White Paper, which mentioned land-attack cruise missiles for our submarines, there was certainly some rather silly debate, I think, which ignored the rather large delta between the damage that a few dozen of half-ton warheads can do to a nation of a billion people, and what might be required to force an end to hostilities on Australia's terms.

Some gaps are simply too big to fill with PowerPoints on Effects Based Operations.

When we contemplate conflict with a nuclear armed great power, we face an adversary that will always be able to take greater losses, and inflict more pain, on us than we are able to on them. Conflict will end not because of Australia could force an end to it, but because of the outcome of campaigns elsewhere, or because the cost-benefit calculation of the adversary shifts to make continuing conflict with Australia not worth the bother.

This means we need to think about strike in a way that does not reinforce the adversary's emotional investment in the conflict with Australia, while still increasing the cost of any offensive operations they might choose to undertake against us. In that sense, I think the geographic limits of Australian independent strike, given the range of F-111 and current airborne systems, up to the Northern ends, but not much beyond the Indonesian archipelago, still make a lot of sense, even if the adversary's main base areas are located further to the North.

But it means that within that geographic envelope, the volume and intensity of strike we can deliver will be particularly important, as the adversary will be able to concentrate at a time and place of their choosing. And when Australia's theory of victory has to rest on exhausting the adversary, attrition will be the name of the game, including attrition of ADF strike assets.

Where do nuclear weapons play into this?

It is useful to think about the role of nuclear weapons in three different ways:

- First, as a complement to conventional forces, bypassing the force-on-force battle to deliver a level of societal damage sufficient to induce war termination on their own.
- Second, as a tactical substitute for conventional forces, which thanks to their yield-to weight ratios are able to deliver physical damage to major units and installations with an incomparably smaller number of ordnances than could ever be achieved with conventional means.
- And third, in a strategy of flexible response, though use or threat of limited use, to deter or to bring about an escalation of conflict, so that we can manage the perception of cost and benefit for an adversary in the hope of forcing an end of hostilities, with an endstate that manages to avoid the two perils of defeat as well as of a general nuclear war.

It is a complement to conventional forces that nuclear weapons are sometimes referred to as "the deterrent". But to be deterred is a choice by the adversary, there is nothing mechanical about it and we need to be very careful in how we use that term in relation to Australia's strike capability.

Deterrence works by making threats of unacceptable counteraction in advance of bad things happening, which is not even necessarily a kind of relationship we would want to have with our neighbours even if where we might be able to inflict that level of punishment.

Therefore, the formulation in some earlier strategic guidance documents of the ADF needing to be of a size and capability to always command respect and induce caution in adversaries is a more modest, but politically more appropriate, and strategically more credible way of thinking about ADF strike, unless and until we swap the explosive end of our ordnance for something a bit more powerful.

Thinking about nuclear weapons as a substitute for conventional forces on the other hand brings us to that stress-test of a purely conventional ADF that I mentioned earlier. Given what we know already about Chinese interest in developing potential base facilities abroad, and as we are talking about the long timespans relevant to the acquisition of major capability, we need to assume that the adversary will already have established air or naval bases in Australia's approaches at the outset of a conflict.

Given the size of Chinese armed forces and the nature of its installation already existing in Djibouti, we need to assume that these will be garrisoned to a size that will preclude amphibious operations as a means to destroy such bases. Hence, we're back to a replay of the Rabaul campaign under modern conditions, which will require sustained strike against an adversary that will be prepared, hardened, dispersed, and able to inflict attrition on Australian forces.

Even before we take into account the need to also meet adversary manoeuvre forces, I think it is very doubtful whether we could ever acquire cruise missile stocks large enough for such a campaign. While we might in future buy enough fighter-bombers to afford attrition over time, the question is how many tankers could we afford to lose before such a campaign unravels. If we think about stress-testing our current force mix in that way, I think we thus need to come to three conclusions:

First, we will in coming decades have a need for a survivable long-range bomb truck, of a kind where the new US long-range bomber is probably the only airframe currently on the horizon that approximates our requirements.

Second, when push comes to shove, there may well be targets in Southeast Asia where the unrivalled yield-weight advantages of nuclear weapons would provide significant military benefit to an allied campaign.

Third, the archipelago of Southeast Asia is the one area in the broader Indo-Pacific area where the most opportune targets for initial allied nuclear strikes will be located if the United States looks to escalate a conflict to the nuclear level.

This third point may seem like a bit of a leap, but a logical conclusion if one eliminates the alternatives. Like their Soviet predecessors, Chinese bases in the Indian Ocean are so exposed to US forces from the Atlantic that they are unlikely to remain in play for very long. If we and the Americans roll-up Chinese forces in Southeast Asia the war doesn't seem to be going so badly that the US and its allies would look to nuclear use. And Northeast Asia is so proximate to major population centres of both sides, and unlikely to feature adversary bases outside the Chinese homeland itself, so that any nuclear use up there would make for far more challenging escalation control.

Given that Australia has most to lose from enduring adversary presence in our approaches – Japan's control of the German mandate islands after World War One comes to mind as something worth remembering – we might not actually be that unhappy about such a development.

Hence, if we are looking at the effectiveness and role of strike in general in our region, there are reasons why I think it behoves on us to study the tactical as well as strategic and political considerations of nuclear use in our approaches in much greater detail than we have done since the 1950s.

The first is that we probably understand the limits of conventional forces in a contemporary maritime context far better than the potential advantages of nuclear use, whether that is Australian or more likely US use. The earliest influence of nuclear weapons on the conduct of naval operations was during the Korean War, when the US fleet at Pusan was spaced so as to minimize the damage from airborne Soviet nuclear attack. For reasons of effectiveness, low collateral damage and relative ease of escalation control, tactical nuclear weapons remained fundamental to naval concepts of operation in the Atlantic until the end of the Cold War.

But while it is easy to see how nuclear weapons they remain effective against fixed installations, are they as effective in a naval context today as they were then, given the extent to which modern air and naval forces can disperse in a networked environment anyway?

Without understanding the tactical benefit of nuclear weapons we cannot have an informed discussion of the relevance to the defence of Australia or the defence of Southeast Asia, or what a ‘militarily meaningful’ initial use of nuclear weapons by the United States might look like, which Australia would have to look to if conventional strike capabilities are exhausted.

And if the history of the debates between Australian, US and UK planners in SEATO days is any guide, our assessment of their benefit in our particular circumstances does not necessarily align with that of our allies.

Second, well short of those considerations of actual use, we do have to ask how Australian independent strike capabilities relate to the need for demonstrating a credible US capacity for nuclear escalation and intra-war deterrence in our region. Nuclear signalling, coercion, and the dispersion of nuclear forces to maintain credible options for limited use have been part of major crises between peer great powers throughout the atomic age, and will remain so in the future.

In any major crisis with China, the United States will look to Australia as a dispersal area for long-range air assets, and that will bring with it nuclear connotations whether we like it or not.

If our strategic circumstances continue to deteriorate, we may well welcome this and even seek greater physical linkage with US nuclear forces in the way that exist in NATO, and Japan and South Korea have explored for some time. But Australian strike forces will be of relevance to nuclear signalling well short of nuclear sharing. In contemplating Australian independent strike in a conflict with a nuclear power, we will be operating aircraft or weapons systems that might be very difficult if not impossible for the other side to distinguish from US nuclear capable systems, and the question of whether and how Australian forces might be called upon to support US nuclear operations from and in our region, if only for signalling, will pose difficult political questions that we have not had to deal with in our alliance yet.

In conclusion, nuclear warfare and strategy are about the ability to deliver massed violence, but exactly for that reason they always also induce a measure and need for restraint. In those scenarios that will seriously test our force, and our defence posture and policy overall—in other words, those scenarios where independent strike really counts—we will not be able to escape the shadow of nuclear deterrence. Hence, when thinking about the future of Australian strike in the shadow of nuclear weapons, we will need to be able to deliver a far greater volume of massed violence at range than we are able to at present – we will also have to think a lot harder about when and where it would be more prudent to exercise restraint when we come to heads with nuclear powers.

Deterrence in the Australian Evolving Strategic Environment: The Perspective of Michael Shoebridge

09/19/2018

By Robbin Laird

The Williams Foundation seminar held on August 23, 2018 on independent strike was operating within the background of the overhanging issue, or the elephant in the room, of the second nuclear age.

