# From Manoeuvre Warfare to Kosovo?

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# Introduction

*From Manoeuvre Warfare to Kosovo* is a collection of essays on military thought that has been presented to the graduating cadets at the Royal Norwegian Air Force Academy within the last two years.[1] The overall purpose has been to broaden the understanding of the lethal and complex phenomenon of air power, to encourage further studies of military power and to prepare the officers for future challenges in developing a sustainable air force. The chosen point of departure has been the concept of manoeuvre warfare, a military philosophy that the Royal Norwegian Armed Forces chose to adopt in the early 1990s. Although the term is widely used there remains limited understanding of where it comes from and its organisational and doctrinal implications. The second theme is the nature of peace support operations, and air power's role therein. The Norwegian Air Force is required by its government to contribute a squadron of F-16s, one maritime aircraft (P-3), two transport aircraft (C-130), four helicopters (Bell 412 SP) and one ground based air defence unit (NASAMS) to international operations. Such a commitment has proved challenging and is closely interrelated with the third theme of this book: Specialisation vs. Generalisation. Should we have an Air Force that is dedicated to certain niche roles that contribute to the larger Nato Alliance, or should we have a general-purpose Air Force that gives priority to national sovereignty demands? These are all-important issues that dominate the current air power debate in Norway. The debate has received increased attention with the on-going restructuring of our armed forces, and the experiences from the recent operation in Kosovo. The final subject is lessons learned and perspectives on "Operation Allied Force" – the first war in which Norway has actively participated since 1945. Although President Slobodan Milosevic withdrew his forces after 78 days of bombing, the Norwegian after action reports conclude that there is much that has to be improved on all levels of war if it is to be a first-rate air force in the near future. In order to contemplate such an ambition one must move beyond the belief that technological effectiveness can serve as a substitute for military thought, and moreover, doctrinal and conceptual thinking must surpass the realms of dogma and certainty if one is to maximise the utility of military power as an instrument

of politics. The following essays will hopefully contribute to that purpose by encouraging further debate on military theory and practice.

Mr. William S. Lind, one of the founding fathers of today's manoeuvre warfare philosophy, argues that in order to understand the concept one needs to develop a historical context. His preferred framework is what he terms the "three generations of war". The first one begins with the Peace of Westphalia in 1648, wherein the state established *de facto* monopoly on war. What followed was according to Lind the basic tactics of lines and columns, where linearity was predominant with an orderly military culture and careful gradation of ranks and uniforms. The distinction between military men and non-combatants was clear, and the culture of order translated well into the battlefield of order. This linearity started to break down around the middle of the 19th century, and according to the author the second generation came from France, and is what we today refer to as attrition warfare: "The artillery conquers and the infantry occupies". Methods and procedures for winning wars were developed, where co-ordination and synchronisation of the artillery, machine-guns, infantry and aviation was considered more important than focusing on enemy strategy, his cohesion and his vulnerabilities. Lind argues that the Americans translated the French doctrine verbatim into English, and although the Blitzkrieg witnessed the start of the third generation of warfare - the manoeuverist approach - the American forces did not seriously begin its adaptation until the *AirLand Battle* reform in the 1980s. Lind argues that most military forces have still not reached the third generation, including large elements of the American forces, and that in order to succeed in war one must start by focusing on the enemy's decision-making process. The immediate consequence would be to acknowledge that one cannot have both command and control. Indeed, initiative, creativity and mission-type tactics do not allow you to have complete con-

[1] The exception is Jamie Shea's contribution, which was presented at the Royal Military Academy in Oslo 18 September 2000. Tony Mason's and Robert Owen's presentations were given in February 1999 at the annual Air Power Symposium; Richard Overy, Richard Hallion and Benjamin Lambeth gave their presentation at the Symposium of February 2001; and the others held their lectures at various stages of the year 2000. Some of the lectures have been transformed from verbatim to transcript, while others submitted complete manuscripts. The editor would like to thank Jostein Lillegård and Anne-Marie Gorset for their help in turning tapes into written text.

trol of the situation. In essence Lind suggests that centralised command and decentralised execution is the only way forward, and that air power's role is to support the ground commander's scheme of manoeuvre.

Dr. H.P. Willmott examines the historical background to manoeuvre warfare doctrine, by focusing on technology, US Army Training and Doctrine Command (TRADOC) and both military and political deliberations. He argues that the experience from Vietnam combined with the perception of October 1973 as a conflict in which the Arabs were able to orchestrate a considerable fight against the technologically superior Israelis jolted the US Army out of its doctrinal doldrums. As several programmes were initiated in the early 1970s, combined with developments in communication, ECM and surveillance equipment, the author speculates that the period represented a change in the conduct of battle. *The Active Defence* concept was soon replaced by the so-called *AirLand Battle* reform, and by combining the intellectual and material element the author argues that an operational concept of warfare was embraced that was never previously acknowledged in American military doctrine. The Americans moved from focusing on attrition to manoeuvre, but Willmott stresses that the two should not be considered opposites: The reverse side of attrition is annihilation, and the opposite of manoeuvre is positional or siege warfare. Although the author does not like the term "manoeuvre" his ideas conform to Lind's in the sense that the school of thought implies the combination of firepower and mobility in an attempt to focus on will and cohesion rather than mere physical strength. Willmott argues that the importance of the doctrine (FM 100-5) of 1986 lies in its radical departure from earlier wisdom: The abandonment of the linear concept of battle and the adaptation of the major concentration of firepower across the depth of the enemy deployment. The author further examines the Reagan years and implications of operation *Peace of Galilee* before he concludes with a brief discussion of modern air power thoughts applied in the 1991 Gulf War Air Campaign. His basic argument is that modern air power theorists are not able to distinguish between the conduct of war and the nature of war, and thus their belief in technological effectiveness runs counter to the fundamental characteristics of war as a human activity, wherein doctrine is the servant and not the determinant of war.

Professor Hew Strachan examines the relationship between attrition and manoeuvre in a historical sense, using the First World War as his point of departure in presenting two lines of argument: The experience of individuals and the developments of technology in 20th century warfare. He argues that Basil Liddell Hart, who had a profound influence on British military thought, used his experience from the First World War to formulate ideas on warfare, and that innovations such as combat aircraft and tanks stem from that period of time. Strachan argues that the realisation of mass armies became possible in political, economic and social terms at the turn of the century, but it created enormous tactical and operational problems in terms of transportation and logistics. Moreover, the commander was removed from the battlefield to the rear, and commanding his troops from headquarters made real-time and detailed decision-making immensely difficult. Consequently, command was being exercised at lower and lower levels of formation and delegation encompassed in the so-called "Auftragstaktik" became a necessity rather than a real choice. According to the author the intentions were break-through, but when it failed, for various reasons, the commander would argue that the strategy was to wear out the enemy through attrition. Thus, Strachan argues that manoeuvre warfare was not developed as an anti-thesis to attrition, but that the latter was the effect of failed manoeuvre. Moreover, although the two concepts are interdependent they do not belong on the same spectrum: Attrition is a method that belongs to the tactical level of war where physical destruction is the objective, while manoeuvre belongs to the operational level of war, where the objective is to out-smart the enemy by attacking his will and cohesion through "envelopment" or "movement on interior lines". According to the author attrition and manoeuvre are therefore not opposites, but methods that exist in relationship to each other. In conclusion there is little new in the concept of manoeuvre, as the ideas of "unhinging the mind of the enemy commander" and "upsetting the psychological equilibrium of the commander", would have made just as much sense to Napoleon as to contemporary leaders.

Air Vice-Marshal (ret.) Tony Mason examines air power's potential strengths and weaknesses in peace inducement. He discusses the implications of "Operation Deliberate Force" in Bosnia in 1995 and concludes

that although air power technology can be easily adapted to a whole range of peace support operations, less tangible problems will require resolution. The author emphasises that future scenarios may well be battles over the remains of a fragmented political entity, such as Rwanda, Somalia, Moldova or Bosnia, and therein the conflict will have tribal, ethnic, ideological and cultural roots that complicate the Western notion of war as a mere continuation of politics by other means. The United Nations requires that the operations are applied impartially and with legitimate authority, and given the complexities of intra-state conflicts the objective is not military victory over one side, but the ability to coerce several parties to the conference table. Surveillance, reconnaissance and intelligence become essential, and air power can under such circumstances best contribute as a *force equaliser* according to the author. Mason is critical of strategic bombing in such circumstances: The bombing of social and economic infrastructure may complicate the economic reconstruction that is required to enhance the peace-building process. He further stresses that targeting the belligerent leadership may be tempting, but a violent removal may just as well induce martyrdom. Either way, such attacks may stiffen belligerent support according to the author. Mason argues that the best option may often be to reduce the adversary's military capability to a point where he can no longer impose his own solution by force, and therein there is room for gradualism as a strategy, where air power is closely entwined with diplomacy. In essence Mason argues that air power is extremely well suited to make a major contribution to peace inducement operations when applied as a force equaliser that creates conditions in which a settlement could be negotiated.

Colonel Robert C. Owen provides an American view of peace support operations. He begins with encapsulating the nature of peace support operations by discussing the relationship between the attributes of land and air power, and then goes on to describe some of the more important operational implications of such a relationship. Owen questions the perceived neutrality and impartiality in peace inducement operations, because the "naked reality is that they are *interventions* by wealthy and powerful outsiders into affairs of less well-endowed local governments, groups and factions". Thus, he argues that the objective is "making the natives behave" in an environment where the soldiers enforcing peace

will find allies among those who benefit from the intervention and enemies among those who do not. Owen's central hypothesis is whether the utility of air power, in relation to land power, is increasing or decreasing. His conclusion depends on the situation, but interestingly he suggests that air power should be the tool of first recourse in peace enforcement, while land power retains an advantage in peacekeeping. Nevertheless, air power has a "positive" role to play in peacekeeping too, such as providing mobility and information support, in addition to the latent coercion that may reduce the chance of mission creep so often associated with peace inducement operations. On a tactical level, however, Owen argues that recent experience and technological developments suggest that air power's ability to contribute to peace support operations has exceeded the abilities of ground power. The author's argument relies on air power advantages found in *observation, interposition, patrolling* and *civic actions.* In conclusion the author argues that air power has become a much more useful peacekeeping tool both in absolute terms and relative to land power.

Professor Richard Overy focuses on experiences from the Second World War in order to highlight what he considers as some of the key issues that small nations face in the context of coalition warfare. The first consideration is the problem of strategic partnership, where small nations' strategic interests have always been regarded as subordinate to those of the bigger nations, and small powers have played only a very small part in influencing the strategic and operational thinking for the larger powers. The second issue is one of sovereignty, as the historical trend has been for larger powers to subsume the units of their smaller partners, and have them comply to the wider strategic aim rather than what is of immediate importance to the smaller nations. The third issue that Overy brings to the surface is what he calls the problem of technology transfer. During the Second World War there was an extremely high technological dependence on the larger nations, and the operational parameters need to be clearly defined. Small nations will always be hostage to the ability of sustaining their technology in the long term, and the wrong purchases might easily result in the equipment becoming obsolescent. The fourth and final point that is given attention is the problem of low reproduction rate for the smaller nations in coalitions, as they are more vul-

nerable to high casualties. Overy's conclusion is that all these factors need to be considered in future operations, and that defining the parameter of regional and peripheral activities is something that small nations' air forces ought to do in order to optimise their role in coalition warfare. Those parameters need to be defined both in terms of function and geography, and in that process small air forces might find that they have to concentrate on a particular kind of air power.

Dr. Richard Hallion focuses on critical capabilities for coalition operations by looking at three operations where air power played a leading role in the 1990s: Operations "Desert Storm", "Northern Watch" and "Allied Force". From the perspective of the task force commander he concludes that every contributing nation found a niche within which it could contribute to the overall air campaign in 1991, and that 1999 demonstrated a continuing trend in coalition operations. In the latter case nineteen nations in Nato co-operated with non-Nato countries, and in such a process gaining and maintaining consensus is of overall importance, and consequently the political considerations can possibly be at the expense of military strategy. Although operation "Allied Force" became "Rolling Thunder with precision", not conducted according to the advice of the air commander, the gradual escalation and focus on the Serb Third Army turned out to be the only acceptable strategy. The true contribution of many countries then, according to Hallion, is at the strategic level, enabling operations to happen in the first place, and thus one cannot measure contributions by the number and capability of aircraft sent to fight. In conclusion the USAF's official historian argues that regardless of whether a nation chooses to specialise as part of an interdependent mutual defence agreement, or a more general approach to develop all aspects of what is required for national air power, there are types of capabilities that need considerable attention: Command, Control and Information Systems; Precision Strike; Precision Surveillance and Reconnaissance; Force Protection; and Force Projection Support. Additionally, Hallion argues that future belligerent states may well invest in low-cost, but sophisticated surface-to-air missile systems in order to deny the Americans and Nato the airspace control that they have had in recent conflicts. Non-western countries may not bother with the traditional manned air power platform approach, but concentrate fully on defensive and offensive missile systems.