The question of what deterrence looks like with the rise of new nuclear powers and a more powerful conventional military force in the possession of a global authoritarian state, namely China, is a key one facing Australia.

The alliance with its major ally, the United States, as a nuclear power is a key element of the equation, but what might Australia do as it builds out deterrent options to better protect its options and to enhance the probability that extended deterrence is credible to China, Russia and North Korea?

It can be overlooked that there are already three nuclear powers in Australia's region, and for two of them, the classic Cold War equation is not operative. For North Korea, this is obvious. For China, it is less so, but ultimately the Chinese are shaping more credible conventional forces options using its territory as a base, with the clear assumption that their nuclear capabilities provide a strategic umbrella over the use of their own territory to project power into the Pacific.

This does mean that as the Chinese move out into the Pacific they will face the capabilities of major powers in the region who have the capabilities to cut those forces off from the mainland. Do the Chinese nuclear weapons play any role in trying to prevent this?

In the presentation by Michael Shoebridge, Director of Defence and Strategy at the Australian Strategic Policy Institute, a number of these questions were addressed from the standpoint of Australian options.

Nuclear weapons are great equalisers.

But they can't be the basis of equality between North Korea and the US. In coming years we'll be struggling to unpack effective models of deterrence that stop Pyongyang from over-reaching.

The proliferation of offensive strike capabilities draws us deeper into a world of strategic uncertainty.

The world doesn't have good deterrence models for the nuclear contests between a rogue state and a superpower.

Classic deterrence works best as a relationship between two responsible, risk-averse great powers, both of whom have a sound understanding of the costs of great power war.

Deterrence relationships between risk-tolerant rogues and risk-averse superpowers are likely to be more fraught—not because the risk-tolerant state lightly runs nuclear risks but because it runs risks at the sub-nuclear level because it believes itself to be immune from retaliation.

The doctrine of extended deterrence in a period where the non-proliferation regime has become seriously challenged is itself seriously challenged.

At a minimum, those emerging deterrence models threaten to make credible articulation of the US doctrine of extended nuclear deterrence more challenging.

That doctrine was built for a different age—the age of risk-averse near peer adversaries.

As I've mentioned above, it's not obvious to me that the US will be willing to run nuclear risks on behalf of its allies in a more densely proliferated nuclear world, where rogue actor behaviour is less predictable.

Such a judgement clearly poses the question of what should Australia do to enhance its deterrent options?

Here the prescription really revolves around the question of how to reinforce the credibility of extended deterrence.

How might Australia do this?

Our first and by far most important line of reaction to the risks of nuclear proliferation should be to think what we and our partners can do to reduce that risk.

One big step is to keep the transparency light on North Korea in the post-Summit afterglow – and underline the fact that the North Koreans are showing no signs of actual denuclearizing – which for anyone who has listened to Kim Jong Un at and after the Summit and watched North Korea in the past is entirely unsurprising.

But if that fails now what?

The intimidation effect of a nuclear armed state is sufficiently great that this seems to me to be very likely indeed to stop an Australian Prime Minister from using offensive strike beyond Australia's territories.

To take a pretty clear example, the idea of posturing to reach out and touch Beijing's leaders with precision conventional weapons just seems outlandish to me as anything but a way of ensuring a destructive counterstrike that is not conventional.

This does put aside the question of how then to directly strike Chinese forces operating in the region, and how to separate the threat of nuclear use from an ability of Australia to defend itself and work with allies to stop the Chinese in their tracks as the not only project power into the region but use it.

What then?

Kinetic strike is not the only kind that can deter others. The rise of the cyber world has created a new potential form of long range strike: offensive cyber.

The attraction of this new capability is its global reach and its uncertainty: this kind of logic will be very familiar to the submariners in the audience.

The value of uncertainty about where a cyber capability is and what it might be prepared to affect makes it a tool of potentially large importance in the world of deterrence.

Yet its opacity and uncertainty can also reduce its value. And cyber tools tend to be boutique things that take a lot of preparation, but once revealed can be countered fairly rapidly.

So, the problem of how to signal capability without exposing it is one that is still to be worked out.

A further limitation on broad use of offensive cyber for strike is that containing the effect is not simple – think of the StuxNet virus that seems to have been intended for limited use on a non-internet connected system, but went beyond that, and of the cyber disruption brought about by Wannacry and NotPetya.

Even within kinetic strike, Australia might have options other than air launched.

Pre-positioned Army units with ground launched anti-ship and aircraft systems could work with regional partners to strike adversary forces at a distance from Australia.

Australia's new naval combatants —surface and sub surface—might be equipped with cruise missiles or missile systems that fit into the launcher cells of ships. These require pre-positioning.

The option of air delivered lethal effect at range needs to be considered along with such other strike options.

The good news is that any offensive strike capability Australia might consider needs many similar underpinning enablers and capabilities if it is to be targeted effectively and if decisions on use are to be made well.

Among the enablers will be strong policy frameworks that put the posturing of strike and its potential use within a broader strategic framework.

Long range strike if emphasized would thus be in a context and if it involved direct confrontation with China, the US would very much be involved and hence it boils down to finding ways to make sure extended deterrence as well as credible conventional options to influence Chinese thinking.

Deterring great powers or nuclear armed powers from attacking Australia still seems best dealt with by reinforcing our alliance relationship with the United States.

Australia's circumstance here is quite different to South Korea of Japan, as a situation where Australia's security is threatened directly is likely to be one of a wider regional conflict in which America's direct interests are more engaged even than in North Asia.

This makes sense but earlier in his presentation Shoebridge highlighted the problems he had with President Trump as a custodian of US national security policy.

US President Trump's seeming willingness to give way on US allies' interests in his negotiations with Kim Jong Un – most obviously with his unilateral decision to halt US-ROK military exercises (and to use DPRK boilerplate language to describe them as 'provocative' 'wargames') is big news not just for the South Korea but for Japan and for other US allies – including Australia.

This signals that America First may not just mean trying to get allies to pay more for their defence, but also the potential for US security guarantees – including extended deterrence—to be less reliable.

Secretary Mattis has been strong in saying this isn't so, but Donald Trump, not Sec Mattis, is the President of the United States.

When it comes to something as fundamental as extended deterrence, saying that the undercurrent of US policy remains, or speculating about whether Trump will or won't get a second term is not a great way of generating confidence.

So what is Plan B?

Appendix: Michael Shoebridge Presentation to the Williams Foundation, August 23, 2018

The Strategic Implications of Regional Proliferation of Offensive Strike Capabilities

(Text prepared with much input from my ASPI colleague, Rod Lyon)

Thanks for the opportunity to address the Williams Foundation this morning. I'm going to cover a bit of regional history and dynamics, the outline the effect of North Korea on proliferation thinking, before canvassing the broader issues of a framework for strike and some of the options.

The strategic implications of regional proliferation of offensive strike capabilities is the title of my presentation, but I'm first going to ask the question "How much proliferation of offensive strike capabilities are we seeing in in our region?"

My answer is not as much as some may assume, given the pace and scale of regional military modernisation. That's if by 'offensive strike' we actually mean long range strike.

The Regional Environment

Regional militaries are buying advanced surface ships, radars, aircraft and submarines and equipping their platforms with advanced missile systems.

However, most regional nations have not yet really set out clear concepts for employment of these which involve power projection beyond their own territories. Nor are they acquiring long range strike options, although some – Japan amongst them—are musing on this.

India, China and North Korea are exceptions here.

Let me take you back to the Asia of yesteryear.

It's not so long ago that understanding Asian security meant understanding a set of sub-regional strategic contests which operated alongside each other but existed substantially independent of each other.

So, in Northeast Asia we had a divided Korean peninsula, a situation where the US and Japan tried to balance the Soviet Union, a China-Soviet Union dynamic, and a China-Taiwan contest.

Elsewhere we had a divided Southeast Asia, Sino-Indian tensions, and a burgeoning nuclear contest in South Asia between Pakistan and India.

The vestiges of those sub-regional balances remain—indeed, they still produce a comparatively rich understanding of regional security.

The formerly latent territorial and sovereignty disputes that existed – in places like the East China Sea, the South China Sea, the Taiwan Straits, and on the Korean Peninsula have become active as force modernisation has allowed nations to understand who is coming into disputed territory and to think they might do something about it.

And that helps explain why long-range offensive strike capabilities have grown only slowly: for most regional countries, the core of their strategic interest was the sub-regional environment, not the regional one.

Range tended not to be a priority, even for countries like India and Pakistan locked in an enduring nuclear contest. Moreover, for a few lucky countries—the US allies including Australia—offensive strike was primarily a mission filled by the US, not by themselves.

Even Australia, which once deployed F-111s and aircraft carriers has drifted away from strategic strike.

But gradually, that Asia—the Asia of subregions and US alliances—has been overlaid by a different Asia—or Indo Pacific.

The three large regional players, China, Japan and India, all of whom once played relatively limited strategic roles (for different reasons) have come out of their shells.

Economics and technology have been forces for greater cohesion among the subregions. And the growing competition for regional influence crosses the different subregions.

So far, the growth of offensive strike capabilities in their arsenals has been relatively muted. China's ICBM force, for example, is currently being modernised, but it remains a small force. So much so, that a determined North Korea might be able to deploy ten years from now an ICBM force larger than China's!

As regional multipolarity grows, and as the three regional great powers begin to play their more central strategic roles, the picture of Asia as a set of subregions will fade somewhat, and the picture of Asia as one region will grow.

Already, one of the biggest debates in Asia is not over specific subregions. It's over how we label the big region: is it the Asia Pacific, the Indo-Asia-Pacific, or the Indo-Pacific? My personal favourite is the "Globo-Pacific".

As our picture of Asia shifts, so too the role of long-range offensive weapons seems likely to become more prominent.

The Effect of the North Korea Precedent

We have to accept that regional proliferation of offensive strike capabilities is now more likely in the wake of North Korea's success with its missile and nuclear programs.

We might attribute part of that to mimickry, because weapons development patterns tend to suggest that mimickry follows upon success, just as avoidance follows failure.

Let's remember that North Korea initiated its missile and nuclear programs back in the 1950s, under Kim Jong Un's grandfather.

The decades of relative failure and the slow, halting progress of the NK programs diminished the likelihood that others would go down that path.

Now, though, North Korea has built, and tested, ICBMs!

It is, by far, the most primitive proliferator in nuclear history. But it has built, and tested successfully, a thermonuclear device!

Yes, at certain points Pyongyang has probably benefited from various forms of illicit technology transfer. Still, building ICBMs is hard work. North Korean proliferation says only this: if NK can do it, anyone can.

So, the successful testing of 2 ICBMs and a thermonuclear device in 2017 provide a demonstration model that others now are more likely to wish to follow, or at least respond to.

That's especially true given the rapid swing in North Korea's strategic fortunes: its evolution from regional pariah to summit partner with a US President; and its seeming emergence as an economic partner for South Korea.

Still, there aren't any other North Koreas in Asia.

The region's most likely proliferators at this point are actually status-quo powers, like Japan and South Korea, that might be driven over the threshold not by just, or even mainly, by mimicry of North Korea—but by anxiety about US security guarantees.

US President Trump's seeming willingness to give way on US allies' interests in his negotiations with Kim Jong Un – most obviously with his unilateral decision to halt US-ROK military exercises (and to use DPRK boilerplate language to describe them as 'provocative' 'wargames') is big news not just for the South Korea but for Japan and for other US allies – including Australia.

This signals that *America First* may not just mean trying to get allies to pay more for their defence, but also the potential for US security guarantees – including extended deterrence—to be less reliable.

Secretary Mattis has been strong in saying this isn't so, but Donald Trump, not Sec Mattis, is the President of the United States.

When it comes to something as fundamental as extended deterrence, saying that the undercurrent of US policy remains, or speculating about whether Trump will or won't get a second term is not a great way of generating confidence.

And who is to deny that a US President has a primary interest in securing the safety of US citizens, so taking steps to reduce the threat to the US mainland from DPRK missiles has a logic.

But that important, narrow logic comes with some very big broader strategic consequences.

A countervailing factor obviously is that North Korea had to doggedly pursue its missile and nuclear ambitions in the face of strident and pretty united international opposition, at a cost of significant economic and societal pain. As I said before, there are no more North Koreas in Asia.

But leaders considering the proliferation option would take some comfort from the way North Korea has been treated of late. Since proliferating, North Korea has been treated with greater respect and accommodation than it was previously.

Far from the international community cracking down on Pyongyang, precisely the opposite has happened! Kim Jong-un has become a recognised and accepted political leader on the international stage, a bearer of shared burdens in war avoidance.

What's the biggest indicator of the likely growth of offensive strike?

The growth of nuclear latency.

Not just nuclear skills, technologies and materials, but delivery vehicles.

Fortunately, the world's not filled with states champing at the bit to build nuclear weapons.

But the global non-proliferation structures are creaking badly.

It would take only one or two defections from the regime to make it quite likely for a wave of proliferation to unfold the like of which hasn't been seen since the early days of the Cold War.

Ironically, as I've mentioned, the bulk of those proliferators would be status quo powers, states which have traditionally sheltered under the US nuclear umbrella. If those states do cross the nuclear threshold—and Japan and South Korea are well placed to do so, it will increase the pressure on other US allies to reconsider their own options.

Then there's the issue of uncertainty. North Korea brings forth a suite of strategic problems. But some of the sharpest problems arise in relation to managing the relationships between current nuclear powers.

The cosy P5 club was disrupted by Israel, India and Pakistan proliferating. But none of those powers built ICBMs, weapons that threaten the global employment of nuclear weapons and not just regional employment.

Nuclear weapons are great equalisers.

But they can't be the basis of equality between North Korea and the US. In coming years we'll be struggling to unpack effective models of deterrence that stop Pyongyang from over-reaching.

The proliferation of offensive strike capabilities draws us deeper into a world of strategic uncertainty.

The world doesn't have good deterrence models for the nuclear contests between a rogue state and a superpower.

Classic deterrence works best as a relationship between two responsible, risk-averse great powers, both of whom have a sound understanding of the costs of great power war.

Deterrence relationships between risk-tolerant rogues and risk-averse superpowers are likely to be more fraught—not because the risk-tolerant state lightly runs nuclear risks but because it runs risks at the sub-nuclear level because it believes itself to be immune from retaliation.

Members of the audience who have read Jeffrey Lewis's recent novel, *The 2020 Commission* into the North Korean attack on the US, will know what I mean.

At a minimum, those emerging deterrence models threaten to make credible articulation of the US doctrine of extended nuclear deterrence more challenging.

That doctrine was built for a different age—the age of risk-averse near peer adversaries.

As I've mentioned above, it's not obvious to me that the US will be willing to run nuclear risks on behalf of its allies in a more densely proliferated nuclear world, where rogue actor behaviour is less predictable.

Now, you might be gathering that I'm not an advocate of Australia, Japan or South Korea becoming nuclear weapons states.

My basic reasoning for this is that a world with more people possessing and being able to use nuclear weapons is a world that is inherently more dangerous than the world we live in now.

Our first and by far most important line of reaction to the risks of nuclear proliferation should be to think what we and our partners can do to reduce that risk.

One big step is to keep the transparency light on North Korea in the post-Summit afterglow – and underline the fact that the North Koreans are showing no signs of actual denuclearizing – which for anyone who has listened to Kim Jong Un at and after the Summit and watched North Korea in the past is entirely unsurprising.

What is the role of non-ICBM offensive strike in this world?

Reading over the background note to the seminar, I very much enjoyed reading the good sense in setting out the fact that effective strike capabilities are much more than just a weapon system.

They rely on underpinning intelligence about adversary intentions, and operational concepts, adversary weapon systems, command and control systems and the systems and sensors that cue adversary weapons.

Similarly, use of a strike capability depends on an effective targeting system and your own command and control system.

I wondered about some elements of the background description though: there was a theme that Australia obtaining an ‘independent strike capability’ would help control escalation to conflict. It would provide a ‘powerful deterrent’ and a ‘means of demonstrating strategic intent’.

The assumptions behind these statements are worth examining over the course of the day.

In a world where a potential adversary is a nuclear armed one, I am a sceptic about the deterrent impact of non-nuclear strike.