Dr. Bejamin S. Lambeth presents an analysis of Russian air power today. He begins with a review of organisational developments and changes in the force structure that have taken place since the end of the Cold War, and offers informed perspectives on Russia's attempts to modernise in the face of massive defence cuts. As the Russian air strength has declined from 13,000 aircraft in 1990 to some 2,000 currently in serviceable condition, Lambeth examines the evolving doctrine, concepts of operations and day-to-day exercises on the unit level. By combining the challenges in military thought with the troubles in Chechnya and the on-going economic crisis, the author argues that operational compatibility with Nato forces in the foreseeable future is at best premature and at worst inappropriate for numerous compelling reasons. The author argues that the Russian military leadership's collective mind has so many fundamental issues to deal with that the last thing on their mind is contemplating interoperability with Nato forces. Although the 1999-2000 war with Chechnya was more successful than the earlier debacle of 1994-1996, some 2,000 Russian servicemen died and the lack of precision munitions and night/weather capability limited the air force's performance substantially. Still, there were improvements to be found in the Second Chechnya War: The poor co-ordination between the Russian ground and air forces was partly mitigated, Grozny was sealed off prior to entering it by force and the handling of domestic public opinion improved. Russian air power has as such gained some experience in low-intensity asymmeric warfare, but there is little to be optimistic about on Russia's behalf according to Lambeth, because "apart from the nuclear capability", the former Soviet Air Force is "little more than an inflated Third World air force when it comes to what remains of its former professionalism and fightingstrength".

Dr. Jamie Shea, the Nato spokesman during "Operation Allied Force", discusses the role of media and public opinion in modern conflicts. He argues that one is facing an immense paradox in contemporary warfare: Man has succeeded in making war in Europe a rarity in the latter part of the 20$^{th}$ century, and thus when armed force is required in humanitarian disasters it becomes difficult to justify it. Shea discusses how the CNN-factor has significant implications on the conduct of war, as the media and NGOs focus less on whether the conflict meets its objectives

and more on how it is fought. Thus, Shea argues that winning the war is not enough, even when one's own casualties are kept at a minimum. He argues that the Alliance's centre of gravity is its ability to maintain a consensus, and in that process domestic problems in Greece may be just as important to Washington as its own public opinion. Shea contends that it is unsustainable to have the attitude of winning first and investigating afterwards, and that it took the major public relations disaster of the Djakovica tractor convoy incident to learn that lesson. Future commanders and spokesmen are advised to stay away from deliberate deceptions, because truth is the only road to credibility and integrity, and those factors are required to win wars. Collateral damage is a certainty, and as it gives the enemy the advantage to portray itself as the victim, the Alliance had to work hard to develop a campaign where Nato was not being perceived as killing the very people that it was trying to save. Shea argues that there were two conflicts: The virtual war that they lost and the real war that they won. In conclusion the author argues that Nato must devote more resources to satellites and drones, in order to provide pictures of what is happening on the ground, because although the media campaigns cannot win conflicts, it can certainly lose one for the diplomats, politicians and pilots conducting the military campaign.

Air Commodore A P N Lambert reviews the historiography and concepts that underpin coercion, and by drawing on recent air campaigns he provides considerable insight into both possibilities and fallacies related to the psychological aspect of applying force. The author argues that warfare is coercion, and that an understanding of coercive mechanisms is critical to the selection of targets and the forming of air power strategies. Lambert's thesis is that coercive effects must be considered as part of a whole range of persuasive instruments, and that the cost-benefit calculation must be seen through the eyes of the victim. Vulnerabilities and values will differ from one culture to another: Rationality has many facets, and there is no such thing as the "state" having an "opinion". The key is to compel the true power brokers. Credibility, hope and punishment is in the mind of the victim, and Lambert finds that coercion has much in common with individual reactions to stress. Thus, coercion applied incrementally, as it was in Vietnam and partly in Kosovo, has certain predictable effects. The victim is given opportunities to take counter-

measures, he gets time to habituate to the stress, can encourage a sense of purpose by externalising the threat, and thus there is an encouragement for the population to rally around their leader who controls the media. Such misapplication of coercion results in a prolonged conflict, made all the worse by a perceived lack of commitment which increases the enemy's reasons for hope and consequently the actual casualties increase too. Lambert warns against such dangers, arguing that bombing by itself does not create a political solution. But if air power is considered as part of a whole range of pressures, and applied with high intensity and precision at centres of gravity, then the combination of bombing, sanctions and diplomacy can provide the leverage sought for, and collectively the risk becomes too high to bear for the adversary. An understanding of the nature of coercion and enemy value sets, entwined into an air power strategy, will therefore provide an opportunity for victory short of the killing fields associated with the world wars and the civil wars of the 20th century.

Lieutenant General (ret.) Michael C. Short discusses tactical and operational lessons from "Operation Allied Force", by concentrating on applied air strategy. He focuses on the meaning of "centre of gravity", which to him is the entity or capability that allows a nation to go to war in the first place, and is powerful enough to keep that nation at war. Rather than focus on the Serb Third Army in Kosovo, Short would have preferred a classic strategic air campaign against Belgrade, focusing on the Serb leadership from the first day. In an attempt to "demonstrate resolve" and by declaring that a ground attack was off the table, Short argues that the air campaign was compromised for political reasons. He argues that war is essentially all about modifying the adversary's behaviour, and as the end-state was not defined in this conflict he argues that the operation was "victory by happenstance" rather than "victory by design". He argues that they essentially "bombed for 78 days, hoping that something would work", and he criticises General Clark for his choice of strategy, for his micro-management during both the planning and execution of the campaign, and for establishing what was basically a US-only decision making command. Short's recommendation had been to attack the power-grid in downtown Belgrade on the first night in order to turn out all the lights, the refrigerators and the televisions, and to drop

the bridges crossing the Sava to degrade the infrastructure and industry. He wanted to bring as much pressure to bear on Milosevic and the cadre around him as possible, but the Coalition did not accept such level of force. The campaign took the form of gradual escalation, and when he was finally allowed to intensify the campaign against the Serb leadership they hit the Chinese Embassy, an intelligence error, and once more Belgrade was off limits. In the second half of the presentation General Short stresses the reality of fog and friction in war, and discusses pertinent factors for future commanders to succeed, such as commitment, dedication, professionalism, honesty, pride and integrity.

Whatever decisions nations take in their effort to improve their air forces, one requires a foundation of sound military doctrine that is based on technology, experience and theory. These essays should be viewed as another step in the process of comprehending the utility of military power across the wide spectrum of conflicts.

# Part I

# The Origins of Maneuver Warfare and its Implications for Air Power

*William S. Lind*

Having just come from a two-day conference arranged by the Military Academy in Oslo, marking their 250th anniversary year, during the course of which we received a number of high-level presentations from various senior people in the Ministry of Defense, it seems to me that you have a somewhat interesting situation here in Norway. Your government has adopted maneuver warfare as your military doctrine without having the slightest idea of what it is. The Military Academy has quite correctly been attempting to wrestle with this problem from the bottom-up, rather than from the top-down, and indeed after many years of trying to promote maneuver warfare in the US military, particularly the US Marine Corps, I can say that is the only way real change happens. So from that basis, I am particularly glad to be able to speak to cadets. It is an old saying in the military that the only thing harder than getting a new idea into the military mind is getting an old one out, and the good thing about cadets is they do not have any old ideas.

What I would like to do today is talk about what I call the three generations of modern war. There is a fourth, which is where I think things are going, and that is what we spent a great deal of time talking about in Oslo. An hour is not really enough time to cover all four and leave time for questions, so I am going to talk about the first three, and the third is maneuver warfare.

In order to understand maneuver warfare, we need to understand more than maneuver warfare itself. We need to try to develop some historical context, so we can see where it comes from and, indeed, see where we are ourselves in terms of how we think about, and conduct, war. The framework I use for this is what I call the three generations of modern war. For you Hegelians out there, “generations” is short hand for dialectically qualitative shifts, and working with the US Marines, to use the phrase “dialectically qualitative shift” guarantees that the entire audience at that

point is reading the label on their beer bottle. So we have tried to simplify the terminology.

The modern period really begins with the Peace of Westphalia in 1648. What happens with the Peace of Westphalia is that in Europe initially, and then slowly in the rest of the world, the state establishes a monopoly on war. War from then on is carried out by state forces - by armies, navies and eventually air forces – that are the instruments of government and the instruments of the state. That to us is so automatic that it is our whole image of war. But it is important to remind ourselves, particularly as we look to the future where I think this is all changing, that for most of history that was not true. Through most of history many different entities fought wars: families fought wars, clans fought wars, tribes fought wars, cities fought wars and companies fought wars. Britain did not conquer India: India was conquered by the British East India Company, a business enterprise that had an army and a fleet. They fought wars for many different reasons, not simply as politics extended by others means, as Clausewitz says. They fought to kill the enemy men, rape his women, sell his children into slavery, and take his land. That is real war! Interestingly, we see that real wars are starting to come back, including in some places where Norwegians have been lately, like Bosnia and Kosovo. But war in the state framework is what shapes the first three generations. War is between essentially "like forces": armies against armies, navies against navies and air forces against air forces. Forces with uniforms, ranks, flags and all the other nice stuff that we think of as characteristic of the military

The first generation of modern war is roughly from 1650 to the middle of the 19th century, 1850-1860, and we are all familiar with its basic tactics: they are linear - they are the tactics of line and column. The object is to bring your soldiers, armed primarily with smoothbore muskets, up face-to-face with another line of soldiers in different uniforms, and bang away at each other until somebody decides to go home. Navies fight very much the same way because the navies developed their tactics starting about 1650 when the British Navy under the Commonwealth was taken over by generals. They were indeed called generals at sea, and they all knew what a battlefield looked like. It all looked like a line, so they put their ships into lines too. This battlefield of order yields a military cul-

ture of order, and therein lies its importance for us. All of the things that we think of as defining a military: it is a very orderly place, with careful gradation of ranks and uniforms and different insignias, medals to denote what combat experience, or these days, non-combat experience one may have. There is a very careful distinction between officers, NCOs and enlisted men. The salutes, all of the things that mark a really incredibly orderly culture, come out of this first generation. They are consistent with the environment in which militaries have to operate. The battlefield of order yields the culture of order, and the culture of order functions very well on the battlefield of order. There are a few exceptions in the first generation, as General Braddock found at Fort Duquesne, but mostly this is the case.

The problem, which is the central defining problem that militaries all over the world are facing today, and have been facing now for 150 years, is that starting from about the middle of the 19th century, the battlefield starts to become less and less orderly, a progression that continues in our days. The culture of order that marks the military is increasingly in contradiction with the environment in which it has to operate. The culture of order increasingly inhibits the ability of armies, navies and air forces to function in an ever more disorderly environment. The culture and the environment become a contradiction. The story of military doctrine and military thought for about the last 150 years is essentially the story of various attempts to come to grips with this contradiction.

People begin to notice the breakdown of the battlefield of order in the middle of the 19th century. Wars like the American Civil War make it pretty clear that you just cannot perform the old 18th century Napoleonic tactics anymore. If you do, you get killed, in battles like Cold Harbor in 1864, when Grant tried to use typical Napoleonic offensive tactics against entrenched Confederate riflemen. The Union casualties were higher proportionally than at the Battle of the Somme. The result was a disaster and country after country sees this happen, and if you look through the military journals in the latter part of the 19th century, in Europe particularly, you find everybody talking about this. The question is what to do about it and a lot of the debate revolves around the question of whether you can trust the troops. One school says: “In the face of this firepower we have got to go to some kind of open order, we have got

to disperse, we cannot stand there packed in masses anymore". The other side says: "You have got to pack them in masses, because you have got to stand right in front of them or right behind them, and if you do not they run away, because you cannot trust them".