The intimidation effect of a nuclear armed state is sufficiently great that this seems to me to be very likely indeed to stop an Australian Prime Minister from using offensive strike beyond Australia’s territories.

To take a pretty clear example, the idea of posturing to reach out and touch Beijing’s leaders with precision conventional weapons just seems outlandish to me as anything but a way of ensuring a destructive counterstrike that is not conventional.

So, who might Australia deter from what were Australia to have an independent strike capability?

It must be that elusive sweet spot actor who is not too big, not too small, but just right: they must have sufficient military capability to pose a real and direct threat to Australia, but they must not be a great power or be nuclear armed.

What might be the response to Australia actually employing an offensive strike capability?

What happens on the escalation ladder?

It reminds me of a Winnie the Pooh story. Kanga and her son Roo are new to the forest and the other forest residents—Winnie, Rabbit, Piglet—want to find a way to get them to leave.

Rabbit comes up with the plan. They’ll kidnap Roo and replace him in Kanga’s pouch with Rabbit. This will force them to leave.

Once Rabbit has explained his plan, Piglet asks “But what happens when Roo reaches into her pouch and finds me and not Roo?”

Rabbit says “Ah. Then *yousay* ‘AHA!’”.

Piglet is not convinced.

So, we need to think through what happens next, after offensive strike is used.

If Australia's strike capability is limited to very small numbers, perhaps dependent on small numbers of high value enablers, then how does an offensive campaign get sustained enough to be credible?

Deterring great powers or nuclear armed powers from attacking Australia still seems best dealt with by reinforcing our alliance relationship with the United States.

Australia's circumstance here is quite different to South Korea or Japan, as a situation where Australia's security is threatened directly is likely to be one of a wider regional conflict in which America's direct interests are more engaged even than in North Asia.

That brings me to another line of thinking: kinetic strike is not the only kind that can deter others. The rise of the cyber world has created a new potential form of long range strike: offensive cyber.

The attraction of this new capability is its global reach and its uncertainty: this kind of logic will be very familiar to the submariners in the audience.

The value of uncertainty about where a cyber capability is and what it might be prepared to affect makes it a tool of potentially large importance in the world of deterrence.

Yet its opacity and uncertainty can also reduce its value. And cyber tools tend to be boutique things that take a lot of preparation, but once revealed can be countered fairly rapidly.

So, the problem of how to signal capability without exposing it is one that is still to be worked out.

A further limitation on broad use of offensive cyber for strike is that containing the effect is not simple – think of the StuxNet virus that seems to have been intended for limited use on a non-internet connected system, but went beyond that, and of the cyber disruption brought about by Wannacry and NotPetya.

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Pre-positioned Army units with ground launched anti-ship and aircraft systems could work with regional partners to strike adversary forces at a distance from Australia.

Australia's new naval combatants —surface and sub surface—might be equipped with cruise missiles or missile systems that fit into the launcher cells of ships. These require pre-positioning.

The option of air delivered lethal effect at range needs to be considered along with such other strike options.

The good news is that any offensive strike capability Australia might consider needs many similar underpinning enablers and capabilities if it is to be targeted effectively and if decisions on use are to be made well.

Among the enablers will be strong policy frameworks that put the posturing of strike and its potential use within a broader strategic framework.

That must include a deeper appreciation of escalation ladders – and de-escalation ladders—with the answer to what happens after use of the capability needing to be a much better one than Rabbit gave Piglet when Rabbit planned the kidnapping of Roo.

Deterrence in the Australian Evolving Strategic Environment: The Perspective of Wing Commander Jo Brick

09/19/2018

By Robbin Laird

The Williams Foundation seminar on joint strike and deterrence held in Canberra on August 23, 2018, was led off by a presentation by Wing Commander Jo Brick.

The WGCDR focused on looking back at the experience of the RAAF in the strike domain historically and then posing questions about the way ahead for the RAAF within a joint force.

What is the role of joint strike in an Australian deterrent strategy?

She started by providing an overview of how she saw the context and the challenge for Australia today.

Since the advent of air power in the early 1900s, the threat of bombardment – both nuclear and conventional – has been perceived as one of the most effective measures for deterring potential aggressors or punishing those who have dared to cross the threshold of force.

Deterrence is broadly defined as ‘discouraging states from taking unwanted military actions, especially military aggression’.

The strike capability that is offered by air power as a result of its characteristics – reach, responsiveness, firepower, and precision – and have made it a useful means by which to assert a deterrence strategy.

Notably, much of the discussion in the 1970s and 1980s focused on the central place of air power in delivering Australian strike capability. In relative terms, during this period, land and maritime forces were not seen to have a significant role in offering a deterrent strike option, though both of them did add to Australia’s overall deterrence posture.

Further, much of the deterrence thinking during the Cold War focused on strategic nuclear options that were delivered via Intercontinental Ballistic Missiles or heavy bomber aircraft.

This again skewed much of the thinking regarding deterrence towards the primacy of strike via air power. The relatively favourable position occupied by Air Forces in this regard became a solid foundation for an independent Air Force that was not just an adjunct to the Navy or Army.

The end result of all these developments was a line of reasoning that inevitably fused deterrence with strike (bombardment) and air power.

This model was useful for Western countries during the Cold War, when there was a known threat – the Soviet Union – that could form the subject of detailed deterrence strategies; and when air power capability was the most appropriate option to support it.

The contemporary security environment offers a different set of challenges from the Cold War that arise from the changing character of war.

There are multiple, diverse, threats from both state and non-state actors; the information domain has become a vital part of the battlespace that must be managed accordingly; and there have been revolutionary developments in the means and methods of war.

This includes the increasing accuracy and range of weapon systems available to all the Services, the development of non-kinetic options that may also offer the same effects as traditional kinetic strike, and an integrated approach to warfare.

All these factors will require Australia to determine the kind of military posture that is required to maintain an effective and credible deterrence strategy in this context.

While deterrence and strike will continue to be linked, air power is unlikely to remain the primary provider, with greater emphasis being placed on the enhanced capabilities delivered by joint strike.

Further, as the lines between peace and war become blurred, strike as a deterrence option must be nested within broader conceptions of diplomacy and strategic engagement that accommodate ongoing shaping and influencing efforts, through effective management of the information environment, that form Australia's narrative of deterrence.

During her look back, she addressed the role of the F-111 as well as thinking at the time of the acquisition of the F-111 with regard to nuclear weapons.

This was an especially important phase in Australian deterrent thinking because it combined the acquisition and operation of a long range-strike platform with considerations of nuclear deterrence as well, something which may clearly be on the agenda again for Australia.

During the late 1950s military strategic guidance asserted the prevalence of limited war over global war, and the need for Australia to develop military forces that could form part of an alliance or take independent action to defend Australia's northern approaches against potential aggressors.

Strike aircraft, for the purposes of deterrence, were central to this policy.

The Chiefs of Staff Committee at the time considered that China and Indonesia posed the likely air threat to Australia.

The Sukharno policy of 'Confrontation' towards the new state of Malaysia also elevated the perceptions of the threat posed by Indonesia in the early 1960s. These factors led to policies that emphasised the need to deter such potential aggressors through the development of a strong air strike capability.

As a result, in 1963, the Menzies government ordered a number of 'Tactical Fighter Experimental' or 'TFX' bombers – later renamed the F-111, which remained the RAAF's primary strike aircraft during the Cold War until its retirement in 2010.

Before the decision to acquire the F-111, tactical nuclear weapons for the Canberra bomber were also considered, but the option was shelved due to intelligence assessments that dismissed the possibility of nuclear attack on Australia as a primary target.

Further, reliance was placed on the nuclear umbrella provided by the United States under the ANZUS alliance.¹⁹ For the RAAF, the conventional bomber became the 'strike force' that was seen by the air staff as 'the essence of deterrence' and 'the primary expression of military strength'.

Strike aircraft were necessary for seizing control of the air through destruction of enemy air forces on the ground, followed by the destruction of strategic targets, and then support to the Navy and Army.²¹

This doctrinal foundation was maintained throughout the 1980s and 1990s.

After having provided an overview on the past and the key role which strike aircraft have played on Australian deterrent thinking within an alliance with the United States, WGCDR Brick then considered the relevance of this narrative to the contemporary situation and shaping a way ahead for the ADF within an evolving Australian deterrent strategy.