The effect of the debate is that most European armies go into war in 1914 still pretty much doing what they would have done in 1814, that is with packed columns of men. There are a few exceptions: the British have learned some unpleasant lessons this way in the Boer War. In one battle eighteen Boer riflemen defeated two British Guard Battalions. There were also some German tactics that were decentralized. There were some German units that did not fight in line and column, but a great many did, and the result for everybody was an absolute catastrophe. France almost loses the war in the first three months, attacking in blue coats and red trousers, directly into the machine-guns. She loses 300,000 dead in three months. The Germans have similar experiences in battles like Loos. The Russians, of course, have an absolute catastrophe at Tannenberg; over and over and over again people are finding that the old stuff does not work.

The result is that the battlefields in the West just grind to a halt in trench warfare. By the end of 1914 the men are in the trenches, nothing is moving and from then on the question that everybody asks themselves is "How do we get things moving again?", because sitting in trenches does not have a lot of potential for winning a war. Two fundamental answers come out of World War One, and they are respectively the second and the third generation of modern war. Both are very much with us today. Modern armies are very much reflections of what we see by 1918.

The second generation comes from the French. The French doctrine in 1914 is a catastrophe, it says that all that matters is *élan vital*, and if you charge with enough fervor into the enemy firepower, you will win the day. Well, again, they almost lose the war, but at least they are smart enough to change. The British never really change, at least not until 1918. The French change pretty fast, they very quickly say: "Well, that did not work so we have got to do something else instead".

One of the big surprises to everybody in 1914 is indirect artillery fire on the battlefield. Previously indirect fire could only be seen in sieges, and almost all the guns, like the famous French 75, were designed for direct fire. But everybody discovered quickly that if you put the gun behind a hill and sent a guy with a telephone to correct the fire from the fall of the shot, then it is a lot harder for the enemy to knock the gun out. So very quickly the battlefield becomes dominated by indirect artillery fire. 80% of the casualties in World War One are due to artillery fire. The French believe that this is obviously the secret for developing new tactics and they build their new tactics, the second generation of modern war, around artillery indirect firepower.

The French sum up their doctrine as “the artillery conquers and the infantry occupies”. By the end of World War One they have come up with some very carefully worked out processes, methods, step-by-step approaches, for both the attack and the defense. On the attack you use lots of artillery and then with a very careful co-ordination of all the elements, and a careful constant coverage by the artillery fire, the infantry moves forward very slowly to take an objective that is very near their initial frontline. It is a very short-range attack and time is not very important. What is important is the co-ordination and synchronization of the artillery, the machineguns, the infantry, the aviation, and so on. The general handles it all. He sits in his headquarters with his maps and his telephones, “with his hands as on the handles of a fan”, reaching out to all his different elements, controlling everything in this magnificent symphony for which a very careful score has been written. The orders are very detailed and very controlling. The whole doctrine is very ordered. On the defense, it is very similar. If the enemy threatens to break through, you bring reserves in from the flanks, you close the breaches. You get in front of him, and again you call in massive artillery firepower, and you very slowly and methodically withdraw, pouring in the artillery until he cannot move forward any further. It is not a doctrine of great results, but the French by this point had long ago given up the idea that you could get great results on a modern battlefield. The effect of firepower was just too great, and the French doctrine is mesmerized by the power of modern firepower, particularly artillery.

The good thing about this solution is that it preserves the culture of order. In the face of the growing disorder of the battlefield, the French seem to have found a way to impose order on the chaos, to once again make sure that all these careful distinctions are maintained. A little book on the fall of France was written in 1942, by a French officer who had been caught up in it, Daniel Vilfroy, who knew what he was looking at. He had been an exchange student at the German Kriegsakademie before the war. He spoke about how for the French, in their training and in their schools, everything was a matter of following the steps and the prescribed order, of knowing exactly what phase you were in at every time, and again the development of the very detailed order. He said we only forgot two things: we forgot the enemy and we forgot time. But the very comfortable illusion was maintained that the culture of order had triumphed, and it seemed to work. In World War One the French actually carried the burden of the war on the Western front. They were exhausted by 1917, but by then the fresh American manpower is arriving, and here is where it becomes interesting from an American perspective, because the American military pours into Europe in 1917 and 1918 as a frontier constabulary. Since 1865 we have been fighting Indians, and at first the American commander, General Pershing, says, "We are not going to learn from these Europeans, we are going to show them how to do it". Both the Allies and the Germans observing the first American attacks said that "nobody has done anything that stupid since we did it in 1914", because we send blocks of men into the firepower. We are taking 50% casualties in a division in one attack, and we turn to the French and ask them to teach us. And they say: *naturellement*.

We translated the French manuals verbatim into English, and we issued them as our own. We established a staff school staffed by French officers at Longwy, where the American staff officers learned the French methods. We got French instructors into our units and we absorbed wholesale this French methodical battle, *bataille conduite*, "conduct the battle like the conductor conducts the orchestra". This influence persisted between the wars. In 1930, when the American Army felt it needed a doctrine for operational art, it simply took the French manual, on what they called "grand tactics," and translated it word for word without the slightest change. There was not even a footnote to acknowledge that it was from

the French. It was issued as the American manual, which explains why the US Army had no operational art in World War Two.

Air power, of course, is also coming along in World War One. Air power seems to fit very nicely into the same framework. It is another way, from this perspective, to deliver firepower, and what the battle is all about is firepower. So in addition to artillery we can now reach perhaps to longer range than the guns can reach, because we can send bombers over, and they can add their ordnance to the firepower. That view of air power, that war is simply tonnage of ordnance on target, is very much with us today. It is what we call strategic bombing. It is what we just tried with spectacular lack of results in Kosovo, where 37,000 sorties of the most modern aircraft ever seen, all equipped with the latest PGMs, destroy thirteen tanks. It is at the heart of the very existence of the US Air Force, because the argument the Air Force used to get its independence from the Army after World War Two is winning through air power. Winning by pure bombardment of tonnage dropped from airplanes. Interestingly, even the Air Force's own Strategic Bombing Survey after World War Two said that it did not work, but that has by no means stopped us from continuing to try it.

On the other side of the trench-line something different was happening, and the difference actually goes back long before World War One. It goes back to the time of Napoleon, when in 1806 Prussia, all on its own, decided to fight the French. Napoleon proceeded to beat them at Jena-Auerstadt, and the Prussians suffered one of the most crushing defeats in military history. There was a little group of young officers back in Berlin headed by a Hanoverian named Scharnhorst, who nobody liked because his uniform was always a mess and he read books. He had been warning that this was going to happen, together with a young lieutenant called Clausewitz. They had been preparing for this eventuality, or this certainty, and when it did happen, they were put in power, briefly, for a couple years, to make some significant reforms. One of them was the creation of the famous German General Staff. Another, which is less often noted by historians, is the basis, the root of modern maneuver warfare. They changed what was required of a Prussian officer. Previously the Prussian officer like every other officer had been required above all to follow orders, but they said: "Not any more". From now on the Prussian officer

is expected to get the result the situation requires, regardless of orders, and he is expected to think on his own what that result should be. He of course references orders, and they changed how the order was written, so the order now did not tell you what to do. It told you what result was wanted, and not only from you, but at least two levels up from you - what the unit as a whole was trying to accomplish. You were to reference that, but above all you were to look out there, think about what you were seeing and act on your own, so as to get the result the situation requires.

This change came very rapidly. At Waterloo in 1815 one of these young officers, who suddenly instead of being a lieutenant was a general - this is what happens after defeat - was attached to Wellington. He was with the English Dragoons, and he saw a terrific opportunity for the Dragoons to charge and decide the outcome of the battle, but nothing happened. He could not understand, so he rode over to the British Dragoon Commander and said "Why are you not attacking"? The British commander replied that "I cannot, I do not have orders". Von Müfflling was appalled, and that night at the ball he told the story to Wellington, and Wellington said the Dragoon Commander was quite right. If he had acted without orders he would have had him court-matialled. You already see a very great cultural difference between the Prussians and everybody else, and it is the difference that lies at the heart of methodical battle, the second generation of war, and maneuver warfare, the third generation of war, and that is the difference between inward focus and outward focus. Are you focused inwards, on orders, procedures, processes, rules, and "the sixteen step staff planning process", which is the curse of the US Marine Corps? Or are you focused outwards on the enemy, the situation, and the result? That cultural difference, "focus inward - focus outward" was the basis of why the Germans came up with a very different solution to the deadlock of the trenches in World War One.

They developed this outward focus through the course of the 19th century. It became, for example, routine to give junior officers, like yourselves, problems in war-games that could only be solved by disobeying orders. The German fitness report considered it a compliment to say "this man is a difficult subordinate". They spoke of the inherited right of the Lieutenant to make rash, brash mistakes, not any kind of mistake,

only rash, brash mistakes. The Lieutenant who sat there and could not make a decision, well, his brief military career would be lived out in the logistic services. But the Lieutenant who went too far, who was too bold and took too many risks, he would have to learn judgement over time, but in the meantime there was at least something to build on, because he was willing to make decisions and take action. He had "Verantwortungsfreudichkeit". It is one of those wonderful German words that stretches across the whole blackboard and that translates, literally, as "joy in taking responsibility".

When 1914 ends, the Germans are in the trenches with everyone else, and what does an army like this do? It does not sit there waiting to be told the answer. Everybody starts experimenting. When they find something that works, they do not only pass the information up the chain, they pass it laterally, because this type of military has a lot of lateral communication. They start evolving some things that are working, and out of this comes wholly new tactics. It is the first non-linear tactics, the first break with the battlefield of order that really accepts the disorder and welcomes in many ways the disorder of the modern battlefield. Briefly, tactically, it first manifested itself in 1917 with the so-called let-them-walk-right-in defense. When the Allies attacked, instead of meeting the Germans at the trench line, they just found a few outposts. As they penetrated further, the outposts got a little more dense, designed for 360 degree defense built around a machinegun. These started to pull apart the momentum of the attack. The attacker would crest a hill and come down the other side. Now German masked batteries would open up and his own observers could no longer see him to support him, and this further pulled apart the momentum of the attack. At the right moment, and it required somebody up at the front to decide what that moment was, the real strength of the German defense came to bear in a counterattack. Not a counterattack to push the enemy out - modern tactics are not shoving tactics - but rather to go deep back to the original line and come around and encircle the whole attacking unit. The British were stunned, because for the first time whole battalions were going into the attack and nobody was coming back. They were not necessarily dead, but taken prisoners. The whole nature of the defense had changed from holding a piece of ground, to, just as in the offence, destroying the enemy. General Hermann Balck, probably the finest tank tactician of World War Two,

who saved the whole front after Stalingrad in a series of defensive actions on the Chir river with the 48th Panzer Corps, went off as a lieutenant in 1914. He had seen it all and knew what he was looking at, since his father was a premier writer on German tactics before World War One. I asked him, "When did the change occur that we think of as Blitzkrieg, and what was it"? He said it all occurred in 1914-1918. Blitzkrieg was conceptually complete by 1918. He said the change was that when we went to war in 1914 our objective was to kill the enemy soldier and blow up the enemy piece of equipment, (strategic air power is the same thing). He said as the war went on our objective changed to taking enemy units as a whole out of play, and as the war went on further our horizon grew bigger.

In 1918, for the first time since 1914, the Germans go on the offensive in the West, in the great "Operation Michael" in March of 1918. The Allies are pretty confident. They have tried to attack for years, and are getting nowhere. Only it does not work that way, because the new German attacks do not try to push a line forward. Rather you have a little group of soldiers, "storm-troopers" we call them, essentially a squad built around a light machinegun and a trench mortar, so you have combined arms at squad level. They are not looking for where the enemy is, to engage him, but for where he is not, to go around him. To find or create little holes, blow through him and move as fast as possible deep into the enemy rear. Simultaneously some units roll up behind the enemy to collapse him from the rear and others continue the attack with unlimited objective into his depth: into his artillery, into his logistics, into his headquarters, etc. Instead of the direction of advance being set by some general in headquarters, it is eventually set from the bottom-up; wherever these guys find or create a hole, they call others in behind them. So it flows like water, as Liddell Hart writes, always seeking the path of least resistance, flowing through the enemy defenses, and it solves the riddle of the trenches.

In 1918 when the Germans attack the British 5th Army they push it back 40 miles. In fact they destroy it, there is no 5th Army, and everybody is stunned. This is Blitzkrieg. In 1940 the tanks make a critical difference, because what loses the war for Germany in 1918 wins it in 1940. In 1918 the Germans are foot-infantry, moving forward with horse-drawn logis-

tics and artillery over ground that has been churned into a moonscape by all the shelling, and the Allies can shift reserves laterally by rail faster than the Germans can move forward on foot. In 1940 the tracked vehicles in the panzer divisions can move forward faster than the allies can shift the reserves, which are still moving by rail. Operational mobility differences are very important in maneuver warfare. Tanks make the difference, but all the concepts, all the thoughts that we think of as Blitzkrieg are there by 1918.