The emergence of new security threats such as non-state actors, and the significance of information as the currency of the 21st century, means that approaches to deterrence must be reconsidered.

Credible conventional options for Australia go beyond air power, and require an effective and integrated joint force.

Communicating a credible message to opposing countries requires a consistent narrative that involves hard and soft power options and a consistent deterrence message that bridges war and peace.

These approaches to deterrence require Western countries, such as Australia, to take a long term and coordinated approach to national strategy, whose credibility is underwritten by a resilient and capable joint force.

Her focus was upon the importance of the joint force providing capabilities for the Australian government to be able to shape a variety of coercive or persuasive means against potential adversaries.

Although she did not put it this way, the key challenge of crisis management with peer adversaries has become a central one, and deterrent strategy needs to be built to allow Australia and her alliance partners to find ways to persuade authoritarian states that the risk outweighs the gains to engage in or continue challenging Australian interests.

She clearly has in mind the ADF shaping a much wider range of joint tools within its quiver to allow the Australian government to expand its options sets with regard to influencing adversary behavior.

Developments in military capability, including non-kinetic options such as cyber-attack, have provided the ADF with the opportunity to create integrated joint capabilities to support Australia's deterrence strategies.

She then added her assessment of the Russian approach and its relevance to innovations in 21st century approaches to deterrence.

While deterrence has always been considered a whole-of-government strategy, the added complexity of the current strategic context requires us to re-consider the importance of all elements of national power.

An example of this is the holistic approach to deterrence that can be found in Russian strategic culture, which takes a 'cross-domain' approach to coercion that is tailored for different actors.

What is interesting about the Russian approach is the significance that is accorded to the informational tools of influence, involving manipulation of an opponent's perception of reality to impact on decision-making.

Termed, 'informational struggle', it involves a holistic merging of digital and cognitive-psychological actions; it is unified in that it synchronises kinetic and non-kinetic military effects; and it is continuous or uninterrupted in that it is employed in peace and in war.

The Russian approach involves a merging of hard and soft instruments of power. Conventional deterrence theories are centred on military capabilities – I just spoke about joint and integrated warfare previously.

However, given that deterrence is largely about communication and credibility, the incorporation of hard and soft power, and the focus on information effects in Russian deterrence theory has much to offer the Western strategist considering deterrence in the 21st century.

The approach to deterrence, the narrative as the WGCDR put it, is a key part of building 21st combat forces and shaping their concepts of operations.

It is not just about abstract capability or filling out the pages of a Jane's catalogue on military equipment, it is about an ability to prevail in a crisis and to position oneself to be on the right side of war termination.

As Paul Bracken has put it with regard to the challenge:

The key point for today is that there are many levels of intensity above counterinsurgency and counter terrorism, yet well short of total war. In terms of escalation intensity, this is about one-third up the escalation ladder.

Here, there are issues of war termination, disengagement, maneuvering for advantage, signaling, — and yes, further escalation — in a war that is quite limited compared to World War II, but far above the intensity of combat in Iraq and Afghanistan.....

A particular area of focus should be exemplary attacks.

Examples include select attack of U.S. ships, Chinese or Russian bases, and command and control.

These are above crisis management as it is usually conceived in the West.

But they are well below total war.

Each side had better think through the dynamics of scenarios in this space.

Deep strike for exemplary attacks, precise targeting, option packages for limited war, and command and control in a degraded environment need to be thought through beforehand.

The Russians have done this, with their escalate to deescalate strategy.

I recently played a war game where Russian exemplary attacks were a turning point, and they were used quite effectively to terminate a conflict on favorable terms.

In East Asia, exemplary attacks are also important as the ability to track US ships increases.

Great power rivalry has returned.

A wider range of possibilities has opened up.

But binary thinking — that strategy is either low intensity or all-out war — has not.

The deterrence narrative which WGCdr Brick is calling for needs to operate in the domain described by Bracken.

Expanding the Reach of the Australian Reconnaissance-Strike Enterprise

09/18/2018

By Robbin Laird

As Australia looks to expand its sovereign options, expanding the reach of its reconnaissance-strike enterprise is a key tool set to do so.

As presenters suggested at the Williams Foundation conference, it was less a question of reaching and striking deep into potential adversaries' territory and more influencing the behavior of those adversaries as they reached out into the Pacific to directly affect Australian interests and territory.

This means that targeting needs to be specific and be guided by accurate C5ISR systems which could provide strike options at greater reach, range and speed for the ADF. This could be done by systems at sea in the air, or launched from Australian territory or as part of a forward deployed force.

This requires shaping a range of integrated capabilities to provide for the reconnaissance and decision-making side of a strike capability.

The Aussies already have in train several capabilities to shape an extended capability in this domain, notably the F-35 and its regional reach through its interconnected sensor grid, and the P-8/Triton dyad.

And as well, the Australians could be in a good position to leverage the innovations going on in the space business which can provide some new capabilities which could be integrated as well within an expanded reconnaissance and decision-making grid operating further and deeper into the Pacific.

(See the appendix below to read further on the impacts of each of these systems on the reconnaissance side of the strike enterprise, namely, the F-35 global enterprise, the P-8/Triton dyad, and the space business. We have written extensively about Wedgetail but it too is a key element of the learning curve for how to operate a longer-range reconnaissance strike enterprise).

At the Williams Foundation seminar, Michael Tarlton, Program Director, Northrop Grumman Aerospace Systems, provided an overview of how the evolving capabilities of remotely piloted aircraft could play an enhanced role for the ADF as they rework the range and reach of their reconnaissance-strike enterprise.

He started his presentation by examining the range and reach which the RAAF might wish to prioritize in the evolving strategic environment in their region.



What this graphic highlights is the importance of expanded reach in the defense of Australia and its interests and the importance of being able to curtail the intrusions of adversaries into the air and maritime space crucial for Australian defense.

To do so, will require both persistence and reach, for which remotely piloted vehicles, such as Triton can provided, and can do so in a complimentary role to other air, maritime ground and space systems.

He argued that a remotely piloted vehicle had several advantages for a combat force.

First, there is a significant increase in the ability to conduct missions for longer periods of time.

Second, there is enhanced survivability in persistent operations.

Third, there was no aircrew capture/casualty risk.


And, finally, there are significant potential cost effectiveness advantages, notably with regard to life-cycle costs.

He argued that by flying aerial refuelling remotely piloted vehicles, one could achieve a good balance between endurance and payload to perform the core missions which the vehicle would perform

The core endurance of the unrefueled air vehicle of 8-10 hours is clearly feasible and with aerial refueling much longer periods of operation are possible.

Remotely piloted vehicles can be configured for a variety of platforms. By building an aircraft capable of carrying multi-role mission payloads, air-to-surface and air-to-air roles can be performed. And a mix or core focus on ISR/T, EW or Strike roles can be prioritized.

But a key element for the future considerations of remotely piloted vehicles within the overall combat force really rest on their flexibility in terms of the configurability noted above, but also life cycle costs.



Training Category	Pilot Flight Hour Burden	Pilot	Command-Function UAS
Basic Flight Skills and Specific Platform Flight Skills	200-300 Flight Hours Before Squadron Assignment	Unavoidable: Simulation already heavily used	MMCS functions: little value added from actual flight hours
Ongoing Flight Skills Certification Training	Up to 30 Hours per Month/AC [Combat Substitutes]	Unavoidable: Automation could plausibly reduce	MMCS functions: little value added from actual flight hours
Live Fire Exercises	Infrequent	Unavoidable	Unavoidable
End-to-End Mission Exercises	Infrequent	Unavoidable	Unavoidable
Joint Manned-Unmanned Exercises	Infrequent – but will increase	Unavoidable	Unavoidable
Maintainer Training	None	[Automatic benefit]	Can be scheduled, if otherwise insufficient, very little need for additional <i>flight</i> hours

With regard to the costs of operating manned aircraft about 60% of the cost is for operations and support. He argued that comparing a pilot versus a UAS operator support model highlighted why life cycle costs will be much lower for the UAS.

In short, as the ADF worked on shaping a longer range reconnaissance-strike enterprise, Tarlton argued that remotely piloted vehicles could play an important role in the evolving integrated force designed to deliver the kind of strike capabilities which could support an integrated ADF.

Appendix

The F-35 Global Enterprise

Shaping Redundant Response U.S. Military Space Capabilities

[Space News](#)

In a recent report by the U.S.-China Economic and Security Review Commission, the evolving threat to U.S. space capabilities was highlighted. “China is pressing forward with an ambitious counterspace program, including a ground- and space-based space surveillance systems, electronic warfare capabilities, and kinetic kill vehicles,” the report said.

As the United States shapes an Asian pivot, the ability to network U.S. and allied forces is growing in importance. The Chinese understand this, and their counterspace program is designed precisely to degrade such U.S. and allied capabilities and to undercut confidence in what the U.S. and its allies can do to deal with threats in the Pacific and beyond.

The answer to such a challenge is clearly robust and redundant space-enabled C5ISR (command, control, communications, computers, combat systems, intelligence, surveillance and reconnaissance) capabilities. But the response is not simply in terms of space platforms, it is about building from the recognition that air breathing systems being deployed and about to be deployed into the Pacific provide crucial building blocks for robust redundancy.

“No platform fights alone” is a key point in understanding the design of the attack and defense enterprise of the 21st century. Space platforms are not being tasked to provide the only response to a Chinese counterspace threat. Rather, the entire C5ISR enterprise built into a honeycomb is the correct response and approach.

The Pacific capability of the U.S. military can be built around three principles: presence, economy of force and scalability. Presence refers to having U.S. forces present and interdependent with allied forces in the Pacific. Economy of force is built around not having to bring overwhelming force to presence. But that only works if the force is scalable and has the capability to reach back and up to a surge of capability to provide for overwhelming force as necessary.

The key linchpin to do this is the C5ISR enterprise in the Pacific. With robust and redundant ISR, the enterprise enables a distributed force presence to be honeycombed. That is, the network is not about hierarchy and the ability of an adversary to whack the head of the hierarchy; it is about a honeycomb of deployed and distributed capability that no adversary can cripple with a single or easy blow.

A key element for shaping a robust and redundant ISR system in the Pacific is the F-35, a tactical aircraft with strategic impact. The new aircraft is a flying combat system that has C5ISR built into the cockpit. As a fleet, the F-35s provide a critical layer in shaping a robust and redundant ISR system, which is both synergistic with space systems and complementary to those systems.

A deployed fleet of F-35s — allied and U.S. — provides a powerful deterrent to any Chinese thought of a first strike on U.S. military space systems. It makes such a strike significantly less effective and useful to Chinese military planners. From the outset, the deployed fleet and space systems forge a powerful deterrent capability.

To understand how the F-35 can intersect with the deployed C5ISR systems and provide robust redundancy for military space, it is important to understand briefly what the F-35 actually is. The F-35 is often simply referred to as a tactical aircraft, and a replacement for fourth-generation or legacy aircraft. It is really something quite different.

It represents a dramatic shift from the past. Individual F-35 pilots will have the best database of real-time knowledge in the history of combat aviation. And all of this is internal to their cockpit and enabled by advances in computer processing and sensor information fusing.

Each F-35 pilot combined with human sensing (seeing visual cues outside the cockpit) will be enabled by machine-driven sensor fusion to have combat situational awareness better than any opponent.

Concurrent with their ability to look-see, which is limited by physical realities, the F-35 pilots will be able to “see” using cockpit electronic displays and signals to their helmet allowing them not to just fight with their individual aircraft but be able to network and direct engagements at more than 1,200 kilometers in 360 degrees of three-dimensional space out to all connected platforms.

A fleet of F-35s will be able to share their fused information display at the speed of light to other aircraft and other platforms, such as ships, subs, satellites and land-based forces, including unmanned aerial vehicles and eventually robots. Tactically, “Aegis is my wingman,” “SSGN is my fire support” will be developed for conventional warfare.

This enables a “tactical” aircraft to evolve into a key technology for strategic operations and impacts.

The F-35 is known as a fifth-generation player in the state-of-the-art for both the air-to-air fighter and air-to-air attack combat roles. It also adds an electronic warfare component to the fight.

Electronic warfare is a complex subject with many discreet but also connected elements. It was designed inherently into the F-35 airframe and C5ISR-D (for decision) cockpit.

Electronic warfare can include offensive operations to identify opponents’ emissions in order to fry, spoof or jam their systems. In successful electronic war, often-kinetic kill weapons can be fired. An F-35 can be a single sensor/shooter or offload its track to other platforms such as planes, ships and subs and eventually unmanned aerial combat systems.

The kinetic kill shot is usually a high-speed missile designed to home on jam. It has been said on the modern battlefield — air, sea or land — if not done correctly,

“You emit and you die.”

Defensively in electronic warfare there are a lot of other issues, such as electronic countermeasures, electronic counter-countermeasures, and all things “cyberwar,” which is a subject unto itself, extremely complex and not well understood.

Electromagnetic pulse concerns, infrared sensing, always protecting “signals in space” of the friendly info being transmitted and, as mentioned, jamming opponents’ signals, all are key considerations in electronic warfare.

What is necessary to succeed in evolving capabilities to fight in the age of electronic warfare?

In taking a lesson from history, before World War II, AT&T long lines research found that in order to build and keep operational a U.S. phone system, the key to success was the need for “robust and redundant” systems.

Two generations later, the F-35 was designed as both inherently robust and redundant with many sensors and systems built into the airframe structure from initial design forward. All the F-35 systems designed and developed sent electronic information into the aircraft cockpit “fusion engine.” Trusted fusion information generated by inherent aircraft systems, queued up electronically by threat, will send to the cockpit displays and the pilot’s helmet battle-ready, instantaneous situational awareness.

The ability of the deployed F-35s — again owned by allies as well as U.S. forces — presents a diversified and honeycombed presence and scalable force. This baseline force is significantly enhanced by reachback to space assets, but the space assets now receive redundancy by being complemented as well by a deployed fleet of flying combat systems. This joint capability means that the value of space-based targets goes down to the Chinese or whomever, and diversification provides significant enhancement of deterrence as well.

In short, in rethinking the way ahead with regard to military space — notably in a period of financial stringency — getting best value out of your entire warfighting enterprise is highlighted. Reorganizing the space enterprise within an overall C5ISR approach enabled by a honeycombed fleet of F-35s is a strategic opportunity of the first order.

And this re-enforces an American and allied advantage in facing competitors like China. In countless articles on the People’s Liberation Army and its way of war, author after author refer to the brilliance of Sun Tzu and his “Art of War.” The point they often make is always be alert to advantages accruing to the side that creates an “asymmetric war” advantage.

The evolving capability described above actually foreshadows U.S. and allied asymmetric robust and redundant strategic technologies. It is the beginning of a new level of deterrence against proliferating 21st century threats.

However, one of the best examples of the American “Art of War” was forcefully stated by William Tecumseh Sherman, a West Point-trained officer who arguably was one of the most visionary and capable generals in history. His words 150 years ago cautioning the South not to trigger a war still ring true to this day: “You are rushing into war with one of the most powerful, ingeniously mechanical and determined people on Earth — right at your doors. You are bound to fail.”

The Triton and Expanded Situational Awareness for the ADF

In an interview with the Commander of the RAAF’s Surveillance and Response Group, Air Commodore Craig Heap, the role of Triton in expanding the reach of the ADF was highlighted.

“For example, in a HADR event, the first thing we’ll send out is a Triton.

“It will be there probably within five to 10 hours of the first reports.

“It can be sitting on top of a remote disaster area, a South Pacific nation for example affected by a cyclone, earthquake or tsunami, obviously with the nations permission, to pushback real-time information regarding the situation on the ground, in areas that previously might have taken weeks to assess

“It might even be relaying.

“It will be providing significant information that can then inform other whole of government international relief capabilities, be they C-17’s, maritime, orland assets, that are going to roll in with a better understanding of the support required to help the people in the affected area.

“We see that as one of our key roles.

“And that’s obviously one of the reasons we are acquiring the Triton, because of the extreme ranges we have to deal with, including the huge expanses of water, but also on occasions in the region in an overland scenario.”