This is maneuver warfare, and this too has its equivalent in aviation. Just as strategic bombing is the pure French war-by-bombardment, so also air power has its relationship to the use of firepower in maneuver warfare. Firepower as it was used in maneuver warfare by the Germans in World War One, which included aviation, was there to facilitate movement. It was there to raise tempo and facilitate movement, not just to blow things up, and that meant it had to be very, very intimately linked with what the guy on the ground was doing, which is the infantryman and later the tanker. The great German artillery genius of World War One, General Bruchmüller, before an assault would visit each of the infantry units, and he would have a discussion with them and he would explain what we can do for you and what we cannot do for you. Here are the kind of opportunities that we are going to create. Here is where you need to work to take advantage of this, and it was all worked together. Not like the French as a score of a piece of music, but with a shared understanding of what each could do, and how the pieces could fit together, not synchronization, but harmonization. So that instead of being an orchestra with a score, they could be like a jazz group jamming.

Air can also follow this path, and has historically very often done so. The Germans developed whole “Staffel” of “Kampfflugzeuge” in World War One, which were ground support aircraft, that is special aircraft types. They had a machinegun pointing down from the bottom of the airplane, so that the gunner could fire down into the trenches. They were very effective, they would come in very, very low, they would fly the contours of the land, fly right over the trenches, particularly when the Allies started to withdraw and wanted to start moving in columns; these aircraft made it very difficult to do that.

World War Two was very similar. The Germans used aircraft to facilitate movements. When Guderian needs to get across the Meuse at Sedan, and has problems with the French artillery, he sets relays of Stukas that are constantly diving on the artillery. Even when they are out of bombs they are diving on the artillery to keep the gunners away from the guns. They understand it is not just blowing things up, it is time. It is timing. It is an integrated action with what the guys on the ground are doing. In the book *Air Power and Maneuver Warfare* it is pointed out that the most effective air force in World War Two is the one with the worst planes and the worst pilots, the Soviet Air Force. Why? Because the Soviets understood correctly that the German defense at the operational level depended on shifting operational reserves quickly, laterally. Well, if you are going to move fast you have got to move on the roads. So they focused their air power on attacking German columns that were moving on the roads. It did not destroy those columns, but it slowed them down, and the loss of time meant that the Soviet ground forces penetrated before the defense could shift and coalesce. Air power used that way, in this very intimate relationship with what is happening on the ground, has consistently been important and effective. The problem is that it means you airmen do not have your own show. It works against the notion of the independent air force that can essentially do what it wants to do, and live a life independent from the ground force. An effective air force is one that is a support air force. It is not a show on its own. It is not doing its own thing. It is married so intimately with the ground forces that when we asked the greatest ground support pilot of all time, the famous Stuka pilot Hans Ulrich Rudel, what piece of advice he would most like to pass on to his successors in his business, he said always think of yourself as a soldier, not a flyer. So not surprisingly, this message is one that most air forces have done their utmost to ignore.

Now I want to look a little more behind the tactics of maneuver warfare and specifically the tactics of aviation. We have been trying to revive some of this in the Marine Corps recently with an effort called “Jäger Air”, and we have some Marine pilots who are very, very interested in ground warfare. It is an up-hill battle, because most, and particularly the Marine aviation school MAWTS, are devoted to independent air power. But what I want to do is look beyond that to the common culture that aviators and soldiers must share if maneuver warfare is to work, because

the whole point of my talk here is that maneuver warfare is not a replacement formula. What maneuver warfare is, is a whole different organizational culture, and if it is not that, then it is just, as it is currently in Norwegian defense documents, a nice phrase that nobody knows the meaning of and that in the end is not going to make a difference. As I mentioned, the origins of maneuver warfare, in the German Army, lie in a cultural change that begins in the time of Napoleon. This cultural change is deepened in World War One, because before the war, only the officer had this kind of initiative, only the officer got mission type orders. During the war, that broke down. By 1918 the commander of the "storm troop" is a corporal. By 1918 mission type orders and the culture of initiative had to extend down to the most junior soldier, and this was enshrined in the German post-war regulations.

To understand the culture we need to start, as I did at the beginning, with the nature of war. Maneuver warfare accepts that war is not an orderly business. It is fog and friction, uncertainty, rapid change, ambiguity, incomplete and often wrong information. There is no such thing as information dominance, there is no such thing as a crystal ball that through technology is going to allow you to know what the enemy is doing. You cannot even find out for the most part what your own side is doing. That is inherent to the nature of war, that is the automatic result of what we call "the independent hostile will of the enemy", a buzzword phrase that means the other guy keeps doing stuff you never expected. The object, from a maneuver warfare perspective, is not to overcome this by imposing order on it, but rather to use it to your own advantage, to be able to operate better in this environment than your opponent. This is done, not by staffs creating elaborate plans, but by commanders at every level from the most junior to the most senior making decisions on the spot on their own responsibility. We are back again to "Verantwortungsfreudichkeit". The key to turning this chaos to your advantage is to be able to operate, not only better than your opponent, but constantly faster than your opponent. Maneuver warfare understands that warfare, not just formal warfare but many types of conflict, is less about space than time. Tempo itself is a weapon, and often the most powerful weapon, and ironically our best understanding of this comes from a fighter pilot and from air combat - the work of Colonel John Boyd and the concept of the OODA loop.

John Boyd, as a young officer, as a captain, invented the energy management tactics that are now used by every air force in the world. The Germans had actually discovered them during World War Two, but never wrote them down. He codified it mathematically and made it the basis for air force training and doctrine. John also had that characteristic of the German officer of being a somewhat difficult subordinate. He was called back as a captain to brief the Chief of Staff of the Air Force on his work, and John was always rather sensitive about doing something and not really being able to explain it all. This took some time, and on their way in to the Chief's office he was told that the Chief could only give him fifteen minutes, and John said: "Then I will not brief him".

John went on looking at fighter combat, particularly fighter combat in Korea, to develop what he called the OODA loop. He noticed that by most conventional measures the MiG-15 was actually superior to the F-86, yet in fact we got a 10 to 1 kill ratio on the F-86 over the MiG-15. The question was why. He talked to pilots about this, and he found two very subtle but key superiorities. First, it was much easier to see out of the F-86, which had a bubble canopy instead of a faired canopy. Next, the F-86's high-powered hydraulic controls allowed it to change from one maneuver to another much more quickly than the MiG. The F-86 pilot would put the MiG through a series of different maneuvers, and each time it took longer for the MiG pilot to figure out what was going on, and to adjust to it. That time differential could be converted into positional advantage, and the F-86 ended up on the MiG's tail. John generalized this, and this is really sort of the core explanation of what is going on in maneuver warfare, as the OODA-loop. He said that in every conflict, people go through repeated cycles of observing, orienting, deciding and acting, and whoever can go through the cycle consistently fastest gains a tremendous advantage.

Let us say that the cadet in the front row here and I are in a conflict of some sort. We start by observing: with own eyes and ears, from military intelligence reports, radar and so forth. On the basis of that observation we orient, we make a mental snap-shot or picture of our relationship to each other in this time and place, which may or may not be accurate, which immediately shows you the importance of deception. On the basis of that mental snap-shot, we decide to do something, and then we act.

Now, what happens if the cadet can consistently go through this cycle faster than I can? By the time I am ready to act he is doing something different from what I observed, and my actions are irrelevant. We cycle again. Again I am irrelevant, but now by a larger margin in time. Each time we cycle I fall further and further behind, and at a certain point it hits me that nothing that I can do will work, and at that point I tend to do one out of two things. I tend to panic, or I tend to give up.

This is exactly what happened to the French in 1940, when French second generation warfare and German maneuver warfare meet. Everything that the French do is right, but it is always too late. The margin by which it is too late grows steadily through the course of the campaign. At one point the British liaison officer reported back to his headquarters that he was with the French 9th Army, which was at a critical position where the Germans were going to come through. The staff is in tears, the general is in hysterics, and no one can even answer the phone. At that point, they had not even suffered their first casualty, but they knew it was over, because their method could not operate at a tempo fast enough to match the Germans. If all you know is your method, if it does not work, it is over. All you have learned is your method, all you have learned is your multi-step-process, your internal focus, and it can not adjust to a tempo which is driven faster than your method can accommodate. Now the question is how do you keep up the tempo? One answer is operational art. Operational art is the art of deciding when and where to fight, and when and where not to fight, on the basis of what you are trying to do strategically. It is the linkage between tactics and strategy, something that is often missing in air operations. I remember a friend of mine who was flying over Vietnam. After over 500 missions over the Ho Chi Minh trail, he said to his navigator that there has got to be somebody back in the Pentagon who knows how many missions it takes for the enemy finally to give up!

Air power, and attrition warfare generally, try to win strategically by accumulating tactical successes, by counting how many things they have hit. It is the body-count business, and the US headquarters for Kosovo was lying through its hat, saying how many tanks they had bombed and so forth. Maneuver warfare perceives it differently. Maneuver warfare tries to get as directly as possible at the strategic center of gravity of the enemy, by economizing on engagements. Why? Because even victorious

engagements slow you down - you have dead, you have wounded, you get damaged and broken equipment, you are out of fuel, you are out of bullets and the troops are tired. You have got to slow down, you have got to pause. So operational art is essentially the art of trying to fight only when and where it really benefits you strategically. A good example comes from the 1940 campaign when Guderian got across the Meuse at Sedan. There were strong French forces moving up from the south, and he could have stayed there. He could have fought them and probably beaten them, having destroyed a couple of French divisions. Instead he used a minimum force to hold his crossing and threw everything towards the English Channel, because he knew that was what would be decisive strategically, splitting the Allied forces in Belgium from those remaining in France. That was far more significant than accumulating some tactical victories over some French divisions, and that was operational art. An enemy, if he is good, is often going to make you fight when you do not want to, but your operational art is trying to minimize fighting because fighting slows you down.

From an air power standpoint, air power again cannot play a critical role on its own. Air power has to be linked intimately to what is happening on the ground. In one of these "Jäger Air" experiments we gave a Light Armor Vehicle (LAV) company a couple of navy trainers to act as this kind of aviation with infantrymen in the backseat controlling the aircraft. As with German two-seater aircraft in World War One, the pilot was not the captain of the aircraft. The observer was the captain of the aircraft. They would fly over, they would say there is an enemy over here, there is an enemy here, you just missed a turn you wanted to make because with the dust cloud you could not see the road. The ground company commander said he could move twice as fast with twice the security that he could before. That is the kind of pay-off that you could get with aircraft in maneuver warfare, by supporting. The aircraft is not going off on its own and doing its own thing.

Obviously reconnaissance, the first job given to aviation in World War One, and in many ways still the most important, plays a critical role here, but most air forces consider reconnaissance to be very low on their priorities, because no one makes ace by bringing back photographs. The role of being able to see over the next hill is absolutely critical for the guy

on the ground, but it is not a glamorous role from the air forces' standpoint. It is not nearly as much fun as blowing things up, or at least thinking you have blown something up. So air power has a key role to play, but it is not a comfortable role institutionally, which is why we tend not to see it.

Operational art is essential to keeping up tempo, but so is something else, and that on a tactical level is what we call tactics of surfaces and gaps. Modern ground tactics are not about closing with the enemy, but bypassing and collapsing him, just like those German tactics in 1918. The object is not to find where the enemy is, but where he is not, so that you can go through him, so that you can go around him, so that you are all over his rear area. Since the Greeks and phalanx warfare, most formations have collapsed from the rear: the object is to get behind the other guy to collapse him from behind. How do you do that? Just as in 1918 you can only do it by radically decentralizing authority and decision-making. You cannot keep up tempo in a military where information is collected at the bottom, then passed up the chain of command to some headquarters, where a bunch of staffers chew on it for a while at meetings and design elaborate computer slides, and then an order from the general comes working its way back through the chain. Forget about it. The only way you can keep up the tempo, the only way you can take advantage of fleeting opportunities that appear unexpectedly, is by radically decentralizing authority. This is a culture of initiative and not a culture of obedience. This is a radically decentralized military culture. It is a break with the hierarchical culture of order, and it cannot work any other way.

The immediate answer from the culture of order has been for the past 150 years, "But my God you will lose control"! Well, first control is not a very good word to think of in terms of war anyway. You do not control war. A very good new book by a young British author, a young British civil servant who understands this stuff very well, on the differences between British and German training and tactics between 1888-1918, is titled correctly, Command or Control, not "command and control". The answer is that this military culture of initiative has a counterpart in discipline. It is a culture not of imposed discipline like the first military generation, where the sergeant walks behind the troops with the short spear,

the symbolic purpose, and sometimes the real purpose, of which is to stick anybody who is trying to run away. It is a culture of self-discipline. The German training literature from World War Two says explicitly that imposed discipline is useful, if at all, only in the earliest stages of training.

There are two glues that enable the self-discipline to work with the initiative to keep the thing from flying apart. The first we have already touched upon: mission-type tactics and mission-type orders. The order does not tell you what to do, it tells you what result to get. It lays that on you as a burden, as the term "Auftrag" suggests, which literally means "I leave the burden on you for getting me this result". The order usually has this writ great and writ small. Writ small is the mission for your unit, "here is specifically the result I want from your unit". Writ large is the commander's attempt at least two levels up, and intent overrides the mission. If you go out there and say, wait a minute, if I do as I have been told in this order, in this mission, the situation is different from what they thought it was, and it is not going to serve the intent, then you act according to the intent. It overrides the mission. It is what the Germans call, "the ticket till the end of the line". The second glue is what we call the concept of "Schwerpunkt". This is hard to translate. The Americans call it "point of main effort" and it becomes a point on the map, but that is not it. The "Schwerpunkt" is the commander's bid for a decision. In maneuver warfare you are always going for a decisive result, not an incremental result, and the commander is therefore thinking through the battle. The Marines who were first introduced to this suddenly discovered that they had to think through a battle for the first time in their lives. All right, what action am I going to take that is going to be decisive? That is the "Schwerpunkt", and it is usually expressed as a unit, because you decide that I am going to do that with this unit, and then you radically concentrate your combat power to support that unit, taking great risks elsewhere, if necessary. For example, one of the most useful things to do as "Schwerpunkt" is to have aircraft right overhead all the time. That means probably nobody else is going to get any aircraft. Artillery would be very similar. It will generally be concentrated at a "Schwerpunkt". For aviators, it definitely means that you cannot do what Marines love to do, which is to come to the scene and say "Hey you guys, we are here for the next ten minutes, use us or lose us". The air cannot come when it is convenient from its standpoint in terms of getting back to the club at 18:00 for a beer. It has got to be there when the guy on the ground needs it.

The key point here is a radically different culture. It is a culture that is outwardly focused, not inwardly focused. It is a culture of initiative, not a culture of obedience. It is a culture of self discipline, and not a culture of imposed discipline. Everyone is working cooperatively in this to the shared result, toward the intent, toward the goal that everybody understands, and they can take all sorts of initiative, playing off one another, not following the generals as the conductors of the orchestra, but again like the jazz group jamming, so that you get a very dynamic, fast-moving, high-tempo organization.

Can air operate this way? Sure it can. Can aviators use mission-type orders? Of course. I was in an exercise with the Marines a few years ago where a friend of mine, a Harrier pilot who is very deeply into the Germans, ran the red air, which was outnumbered three-to-one, and at the critique, blue admitted honestly that red air had been totally dominant. How did he do it? He used mission type-orders. There was no ATO and nine-line brief. There was none of that crap. He used the same map as the ground commander, and he explained that here is the ground situation, and here is the result we want from you. The aviators loved it. The squadron commander said, "This was the first time in my life I have ever done anything but fly wing for somebody, the first time I have ever been a commander". It so raised the tempo that though they were heavily outnumbered, red air dominated easily.

All of these things can work in aviation, but aviation itself only works if it is in this intimate marriage with what is happening on the ground. The guy in the cockpit has to look out of the cockpit and see the situation on the ground, understand what he is seeing, and know what it means. If he is reduced to a narrow technician who is told to put a bomb on this grid square, then he cannot possibly operate in this manner. Air will most surely not be effective because it is commanded by a centralized organization, by people who cannot possibly make the decisions in a timely manner as events unfold on the ground. Just as the 19th century debate was resolved by saying you have to trust the troops, in the 20th century debate on air power you have to trust the pilot. But you also have to train the pilot so he can operate this way. He needs to spend time on the ground, with ground units, doing ground tactics. You have to have aircraft that can operate in this environment. I only know one at the

moment in western inventories that can, and that is the A-10. You have got to have an air force that above all else wants to be part of the ground battle and the ground campaign. That is the challenge for air forces, and that is why the most expensive part of the modern militaries, the air force, is also usually the least effective, and contributes the least to the outcome of the battle or the campaign.

# Doctrine as the "Danger on the Utmost Edge of Hazard"

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One has always been somewhat sceptical about Manoeuvre Warfare. One's hesitations have several different strands not least of which is that doctrine is nothing more than a common basis for change, not something to which reality must conform. One could make many such comments, suffice to note just one matter. This essay was written in 1996-1997, and has been divided into two with only the first part presented here. The original divided its attention between the process whereby Manoeuvre Warfare doctrine emerged and an examination of the 1991 campaign in light of this body of thought and modern air power ideas. When faced with instructions that this article had to represent a choice between the two one sought to evade instructions, then to merge material so that one could not be separated from the other. Serious reflection, however, pointed to the need for compliance with instructions, and herein is presented the historical background to Manoeuvre Warfare doctrine - technology, TRADOC and political and military deliberations, and presented on the normal basis: for interest and information, and as the means of encouraging not stifling thought.

1975 witnessed the end of the Second World War, or at least the Pacific War that began with the Japanese attack on Pearl Harbor on 7 December 1941: the fall of Saigon on 30 April 1975 marked the end of the process that had been set in train by the Japanese occupation of southern Indo-China in July 1941. The continuing division of the Korean peninsula and lack of a Soviet-Japanese peace treaty notwithstanding, the end of the second Indo-China war really marks the point in time when the upheavals that were part of and flowed from the Second World War can be said to have worked themselves to a conclusion. Moreover, there was another link between these two conflicts, the Second World War and the

second Indo-China War, a link that was material: much of the weaponry with which the Vietnam War was fought was recognizably of Second World War vintage.

Between 1945 and 1975 there was much in the way of research and development of weapons and communications systems, and in this period many new systems entered various national inventories, but for the most part these various developments represented qualitative improvements over existing weaponry. The North Vietnamese T-54/55 tanks that completed the conquest of the south in April 1975 clearly derived from the Second World War. The majority of American carriers that served in the Gulf of Tonkin may have been modernized in the Fifties and Sixties and thereafter represented massive qualitative improvement over their previous form whether off the Marianas, Philippines, Okinawa or the Japanese home islands, but they remained ships that first entered service during the Second World War. The same was true, mutatis mutandis, for the Fletcher, Sumner and Gearing classes of destroyers, most of which were retired from American service in the course of the Seventies. Only in terms of aircraft and missiles were there development of the kind that represented quantum change in the conduct of war, witness such systems as the P.1127 VTOL Harrier, which was designed between 1957 and 1959, and the AIM-54/AAM-N-11 Phoenix air-to-air missile which began life in 1960 and which, in prototype form in 1965 as the XAIM-47, destroyed a target aircraft at a launch range of 127 miles. Such systems did represent something that was new, but the elements of novelty that were apparent in southeast Asia primarily concerned jet aircraft and the helicopter, the Vietnam War being the first in which both were used on an extensive scale. The Korean War had seen the employment of both, and the importance of such aircraft as the F-86 Sabre in that war cannot be gainsaid, but the intervening decade between this conflict and the Vietnam War had seen developments that had transformed both the jet aircraft and the helicopter in terms of performance. When the U.S. Navy's F-4B Phantom fighter was tested in 1961 - it flew for the first time in May 1958 - it was found to be superior to all existing fighters in American service by very wide margins in virtually every aspects of performance, while improvements of engines, couplings, rotors and streamlining by the second half of the Fifties had produced the power, lift, speed and mechanical reliability that enabled the helicopter to perform a

number of different tactical roles over the battlefield. The increased importance of aircraft and helicopters in the conduct of war was made evident in the course of the Vietnam War: in a way that was unique at the time, the Vietnam War was synonymous with the B-52 Stratofortress, the Phantom and F-105 Thunderchief, and the AH-1G Huey Cobra and CH-47 Chinook.

TRADOC was formed under the command of General William E. Depuy in 1973, the year that saw the completion of the withdrawal of American combat formations from southeast Asia and the October war in the Middle East, and in the evaluation of these conflicts it was perhaps inevitable that TRADOC's studies should have concerned themselves with three aspects of operations. First, as early as 1966 in South Vietnam the 1st Cavalry Division, complete with its equipment and supplies, was able to undertake sustained operations over several provinces over a four-month period, while in 1968 the same formation, in the course of Operation Liberty Canyon and at one day's notice, was redeployed over a distance of 570 miles in the course of two weeks. It was able to assign its leading brigades to other divisions before being reformed with the arrival of divisional headquarters and being committed immediately to operations. Such mobility was obviously unprecedented, and it is small wonder that in the aftermath of the Vietnam War American military attention should have turned to the use and implications of air mobility to "square the circle" within the European theatre of operations. Moreover, the Vietnam War also brought home to the American military the practicality of the concentration of firepower by air. The combination of command helicopters, fighter-bomber and AH-1G Huey Cobra strikes, scout helicopters for the marking of B-52 missions and the use of such aircraft as the and AC-130H and KC-130 Hercules and the Chinook in the support role enabled the Americans to concentrate overwhelming firepower in the course of their operations. There was, inevitably, a disastrous reverse side to this ability: the use of massed firepower devastated the countryside and very probably cost the Americans as much in terms of potential support among an uprooted peasantry forced to flee to urban crime-racked slums as it ever gained tactically. But in terms of the conventional battle, the potential importance of concentrated and properly co-ordinated airborne firepower was evident, especially when tied to the development of such weapons as TOW missiles for the anti-tank role. Thus at the very time

when the Soviets were seeking to enhance an existing conventional capability by improvement of the firepower, mobility and supply of massed armoured formations, the Vietnam War opened American eyes to another combination of fire and movement in the form of air mobility.

The long-term implications of air mobility were to point American military attention in three different directions. First, and most obviously, the concept of air mobility pointed to the need for new forms of tactical organization, specifically for smaller but more agile and more powerfully equipped units and formations than presently arranged. Second, air mobility undoubtedly proved valuable in southeast Asia in conditions of American air supremacy, but the concept of air mobility in the NATO theatre of operations necessarily involved having to fight and win the battle for air supremacy against an enemy with formidable offensive and defensive capabilities in the air. Third, the concept of concentrating firepower by deployment of air assets necessarily demanded formidable intelligence and command and control capabilities. But if these were problems that the American military had to address at the time when TRADOC began to consider how the future battle would be fought and relate that battle to matters of organization and doctrine, outside developments, and especially the apparent lessons of the October 1973 war, served to push TRADOC down the "more-of-the-same" path. The concentration of attention on material factors as critical to the increase of fighting effectiveness served to deflect American military attention from the basic questions of organization and doctrine that had to be addressed. In part this was because at this very time there were development and procurement programmes in hand that made the idea of fighting and winning an attritional battle against massed armoured formations on the basis of overwhelming qualitative advantage rather than superiority of numbers a realistic possibility.