The P-8/Triton Dyad and Its Impact

In a story which we published on July 11, 2016, we discussed the role of the P-8/Triton as a dyad providing significant enhancement of the reconnaissance strike capabilities for the US Navy.

On May 23 and 24, 2016, during a Jacksonville Naval Air Station visit, we spent time with the P-8 and Triton community which is shaping a common culture guiding the transformation of the ASW and ISR side of Naval Air. The acquisition term for the effort is a “family of systems” whereby the P-3 is being “replaced” by the P-8 and the Triton Remotely Piloted Aircraft.

But clearly the combined capability is a replacement of the P-3 in only one sense – executing the anti-submarine warfare function. But the additional ISR and C2 enterprise being put in place to operate the combined P-8 and Triton capability is a much broader capability than the classic P-3. Much like the Osprey transformed the USMC prior to flying the F-35, the P-8/Triton team is doing the same for the US Navy prior to incorporating the F-35 within the carrier air wing.

In addition to the Wing Commander and his Deputy Commander, who were very generous with their time and sharing of important insights, we had the opportunity to interviews with various members of the VP-16 P-8 squadron from CO and XO to Pilots, NFOs and Air Crew members, along with the wing weapons and training officer, the Triton FIT team, and key members of the Integrated Training Center. Those interviews will be published over the next few weeks.

The P-8/Triton capability is part of what we have described as 21st century air combat systems: software upgradeable, fleet deployed, currently with a multinational coalition emerging peer partnership. Already the Indians, the Aussies and the British are or will be flying the P-8s and all are in discussions to build commonality from the stand-up of the P-8 Forward.

Software upgradeability provides for a lifetime of combat learning to be reflected in the rewriting of the software code and continually modernizing existing combat systems, while adding new capabilities over the operational life of the aircraft.

Over time, fleet knowledge will allow the US Navy and its partners to understand how best to maintain and support the aircraft while operating the missions effectively in support of global operations.

Reflecting on the visit there are five key takeaways from our discussions with Navy Jax.

A key point is how the USN is approaching the P-8/Triton combat partnership, which is the integration of manned, and unmanned systems, or what are now commonly called “remotes”. The Navy looked at the USAF experience and intentionally decided to not build a the Triton “remote” operational combat team that is stovepiped away from their P-8 Squadrons.

The team at Navy Jax is building a common Maritime Domain Awareness and Maritime Combat Culture and treats the platforms as partner applications of the evolving combat theory. The partnership is both technology synergistic and also aircrew moving between the Triton and P-8

The P-8 pilot and mission crews, after deploying with the fleet globally can volunteer to do shore duty flying Tritons. The number of personnel to fly initially the Tritons is more than 500 navy personnel so this is hardly an unmanned aircraft. Hence, inside a technological family of systems there is also an interchangeable family of combat crews.

With the P-8 crews operating at different altitudes from the Triton, around 50K, and having operational experience with each platform, they will be able to gain mastery of both a wide scale ocean ISR and focused ASW in direct partnership with the surface navy from Carrier Strike Groups, ARG/MEUs to independent operations for both undersea and sea surface rather than simply mastering a single platform.

This is a visionary foundation for the evolution of the software upgradeable platforms they are flying as well as responding to technological advances to work the proper balance by manned crews and remotes.

The second key point is that the Commanders of both P-8 aviator and the soon to be operational Triton community understand that for transformation to occur the surface fleet has to understand what they can do. This dynamic “cross-deck” actually air to ship exchange can totally reshape surface fleet operations. To accelerate this process, officers from the P-8 community are right now being assigned to surface ships to rework their joint concepts of operations.

Exercises are now in demonstration and operational con-ops to explain and real world demonstrate what the capabilities this new and exciting aspect of Naval Air can bring to the fleet. One example was a recent exercise with an ARG-MEU where the P-8 recently exercised with the amphibious fleet off of the Virginia Capes.

The third key point is that the software upgradeability aspect of the airplane has driven a very strong partnership with industry to be able to have an open-ended approach to modernization. On the aircraft maintenance and supply elements of having successful mission ready aircraft it is an important and focused work in progress both inside the Navy (including Supply Corps) and continuing an important relationship with industry, especially at the Tech Rep Squadron/Wing level.

The fourth point is how important P-8 and Triton software upgradeability is, including concurrent modification to trainer/simulators and rigorous quality assurance for the fidelity of the information in shaping the future of the enterprise. The P-8s is part of a cluster of airplanes which have emerged defining the way ahead for combat airpower which are software upgradeable: the Australian Wedgetail, the global F-35, and the Advanced Hawkeye, all have the same dynamic modernization potential to which will be involved in all combat challenges of maritime operations.

It is about shaping a combat learning cycle in which software can be upgraded as the user groups shape real time what core needs they see to rapidly deal with the reactive enemy. All military technology is relative to a reactive enemy. It is about the arsenal of democracy shifting from an industrial production line to a clean room and a computer lab as key shapers of competitive advantage.

The fifth point is about weaponization and its impact. We have focused for years on the need for a weapons revolution since the U.S. forces, and as core allies are building common platforms with the growth potential to operate new weapons as they come on line. The P-8 is flying with a weapon load out from the past, but as we move forward, the ability of the P-8 to manage off board weapons or organic weapons will be enabled.

For example, there is no reason a high speed cruise or hypersonic missile on the hard points of the P-8 could not be loaded and able to strike a significant enemy combat asset at great distance and speed. We can look forward to the day when P-8s crews will receive a Navy Cross for sinking a significant enemy surface combatant.

In short, the P-8/Triton is at the cutting edge of naval air transformation within the entire maritime combat enterprise. And the US Navy is not doing this alone, as core allies are part of the transformation from the ground up.

Australia and Leveraging the New Space Industry

In a recent article published in The Australian by Alan Dupont, resident fellow at the Lowry Institute, the potential for Australia to leverage the new space industry was highlighted.

The US operates several kinds of satellites to which Australia has access because of our alliance and membership of the “five eyes” intelligence community that includes Britain, Canada and New Zealand. There are satellites equipped to provide imagery from: visible light photographs, radar or reflected infra-red emissions; early warning of ballistic missile launches; signals analysis from monitored radio and electronic emissions; and measurements of seismic, acoustic, chemical and biological signatures.

In 2001, the US used nearly 50 satellites in the search for Osama bin Laden. A decade later several intelligence satellites were used to help track him down and kill him in his Pakistani hide-out. If North Korea were to contemplate a nuclear attack against Australia, the first indication of a ballistic missile launch would come from a US missile early warning satellite relayed through a ground station that forms part of the Australia-US Joint Defence Facility at Pine Gap outside Alice Springs.

The ADF is also a heavy user of the US Wideband Global Satcom system, which provides rapid and secure communications for deployed troops and links them to our new ships, aircraft and drones. The holy grail of this increasingly integrated satellite architecture is a comprehensive picture of the battlefield and an adversary’s strategic capabilities regardless of weather, terrain and time.

Maintaining privileged access to this network of US satellites will be far more difficult under Donald Trump’s transactional approach to alliances, which places a premium on burden sharing. Developing complementary, niche space capabilities would blunt criticism we are not pulling our weight and strengthen our alliance credentials as well as the economy.

Obvious candidates for investment include: “launch on demand” Australian rockets and satellites to monitor a geopolitical crisis or support our troops on operations; a network of ground stations, incorporating advanced machine learning, to receive and process the information retrieved from satellite downloads; and nurturing promising technologies such as laser tracking of space junk where our science is leading edge.

While it is not the ASA’s role to pick commercial winners, the agency would be wise to keep abreast of national security requirements when thinking about the strategic direction of our space industry. Biddington is adamant Australia “needs a space strategy that embraces all aspects of space activity”, both civilian and military, as they are joined at the hip.

Integrating the security and civilian dimensions of space policy into a cohesive national strategy to create a 21st-century industry should not be beyond us, but sceptics worry our latest venture into space may crash and burn on the rocks of complacency, indifference and unrealistic expectations.

Such an outcome would be an indictment of our political culture, a failure of vision and another lost opportunity to develop a sovereign space industry that could help make Australia a genuinely smart country. Let’s hope we get it right this time.

EOS and the Australian Space Business

EOS is a world leading sensor company and is an important player in the space business and well aware of developments globally.