The programmes in hand on 7 November 1973 in the United States embraced an awesome array of weaponry at every level of operations, including deterrence, and involved all three services: the Navy, on account of the block obsolescence of so many of its ships and the emergence of a genuine blue-water enemy for the first time since 1945, was perhaps the service most affected. At the strategic level MIRV had been unveiled in December 1967 and was tested in August 1968, and provided the Nixon administration with a belief in a continuing and insur-

mountable American technical superiority that enabled it to conclude the ABM Treaty. The B-1 Lance bomber, though beset by doubts about costs that were likely to prove prohibitive, was less than a year from its maiden flight, while in May 1973 much improved engines redeemed the fortunes of the much-troubled F-111 all-weather attack bomber and allowed the new F-111-F to replace the older B-52 bombers in service with the Strategic Air Command. In late 1971 the Trident submarine, and the programme that ultimately resulted in the D-5 missile, had been adopted by the Nixon administration. On the ground, 1973 saw the ordering of the prototypes that were to result in the M1A1 Abrams tank and M2 Bradley armoured personnel carrier and the testing of the missile of what was to yield the MIM-104 Patriot HIMAD system. In the air, and in addition to the E-3A AWACS programme which represented the world's most costly military aircraft at that time, a new generation of fighters, strike aircraft and helicopters was in the process of coming on line, while the experience of the bombing campaigns against North Vietnam in 1972 - *Linebacker I* and *II* - and the October 1973 War pushed the United States into the search for stealth technology in the form of reduced Radar Cross Sections of aircraft. The missile programmes in hand in the United States by the end of 1973 were all but bewildering in their diversity and implications though the most contentious, the cruise missile programme, had only begun life in 1972 as a derivative of the programme that was to result in the SLAM anti-ship AGM-84E Harpoon, which was tested in this year and entered service in 1977. At this time there was no appreciation of the problems that this programme, specifically its land- and sea-based versions, were to entail for SALT II and the European members of NATO: the AGM-109 Tomahawk II MRASM was tested in 1974. In terms of air-to-air missiles, the Phoenix had entered service in 1970 and complemented the ageing but constantly-being-updated AIM-7 Sparrow and AIM-9 Sidewinder, the latter having been first used in combat in October 1958 by Chinese nationalist F-86 Sabres: air-to-surface weaponry was smartly represented by the laser-guided Paveway and the AGM-62 Walleye electro-optical bomb, both of which had entered service in 1965-1966 with mixed results but which between 1971 and 1974 were updated and subjected to massive improvement and increases in size. The AGM-88 HARM, the successor to the AGM-45 Shrike and AGM-75 Standard, and the Hellfire anti-tank missile were under development in 1973. The A-10 Thunderbolt, designed for the close support role, had

undergone trials in autumn 1972 and was scheduled for delivery in 1974: after the abandonment of the AH-56 Cheyenne gunship programme in 1972, the specifications for new Advanced Attack and Utility Tactical Transport helicopters had been issued and competition narrowed to two designs in each category by mid-1973.

The sum of these various programmes, when allied to parallel developments in communications, ECM and surveillance equipment, potentially represented major change in the conduct of battle. The most conspicuous changes were those affecting the role and importance of aircraft, specifically the fighters: the F-14 Tomcat first flew in December 1970 and the F-15 Eagle in July 1972, while the F-16 Fighting Falcon was to make its maiden flight in January 1974. The significance of the F-15 Eagle and F-16 Falcon lay in the fact that, given the development of the F-100 engine, they were the first aircraft to possess thrust-to-weight ratios of more than one, and both incorporated fly-by-wire and electro-optical "heads-up display" technology. They were to the Phantom what that aircraft had been to all other aircraft when it had entered service. The new aircraft could out-manoeuvre any other fighter in service with ease, while HUD allowed a pilot to engage an enemy without switching attention between the sky and instrument panel: fly-by-wire technology allowed aircraft to be deliberately designed or loaded to be unstable but handle correctly and conferred a tolerance to damage denied aircraft with conventional hydraulic control systems. Subsequent advances in the micro-miniaturization of computer and software produced aircraft increasingly capable of flying themselves: when the F-15A entered service in November 1974 it was equipped with 60,000 avionic software codes but its successor, the F-15E, by 1990 carried forty times as many. The extent of the qualitative advantage thus conferred on this new generation of American fighters can be gauged by the claim that the Tomcat, equipped with multiple target track-while-scan and look-down/shoot-down capability, could track a maximum of 22 targets and engage six simultaneously. The U.S. Navy's calculation was that the new aircraft would be able to deal with minimum odds of 4:1 in combat with Soviet land-based fighters, and the corollary needed little in the way of elaboration: with the new fighters coming into service in the foreseeable future, the Americans possessed a confidence in their ability to fight and win the battle for air supremacy in the NATO theatre of operations.

Whether this confidence was justified, given the sheer size of the air forces of the Warsaw Pact and the physical spread of the latter's bases, can be doubted, but what cannot be doubted are two points. In 1973 the Americans were a few years from the deployment of the new aircraft that would provide NATO with a potentially overwhelming advantage over forces of the Warsaw Pact, and in the period between 1973 and 1976 the long-term implications of developments in aircraft and weaponry did not impinge overmuch on the deliberations of TRADOC, an organization overwhelmingly concerned at that stage with far more immediate issues.

At the time when it was formed TRADOC was part not of an army that had been defeated but something that was worse: a defeated army that had never been beaten in the field. The end of the Vietnam episode found the U.S. Army exhibiting all the symptoms of defeat: its relationship with government was characterized by mutual incomprehension and its relationship with society was almost one of mutual antipathy. It contained within its ranks warrant and non-commissioned officers who had refused to lead patrols in Vietnam, and junior officers who had proved either unable or unwilling to impose their authority on subordinates, to lead and to serve. It was an Army demoralized by its own failure, by the nature of the war it had waged in southeast Asia, by the indifference of American society to its ordeal. As noted elsewhere, the fact that in 1994 the number of suicides amongst American veterans of the Vietnam War exceeded the number of American deaths in that conflict suggests that the legacy of this conflict was both longer lasting and deeper in effect than is sometimes considered.

In such a situation it was small wonder that TRADOC and the U.S. Army's first concern was training rather than doctrine: after Vietnam the U.S. Army had to go back to basic soldiering simply to be able to go into the field at all. At the same time the U.S. Army was involved in weeding out the junior and warrant/non-commissioned officer ranks, and in one basic re-organization of its structure that reflected the end of the draft. Prior to its involvement in the Vietnam War the U.S. Army had been organized on the "hollow-divisions" principle, formations that existed only in skeletal form but which were fleshed out by conscripts. With the end of the draft the U.S. Army, as a fully professional force, was obliged

to constitute its field force differently, but after 1978, instead of organizing complete regular divisions, it adopted a system whereby part of every division existed in cadre form for reserve and National Guard units and the majority of the non-combat arms, and specifically combat support and combat service support, specifically drawn from reserve forces. In this way the American military establishment ensured that for practical purposes it could not be committed to any major endeavour without calling up reserves and thus could only be committed to operations with full congressional support: for the American military establishment the failure of the Johnson administration to have secured such support was the real lesson to be drawn from the Vietnam War.

But if the U.S. Army and TRADOC in the aftermath of Vietnam were primarily concerned with basics of organization and training, the question of how to fight presented itself in with immediate urgency. Their reaction, or more accurately TRADOC's reaction, was to form the story of AirLand Battle, but this is a story that is beset by two basic problems of narration and interpretation. In tracing the evolution of American doctrine between 1973 and 1986 there is the manifest problem of deciding whether the 1982 field manual was a half-way house on the journey to the 1986 edition or the 1986 field manual merely a postscript to the 1982 version. At the same time the basis of this evolution is difficult to discern. There is an interpretation of this process that is frankly determinist - a militarized marxism - and which recounts the shift to operational concepts of war primarily in terms of the Vietnam experience and the nature of the weapons systems which were becoming available in the course of the Seventies. Conversely, there is an interpretation that provides an account of this same process in personal terms, citing the Manoeuvre Warfare School and such people as Edward Luttwark but, more specifically, in seeing certain individuals such as John Boyd, Steven Canby, William Lind, Norman Polmar and Pierre Sprey, who together were the leading members of the reform caucus, as the critical factor in change. Quite clearly the shift in American doctrinal thinking was an intellectual process and therefore the emergence of AirLand Battle cannot be explained solely or primarily in material terms. AirLand Battle, because it embraced an operational concept of warfare never previously acknowledged in American military doctrine, cannot be explained simply by reference to the Vietnam experience and a recognition of the

worth of weapons system then becoming available. But if these two elements - the intellectual and the material - complemented one another, and there is little doubt that these were the most important single factors in the development of this concept and that they were inter-dependent, then one is faced with the difficulty of incorporating other factors into an account of these proceedings. For example, the debut of AirLand Battle in the form of FM 100-5 1982 cannot be separated from inter-service and bureaucratic struggles within the American defence establishment for the simple reason that the paper raised crucial questions of funding and the definition of the relationship between Army and Air Force.

Such matters were two presidents hence when, in 1976, TRADOC produced its first FM 100-5 and the concept of Active Defence. In essence, this concept sought to interpret the NATO strategy of flexible response by ensuring battlefield success by the conduct of the defensive battle in depth through the employment of the combination of massed firepower and mobile formations. As such, Active Defence conformed to mainstream American military thought because, in effect, it sought to deal with the requirements of battle at the tactical level by the use of firepower. In so doing, Active Defence invited active opposition, and for good reason: if it sought to overcome strategic inferiority by inflicting a series of tactical defeats upon an enemy it ran the very real danger of ensuring that the defence would win every battle except the last one. The concept of Active Defence was attritional, and the danger inherent in seeking to fight attritional battles against a superior enemy was that the defence would exhaust itself as a result of its victories, not unlike the Army of Northern Virginia in the 1864-1865 campaign. This was a danger that Active Defence did not address, yet this was the very real prospect that NATO faced in the European theatre of operation. This was precisely the point that the critics of Active Defence, the Manoeuvre Warfare School, recognized and which formed perhaps the most important single premise of the assault on the ideas underlying FM 100-5 1976 over the next two years.

The course of events as TRADOC moved from FM 100-5 1976 to FM 100-5 1982 proved as tortuous as some of the arguments of Active Defence's detractors, but in a sense the basic argument of the latter never

changed, and it was the point to which their opponents always had to return not least because another set of factors increasingly impinged upon American calculations. The second half of the Seventies saw the Soviet Union attain superpower capability, and if the most obvious proof of such attainment was possession of a genuine blue-water navy and new friends on the Horn of Africa and in Angola, the immediate NATO and TRADOC difficulty was presented by two aspects of Warsaw Pact development. First, from the time that the Americans and later European NATO adopted flexible response the Soviet military faced a situation that was even-handed in its implications. The build-up of Soviet nuclear forces in the Sixties pointed to a time when the Warsaw Pact would be able to meet NATO on a basis of strategic equality and hence would be able to neutralize the threat of nuclear strikes that had previously underscored NATO doctrine. As such, developments presented the Soviet military with opportunity, but at the same time Flexible Response, because of its emphasis upon conventional forces, presented the possibility that the one clear advantage that the Warsaw Pact had enjoyed over NATO would be eroded. Thus the Soviet military in the latter part of the Sixties was forced to consider something that previously had never commanded much attention because the capability had hitherto been assumed, namely how to overrun western Europe in the course of a conventional campaign. From 1964 onwards, therefore, this consideration produced three related developments as the Soviet military turned its attention to the future battle: the massive strengthening of the firepower and logistical capability of existing divisions, the raising of more airborne divisions, and the development of the Operational Manoeuvre Group concept. In essence, what the Soviet military sought to do in order to maintain its conventional capability was to implement qualitative improvements that would ensure the continued viability of the "Deep Battle" concept by increased firepower, improvement of logistical arrangements that would ensure a greater tempo of operations, and the ability to strike in strength and in depth across the NATO area. In so doing the Soviets were able to reach for the air-mechanization concept that had proved so elusive in 1944-1945, and in addition the Operational Mobile Group emerged by the Eighties in the form of complete armies.

The second development was the direct byproduct of this strengthening of the lead formations. The subsequent strengthening of the formations

in the western military districts of the homeland inevitably raised Soviet conventional capability still further, and by the latter half of the Seventies, at the time when the Active Defence battle was joined, this had created an additional problem for NATO. In its previous calculations and planning NATO had assumed that its formations would be able to break an offensive by Group of Soviet Forces Germany: its basic problem was that NATO formations would be very severely mauled in the process. The realization that the formations in the Soviet second strategic echelon, with their improved capabilities, would be able to move to the battlefield and maintain the offensive against gravely weakened NATO forces was to recognize that defeat in the conventional battle would be inevitable. But herein the arguments within the American military produced an attempt to square the circle that elicited only amazement on the part of the United States' allies. Recognition that in effect the real threat to NATO's integrity was presented by the formations moving from the western military districts gave rise to the American determination to seal off the battle area from these forces and thus prevent their intervention by the offensive use of air power. Faced with distinct difficulties in dealing with the first-echelon forces and a major Soviet air capability, the European NATO military were less than impressed by the prospect of using air power to deal with the second-echelon formations. To the European military there was little if any point in preventing the second-echelon formations getting to the battlefield if there was no guarantee of being able to destroy the first, and lurking behind this self-evident concern was a certain scepticism about American claims given the state of the U.S. Army in the immediate aftermath of the Vietnam War.

This, however, was but one of three major sources of tension within the Active Defence argument that affected the American military, both internally and in its dealings with its allies. The second was to emerge over time, as TRADOC moved from Active Defence to embrace AirLand Battle, and it did so because of the very nature of the answer that the AirLand Battle concept gave to the problem of fighting a defensive battle on the basis of tactical inferiority. That answer was the dispersal of force, an idea that contradicted every known military wisdom. The third source of tension was a well-nigh incomprehensible misuse of language on the part of Active Defence's detractors, which was a source of consid-

erable confusion as the military on both sides of the North Atlantic sought to try to understand the intricacies and subtleties of the AirLand Battle argument, bedevilled as it was by the Manoeuvre Warfare school's highly selective use and misuse of terms and historical argument.

This latter problem was very real. Those that were to mount the assault on Active Defence were to adopt the title "Manoeuvre Warfare" for their alternative, and in so doing made clear their distance from concepts of warfare that were based upon attrition. But in several ways this choice of title was unfortunate and indeed erroneous, not least because attrition and manoeuvre are not opposites. The reverse side of the coin marked attritional battle is the battle of annihilation, and that of manoeuvre is positional or, to adopt the German word, bodenstaendig. Given the fact that no war has ever been fought without manoeuvre, the use of the term Manoeuvre Warfare was something of a disservice to the cause of general understanding, and the term itself became ever more meaningless with the subsequent attempts by Chairmen of the Joint Chiefs of Staff drawn from the Army to impose Manoeuvre Warfare or the "Manoeuvrist Approach to Warfare" - a corporate credo sanctified as an all-encompassing truth - on the Navy and Air Force. By the Nineties the pointlessness of such doctrinaire notions became ever more obvious, not least for a Navy no longer faced by a blue-water enemy and in effect denied a brown-water role other than in direct support of formations and operations ashore. What the opponents of Active Defence really meant with their alternative was a means of restoring decisiveness to warfare and to do so by the concentration of firepower against what it termed enemy "centres of gravity," though "critical vulnerabilities" might have been a better term. But whatever the title and the basic tenets of its credo, the AirLand Battle concept was doubly ill-advised in the adoption of the term "Manoeuvre Warfare" because it implied stress upon movement whereas its main argument in effect was to seek decision by the combination of firepower and mobility. As it was the emphasis upon manoeuvre in its own title lent itself to such observations as firepower can rarely substitute satisfactorily for manoeuvre. Manoeuvre used to secure a position of advantage has an enduring effect, which compels the enemy to respond by acting on our terms. The effect of firepower is, however, not sustainable indefinitely and may not provoke a reaction that can be exploited, which would seem to be wholly beside the point, if not worse:

firepower might not win battles and campaigns, but manoeuvre never has and never will. The weakness of this assertion is that it fails to recognize the critical inter-dependence of firepower and movement by depicting the two parts as conflicting rather than being complementary.

The very term "Manoeuvre Warfare" created problems of understanding, partly because whereas the customary use of the word "manoeuvre" implies the movement of formations in order to concentrate whether in defence or attack, under the new definitions it primarily concerned the concentration of firepower, which was slightly but significantly different. The real problems of comprehension concerned themselves with the idea of the dispersal of force in the face of a superior enemy, but the opponents of Active Defence were to be vindicated in argument because the idea of tactical dispersal was but part of a concept of operational concentration and one directed against will and cohesion as much as physical strength.

Perhaps somewhat strangely, the basis of these ideas lay in contemporary Soviet doctrine, a state of affairs that passed unacknowledged in FM 100-5 1982: the only reference to Soviet operations in that document concerned the battle of Kursk-Orel and dwelt with the failure of the German offensive. But NATO's adoption of flexible response forced upon alliance members the study of Soviet doctrine and organization, and it was in the early Seventies, and primarily as a result of research undertaken in service schools in the United States and Britain, that the writings of such people as Svechin, Triandafillov and Tukhachevskii and such concepts as Deep Battle and the operational level of war slowly began to percolate western military consciousness. The fact that such concepts as Deep Battle and the operational level of war had no American pedigree, and indeed had no meaning in the American military vocabulary, pointed to the extent to which much of the idea of "manoeuvre warfare" was lifted in no small part from Soviet military literature and experience, and sometimes obliged to take second place in matters of translation: the American term "meeting engagement" was taken directly from the Soviet concept of the "encounter battle."

The awareness of how the Soviet army would attempt to conduct an offensive into western Europe was critical because within the idea of

fighting in depth across the battlefield and with formations en echelon there was weaknesses, as there must be in any military plan or concept of operations. The Soviet concept of Deep Battle at this time was a Schlieffen Plan, a Soviet military equivalent of a de Dondi creation, a majestic clockwork of wheels-within-wheels that represented the medieval European view of the universe - ingenious, beautifully crafted, lovingly created and hopelessly wrong. If the Schlieffen Plan in 1914 failed because it imposed such unrealistic demands upon its soldiers, lacked adequate logistical investment and its inadequacies of command and control facilities, its synchronization of its parts was duplicated in a Soviet concept of operations that risked breakdown and failure, not unlike the failure on the Marne in September 1914, because of the checking of one of its inter-dependent parts. The Manoeuvre Warfare school's relevance lay in its appreciation that an ability to check the enemy at one point of the latter's effort across the depth of his offensive either by the destruction of forces or the denial of prescribed axes of advance provided a basis of operational, not tactical, victory.

Manoeuvre Warfare as a concept encompassed a number of ideas but the notion of the defeat of an offensive by the checking of capability and intention formed its central part. Other ideas, and the various technological changes then in the process of working their way into military inventories, both reinforced this basic tenet and provided the means of realization. Inevitably, given the fact that repudiation of attrition as the means of ensuring victory was central to the Manoeuvre School thesis, the notion of checking the capability and intention of an enemy was synonymous with paralysis and the destruction of the enemy will to fight. Central to this was the notion, embodied in Boyd's OODA Loop concept, of beating the enemy in terms of speed of decision and thereby imposing one's own will on the battle and ensuring the concentration of firepower at different points across the depth of the enemy deployment, the enemy being forced to react defensively and without the time to be effective. Herein the emphasis of this new American thinking was primarily concerned with the deep strike, thereby avoiding the potentially costly close-quarter battle, by aircraft and by highly mobile formations, though the reality that close contact could not be entirely avoided was acknowledged. By the use of concentrated firepower and such formations, the Manoeuvre School sought to engage and defeat the enemy

operationally and, in a cause-and-effect context, secure or ensure retention of the initiative and to disrupt the enemy's plans and cohesion and to ensure the disruption of the coherence of his forces and his operations in depth. In this manner the Manoeuvre Warfare school sought to embrace concepts that would enable the very strengths of a Soviet doctrine based upon manoeuvre, momentum, depth and successive operations by formations staggered en echelon to be turned against themselves. The Manoeuvre School's concept of disruption as the key to victory was both a reflection of and counter-point to the Soviet concept of operational shock as the basis of operational success.

As noted elsewhere, the adjective "revolutionary" is much over-used with reference to military change, and if one considers the various parts of the Manoeuvre Warfare concept one cannot but note that none were new: Lind, perhaps the most celebrated member of this school, wrote in 1985 that Manoeuvre Warfare was not new. Yet it is very difficult to resist the notion that, irrespective of acknowledgements to traditional military concepts, the concept of Manoeuvre Warfare most certainly was new, indeed revolutionary. The Manoeuvre Warfare school in the United States was not alone in developing its ideas - Marshal Ogarkov in the Soviet Union was arguing along very similar lines and to much more radical conclusions at this very same time - but the sum of its ideas, when finally assembled in FM 100-5 1986, most definitely represented a radical departure from received military wisdom, not least in its abandonment of the linear concept of battle and the adoption of the principle of concentration of firepower across the depth of the enemy deployment. This was something different and broke with the practice of two world wars, and perhaps the only parallel to be found in history is the Battle of the Atlantic in the summer and autumn of 1943: simultaneous and successive defeats in battles around convoys along the shipping routes across the whole of the eastern and central North Atlantic, plus the losses inflicted on the U-boats moving to the battle zone across the Bay of Biscay, destroyed the force of successive German efforts in the campaign against Allied shipping. But this parallel is not exact, dealing as it does only with those convoys that were attacked and not with the majority of convoys that crossed the North Atlantic unmolested even at the height of the campaign, but the historical comparison is relevant for one obvious reason. The victories that were won by Allied naval forces in this cam-

paign were in no small measure the result of the inter-play of factors the absence of which, in this period between 1976 and 1981 when Active Defence and Manoeuvre Warfare did battle, were enough to ensure that Manoeuvre Warfare could not have worked at this stage of proceedings.

Allied success in the Battle of the Atlantic in 1943 was the result of the coming together of five sets of circumstance: settled organization and qualitative and quantitative superiority of Allied warships relative to the U-boat, superiority of personnel, effective co-ordination of naval and air forces, effective command and control, and Intelligence advantage. These had been four years in the making with many defeats and failures marking the path, and the final result represented attritional victory, as befits the nature of naval warfare. But those very conditions that had made for the Allied victories of 1943, and which enabled the Allies to confirm these victories in 1944 and 1945 by inflicting a rate of loss that was even greater than registered in 1943, were not available to the Manoeuvre Warfare school in the period between 1976 and 1982. For example, the Allied victory in the Battle of the Atlantic in summer and autumn 1943 was in no small part the result of Allied success with ULTRA, the security of their own communications, and the effectiveness of Admiralty organization in tracking, diversion of convoys and formations, and liaison with air forces. These were the critical factors at work in this mid-war period because they brought the other elements to full effectiveness. To fight AirLand Battle in the period under examination would have demanded communications on a scale that simply was not available, and the Intelligence base that would have been required, specifically to be able to fight the deep battle, did not exist. The qualitative advantage of escorts, individually and at formation level, that contributed massively to the Allied victory in 1943, had no parallel in this period, and certainly the situation in 1943 of growing disparity of capability in terms of experience and training between warships that survived and U-boats that were lost had no equivalent if only for the very obvious reason that NATO could have no such advantages if it never had a doctrine, and was fully trained in that doctrine, in the first place. But the real point, however, was that with the exception of the latter all the materiel requirements that were needed to duplicate the 1943 situation were in the process of realization in the period after 1976.

Arguably the most important of these elements needed to provide Manoeuvre Warfare with credibility concerned command and Intelligence: the ability to read the battle over time and distance, and to be able to respond to developments more rapidly than the enemy, were in many ways the crucial considerations that would spell the difference between victory and defeat. Under the definitions supplied in the 1982 manual, the depth of battle for a corps - its area of interest - involved surveillance sufficient to provide 96 hours' notice of the approach of enemy formations, and in theatre terms the NATO area of interest extended to a depth of some 600 miles. This was one area where the Manoeuvre Warfare alternative was weak. The proposed use of TR-1 (updated U-2 spyplanes) in the Precision Location Strike System for strategic reconnaissance and targeting was someway in the future and in any event encountered major funding problems, while the means of detailed tactical surveillance - the JSTARS programme - was only initiated in May 1982, the first E-8A flight taking place in December 1988. In 1991 the E-8A was able to read the battle to a depth of 155 miles, but even at that stage, more than eight years after the publication of FM 100-5 1982, the E-8A was some six years off entering service: in 1991 it was committed to the Middle East before it had been properly tested and evaluated and rendered fully operational. In one sense the situation was not quite so dire as might appear, not even in the period 1976-1982, because of the availability of other forms of surveillance then coming to hand, but in reality American confidence to be able to read the battlefield was misplaced. The basis of American belief was the constraints that were believed to place themselves upon Soviet deployment. Given the distances involved and such considerations as the life-expectancy of engines and tracks of armoured vehicles, the Intelligence calculation was that the movement of formations from the western military districts of the Soviet Union to the central European battlefield could only take place by rail, and between the Carpathians and the Baltic in effect restricted strategic movement to just three major, double-track, lines. The monitoring of three lines was within American capability in the second part of the Seventies, and the ability to strike these lines had been demonstrated between 6 April and 30 June 1972 in the course of Linebacker I when Phantoms using smart bombs destroyed no fewer than 106 bridges in North Vietnam, including the Paul Doumer bridge on 10/11 May and the Thanh Hoa bridge on the 13th. But the fact of the matter was that

Soviet armour was designed and built to move on roads or across country over hundreds of miles, not to use a rail system that was vulnerable, dependent upon available rolling stock, and not necessarily quicker in the deployment of forces than the road system. Between the Carpathians and the Baltic were three major road systems and six minor rail lines (capable of handling half a motor rifle division per day) across which Soviet forces in the western military districts could have moved without any significant loss of combat effectiveness. In light of the diversity of routes and in terms of real-time intelligence and command and control arrangements, at this time NATO's ability to effectively seal off the battle zone from Soviet reinforcements from the western military districts was highly problematical.