In an interview with the CEO and founder of EOS, Dr. Ben Greene, the space side of the business was discussed.

Question: Let us turn now to the space side of your business. Could you describe the focus of your payload business in this domain?

Dr. Greene: We have built core capabilities to enhance situational awareness in space. We irradiate certain areas of space with lasers, and we then analyze the reflected returns.

We can determine range from that. We can also determine other elements of the spacecraft from a light signal directed at that spacecraft.

We have been in this business area for 40 years.

Question: How would you describe the complementarity of radars with lasers in terms of providing key ISR performance?

Dr. Greene: They're very complimentary. Radars are exceptionally good at detecting anything that's moving in a large area of space. Lasers are very good at characterizing that object and that motion very accurately.

For example, we can detect UAVs with radars and kill them with lasers.

The same thing applies on a much larger scale in space.

So space is really consists of two domains. There's 2,000-kilometer zone around the Earth, which is the lower Earth orbit.

In the space domain above two or three thousand kilometers, only optics applies, and so the lasers can operate to two or three times the range that radars can operate, and beyond that we have passive optical techniques with extreme range, where both laser and radar techniques fail.

And so the entire space domain from 3,000 kilometers to 50,000 kilometers is managed optically with lasers and light.

Question: Your work is rooted in a very strong working relationship between Australia and the United States.

How would you describe that relationship?

Dr. Greene: I think that there's a very strong two-way relationship.

Australia can offer special aspects of territory in terms of where we sit in the world physically, in terms of our geography. In addition, our technology combined with operating within our specific climate, means that if we deploy optical technologies from Australia, they are of immense value in terms of the information captured from the platforms that we deploy here.

That information can complement and support the intelligence database that US would apply for space information. And we would like to contribute to space information superiority for the alliance in that sense.

We've had a very strong program here that has always been a joint program with the US from its inception.

There's always been significant US participation in our program.

Wedgetail: Recent Pieces

<https://sldinfo.com/2016/04/the-wedgetail-the-raaf-and-shaping-a-way-ahead-for-the-australian-defense-force-a-discussion-with-the-commanding-officer-of-the-42nd-wing/>

<https://sldinfo.com/2017/08/an-update-on-wedgetail-and-shaping-a-way-ahead-with-a-software-upgradeable-multi-mission-21st-century-combat-capability/>

Independent Strike and Australian Sovereign Options: The Perspective of Air Marshal (Retired) Geoff Brown

09/16/2018

By Robbin Laird

The Williams Foundation has held a series of seminars over the past few years, which have progressively looked at the transformation of the Royal Australian Air Force and to the shaping of cross-modernizing Australian Defence Force. Referred to overall as building a fifth generation force, the focus has been upon how force integration can be enhanced in the process of Air Force, Army and Navy modernization.

The core point is that an integrated force can provide a more effective impact for what their force can achieve as well as to enhance its deterrent impacts.

But with the growing nature of the challenges in the region, notably from the North of longer range strike and systems able to operate against Australia, what needs to be woven into the force integration process to give the Australian government a wider range of sovereign options?

While the main thrust of Australian investments is upon force integration, the sovereignty focus is very clear but how best to bring a more decisive edge to the force and give it greater reach is not.

Sovereignty is clearly evident in the shipbuilding program where Australia is tapping the United States, Britain and France to shape a way ahead in building the new Australian Navy. With the United States, a key emphasis is commonality with regard to combat systems and a continuing recognition of the key role working with the United States military in the region really is for the operational approaches of the Australian forces themselves.

Both Britain and France present interesting cases of sovereign emphasis by the most significant military powers within Europe. For the Brits, the shipbuilding relationship is a key part of preparing for the post-Brexit process, which is rooted in the expression of sovereignty. For the French, de Gaulle invented the French approach to sovereignty in defense within NATO by building the French nuclear deterrent.

It is clear that the working relationship with the United States, Britain and France is a work in progress while Australia crafts its way forward in shaping its 21st century defense force and its approach to crisis management.

And in the background of this strategic reconfiguration is the future of Japanese security and defense policy in the region and how Japan will build its forces and invest in defense industry for the next two decades.

It is clear that United States remains the core partner for these states; but reconfiguration of those relationships is clearly under way.

The latest Williams Seminar focused on discussing the idea of building an independent strike capability Australia, one that builds upon or leverages the integrated force building process?

What should Australia do as it is faced with nuclear threats in the region?

What should Australia do with the Chinese building out strike capabilities clearly capable of striking Australian operational forces and evolving capabilities for greater reach into the continent itself?

The seminar was held on August 23, 2018, and a report will follow. The main thrust of the seminar was to discuss the changing strategic environment and considerations for what Australia might do next.

It was less focused on the types of systems or capabilities Australia might acquire and more focused on cutting through the Australian strategic culture to put independent options onto the table.

After the seminar, I sat down with Air Marshal (Retired) Geoff Brown, Chairman of the Williams Foundation, to discuss the seminar and the way ahead for the ADF.

Question: How do you view the way ahead with regard to the evolution of the ADF to provide a wider range of sovereign options?

Air Marshal (Retired) Brown: The Defence White Paper of 2016 guides the current modernization effort. It provided a coherent framework for force modernization.

But a lot has changed since then and we need to rethink the strategic guidance and the shape some additional force modernization elements.

The future is much more unpredictable. With Trump, we have seen a honest statement of the priority of American interests. We need to take account of the priority, which America will place, on its interests when we go forward. And to be clear, this is not simply Trump, but the reality of what powers will do in an Alliance as well.

We need a much more sovereign approach to defense.

That's not saying we should walk away, or not contribute to or benefit from the American alliance. But, we've got to be much more prepared to be able to act on our own in certain circumstances.

And by being able to do so, we will be a better Alliance partner as well,

Question: There clearly is the nature of the changing threat to Australia as well, notably in terms of North Korean nuclear weapons and the Chinese pushing their capabilities out into the Pacific and expanding their regional presence as well.

How do you view this part of the equation of the need for greater sovereignty?

Air Marshal (Retired) Brown: We need to have a greater capability to hold competitors at risk at greater range and distance.

The North Korean case shows that nuclear weapons are not going away any time soon. The Chinese have clearly focused on significant investments in longer range strike.

This means as we do the next defense review, we need to focus on options which can allow us to deal directly with these challenges and to shape how we do so within the reworking of the relationship with our allies going forward.

We need a major reset building upon the force integration process which we have set in motion.

Do Japan or South Korea go nuclear?

We need to have a realistic discussion of the nuclear impact on our defense policy as well.

What makes sense to do?

And how to do it?

Question: The question of the reach of Australian forces in a conventional sense also raises the question of the relationship between Australian territory, notably NW and Western Australia and the evolution of your defense forces?

How does the territorial dimension come back into play?

Air Marshal (Retired) Brown: Clearly, we need to look at ways to enhance our force mobility and to build out both active defense and long-range conventional strike in our territories closest to the areas of operational interest, both ours and the competitors.

The Australian Army is focusing in part in the evolution of forces both defensive and offensive, but we need a bigger commitment on this side of the force and with longer range, which could operate from our own territory as well as being projected forward outside of Australia.

Question: How does the strategic shift in Australian industry fit into this calculus of enhanced sovereignty?

Air Marshal (Retired) Brown: It is crucial.

As you noted, the shipbuilding side of industry is clearly about sovereignty and we need to look to expand sovereignty in the strike domain as well.

A key area going forward clearly should be in the missile development, build and sustainment area, where we can clearly build out our own capabilities in relationship with core allies also interested in this process.

And by flying the F-35 with a number of partner nations, there clearly is an opportunity to build out this capability as well.

Question: I assume if you are interested in longer range strike you would be looking to something in the range of a 2,000 mile missile but given the focus on industry and working with allies,

wouldn't a modular build process make the most sense, where you can build various ranges into your missile production based on modularity?

Air Marshal (Retired) Brown: That would make sense.

But I think we need a serious look within our focus on shaping industry that both meets Australia's needs as well as those of key allies in the missile or strike areas.

We build ammunition and general-purpose bombs in Australia but we have never taken that forward into a 21st century approach to missiles and related systems. We should rethink this aspect of our approach.

There are plenty examples of success in arms exports; there is no reason we can not do so in the weapons area, for example.