Even more seriously, the mobility and firepower that were needed to fight and win the battle at the tactical and operational levels were not available in the period between 1976 and 1982. The production order for the UH-60 Black Hawk helicopter was issued in 1977 and deliveries began in 1980, but the production order for the AH-64 Apache was not issued until 1982 and deliveries did not begin until January 1984. With the example of the October 1973 War to serve as evidence of the importance of PGM, the concept of Manoeuvre Warfare in large measure rested upon small, highly mobile units able to disperse firepower effectively in direct contradiction to the historical trend of concentration. The *sine qua non* of Manoeuvre Warfare was air mobile units and specifically the attack helicopter, the Cheyenne or Apache but not the Cobra, but these systems and the capability made possible by network systems were not in place in this period of AirLand Battle's gestation. Equally, at this stage of proceedings the Manoeuvre Warfare school's argument in respect to devolved command and initiative was tacit acknowledgement of their absence, and indeed the 1982 manual's claims about the U.S. Army's history and capabilities were little more than feeble homilies with little or no historical justification.

Perhaps inevitably, argument involves "sound bytes as instant wisdom," and the Manoeuvre Warfare thesis had four which, enshrined in FM 100-5 1982, are synonymous with the very name AirLand Battle: initiative, depth, agility and synchronization. In reality any argument, event, even History itself, is like a piece of rope in the sense that all consists of

strands, each of which is essential to the integrity of the whole, but argument, events and History are unlike a piece of rope in that their strands are not equal and woven into a regular, repeating pattern. At different points along the length of an argument or History one strand will be uppermost, and any examination of the Manoeuvre Warfare thesis reveals the futility of trying to identify the primary argument or strand at any particular point in time. But the idea of devolved command - "mission-command" or "mission-orientated command" or, to borrow its German original, auftragstaktik - was one of the key elements of Manoeuvre Warfare, and the latter implied a level of understanding, competence and initiative that the 1982 field manual, by its repeated assertion of their importance, unconsciously acknowledged did not exist, and nor could they. An army that throughout its existence had been subjected to the "orders-command" system - *befehlstaktik* - could not assume the levels of competence, notably with respect to anticipation of superior intent on the part of subordinate commanders, that Manoeuvre Warfare demanded given its need to guard against a collapse of command and control systems under the attack of an enemy's electronic countermeasures.

If the U.S. Army was to secure the levels of initiative and competence that Manoeuvre Warfare demanded many years needed to pass in order to allow the U.S. Army was to equip itself with an understanding of the concept of the operational level of war. Richard E. Simpkin's difficult, if not unreadable, *Race to the Swift*. Thoughts on *Twenty-First Century Warfare*, published in 1985 complete with its somewhat esoteric five criteria, and Deep Battle, *The Brainchild of Marshal Tukhachevskii*, published in 1987, provided the basis of understanding of the concept of the operation level of war, but arguably the real basis of an historical understanding of the concept did not exist before 1991 and the publication of David Glantz's authoritative *Soviet Military Operational Art: In Pursuit of Deep Battle*. By the same token many years needed to pass to allow a new generation of junior officers, nurtured on the concept, to enter the service: the wooden performance of Army units during the course of the Grenada venture in October 1983 against an "enemy" that offered resistance that ranged between the negligible and the non-existent was clear evidence of what remained to be done on this particular score some fourteen months after the publication of FM 100-5 1982. But if the

American military needed time to take up the challenge presented by the concept of mission-command, another set of events was unfolding that was to both reinforce and make possible the system of devolved command. Other than its increasing capacity to irritate, the telephone barely changed in the hundred years after its invention in 1876: likewise, the computer changed relatively little between the turn of the century and 1970 though it had moved from mechanical to electro-mechanical systems. But by the Seventies, and in part under the impact of a Space Race which had resulted in satellites displacing even such aircraft as the SR-71 Blackbird in the strategic reconnaissance role, integrated circuitry had resulted in the development of the microprocessor in 1971: the development of the Intel 8086 microprocessor in 1978 effectively marked the point where the reduced cost of computing power meant that computer technology ceased to remain the closed preserve of major institutions with only very limited relevance to subordinates. If the concept of networks and the impact of fibre optics remained perhaps a decade into the future, at least some of the military implications of these developments were recognized though very obviously these remain somewhat debatable. The assumption that the new technology would "empower" lower levels of authority does not sit easily alongside the historical reality that the series of communications developments since the telegraph was patented in 1837 have served to strengthen superior authority by enabling it to exercise ever closer supervision of subordinates, witness the Methodical Battle concept of the inter-war French Army and Hitler's general conduct of operations in the course of the Second World War. The fact of the matter is that armies are hierarchical in organization and practice, and have never been able to institutionalize a means of encouraging innovation and free-thinking on the part of subordinates lest these become criticisms of and challenges to established authority and perceived wisdom. Certainly film of proceedings within the British defence ministry showing junior minister, permanent under-secretary and chief of the defence staff discussing the funding of a platoon hardly represents evidence of assured *auftragstaktik* as the product of the Information Revolution.

The Manoeuvre Warfare school embodied paradox: virtually every single argument, tenet and imperative was hopelessly flawed, hence the basic soundness of its whole. Its essential validity lay in its anticipation of

means that were not available at the time it joined battle with the Active Defence establishment and its recognition that new concepts of warfare were needed to overcome the conventional materiel inferiority under which the American military would have to labour in future. Its success was ensured by the latter, as TRADOC's movement away from Active Defence after 1976 acknowledged. But if Manoeuvre Warfare and AirLand Battle were primarily the products of various military and technological factors, three other ingredients were critical to their development and timing. The first of these was the fact that the decade that followed the Vietnam War were ones of turmoil and upheaval within the American military establishment, and in such a context the Manoeuvre Warfare school was able to mark out its ground in a way that was perhaps unprecedented. The place that civilian academics and retired service personnel had played in the development of defence ideas in the United States had been assured for many years, but the various debates that had been provoked had been conducted within the military system. The arguments of the 1976-1982 period certainly embraced both military and civilian personnel who were within the system but much of the driving force behind Manoeuvre Warfare derived from Congress, most notably the subsequently-discredited Senator Gary Hart, and the whole process had been initiated jointly by Lind and Senator Robert Taft in 1976. But this was an unusual period. The Carter years, 1977-1981, were characterized by doubt and confusion, the Reagan years that followed merely confusion. The Carter and Reagan administrations were antitheses of one another, the former mixing good intentions, intelligence and irresolution in equal amounts, but in one critical respect they had the same effect reference the American military's doctrinal disputes. In effect both encouraged the Manoeuvre Warfare school without understanding either its arguments or the implications of its ideas, the one on account of the seeming weakness of the American strategic position that in the aftermath of the Vietnam War provoked the search for means of redress and the other on account of an overweening confidence in American power that enabled it to consider radical innovation. This was the period when the idea of fighting and winning limited wars became common currency within the American military establishment, when the U.S. Army became increasingly insistent upon its ability and its right to be allowed to fight such wars on its own terms and, by virtue of "overwhelming force," to win such conflicts.

The second of the three ingredients crucial to the development and timing of Manoeuvre Warfare ideas was the person of Lieutenant-General Donn Starry, after July 1977 the second commander of TRADOC. Somewhat sceptical of Active Defence doctrine before he took up the appointment of commander of American land forces in Europe, his time in Germany served to convince Starry that the Active Defence concept had passed its sell-by date. The emergence of AirLand Battle doctrine in his extended time at TRADOC was in large part the result of his personal movement to embrace most of Manoeuvre Warfare's concepts, and since there was no open repudiation of FM 100-5 1976 and Active Defence, he was able to take the bulk of army opinion with him as he did so. Starry's time at TRADOC was thus marked by gradual shifts to the Central Battle corps-concept in 1978, to the corps-plus-air force idea of the Integrated Battle in 1979 where for the first time the concept of operational shock in depth was grasped, and critically, under the influence of SACEUR's "follow-on forces attack" concept, to the Extended Battlefield in 1980. These developments occurred even as the argument between rival schools passed its peak, and in this process the articulation of the Carter Doctrine in the State of the Union address on 23 January 1980 and the formation of the Rapid Deployment Task Force in March 1980 were of major importance. The Carter Doctrine, formulated at a time when American power seemed to be in retreat in the wake of Soviet success in upholding its Ethiopian client in its war with Somalia (February-March 1978), the Iranian revolution (16 January 1979), the seizure of the U.S. embassy in Tehran (4 November 1979), and the Soviet invasion of Afghanistan (26 December 1979), committed the United States to a five-year programme of modernization of the armed forces. The creation of the Rapid Deployment Task Force, the precursor of Central Command (CENTCOM) which was established on 1 January 1983 from the joint headquarters formed for this force, was designed to bestow the United States with the means to respond to crises around the world. In effect, however, the combination of the Carter Doctrine and the new command organization marked out the Gulf and Middle East as vital to American national security and the American determination to uphold her interests by force if necessary. But by creating an organization with Army and Marine Corps formations the Carter administration presented the armed forces with the twin demands that they be able to operate if necessary under conditions of major inferiority and to synchronize

their various capabilities. Thus the U.S. Army was obliged to deal with the new demands imposed by the Carter Doctrine, and the Navy and Air Force were thus drawn into the process at the very time that the doctrinal net was being thrown ever wider by the Manoeuvre Warfare school and by Starry's shift toward endorsement of its main arguments.

The third and last of the factors that shaped the development and timing of Manoeuvre Warfare and AirLand Battle was provided in the form of the Reagan administration and a 15% increase in defence spending. The implications of this development was to take different forms, not least for the U.S. Navy which, having decided upon "The 600-ship Navy" had to produce the rationale for such a force, hence *The Maritime Strategy* paper of August-September 1982. What was at issue was procurement programmes and service status, and specifically which of the services was to gather the lion's share of what was to hand. The AirLand Battle concept was the Army's attempt to ensure its own priority ahead of the Air Force and publication of FM 100-5 in 1982 all but wrecked the very delicate consultation that was then being undertaken by the Army and Air Force with regard to *AirLand Battle 2000*. To state that the Air Force was less than enthusiastic about FM 100-5 1982 would be to understate the situation with a vengeance: the Air Force did not regard its prime purpose in life to be at the beck and call of the Army. FM 100-5 1982 left the Air Force bitterly resentful and implacably opposed to a concept of warfare that effectively denied it any role other than support for its sister service. The Air Force resisted acceptance of commitments under the terms of FM 100-5 until 1984 and the "31 Initiatives" agreement with the Army, and one of the most notable features of FM 100-5 1986 was the balance between land and air that was so conspicuously lacking in the 1982 edition. To borrow an observation, the 1976 concept dealt with co-operation and mutual support between ground and air forces whereas AirLand Battle 1982 concerned itself with "simultaneous battles on the forward line and deep in the enemy's rear echelons in close concert by airpower and ground forces." What was also conspicuous about the two papers was that the 1986 paper lacked the frenetic breathlessness, and sense of incompleteness, of the 1982 version: the 1982 document is a proselytizing screed whereas the 1986 document is the authorized version of an established church. As it was AirLand Battle, in the form of FM 100-5, was published on 20 August 1982 after the West

Point conference of the previous month. Sometimes regarded as the point at which old ideas were laid to rest, this meeting of the congressional "Reform Group" and defence intellectuals was really more important for the new ideas being officially unveiled and endorsed, the U.S. Air Force notwithstanding.

The West Point conference came in a month that witnessed two wars. In the South Atlantic the Argentinean occupation of the Falkland Islands was ended in a highly unusual campaign which was cruelly if not inaccurately described as a fight between two bald men about a comb: a nation that had turned its back on aircraft carriers and commitments outside the NATO area was able to improvise at short notice an operation across 8,000 miles of ocean and fight and win a campaign in which surface warships, with minimal air support, were able to overcome land-based aircraft operating at the limit of endurance. In the Middle East another round of the Arab-Israeli conflict began with the Israeli invasion of Lebanon, which had been engulfed by civil war since April 1975. Both wars saw the employment of high technology weapons and were linked by the fact that the last missile fired at a British warship in the South Atlantic was a Gabriel, supplied to Argentina by an Israeli aircraft courtesy of refuelling facilities in Libya. But if in this war the narrowness of the margin of British victory could be measured by the number of British warships that were struck by bombs that failed to explode, the war in southern Lebanon was to be much more significant in terms of the state of the art and its implications for warfare.

The episode that went under the name Operation Peace for Galilee, and which ensured everything but, was profoundly significant both in terms of warfare and the Arab-Israeli dispute. Freed after March 1979 from any immediate commitment on her southern border as a result of the Washington treaty with Egypt, the Israeli offensive into southern Lebanon in June 1982 introduced Israel to two new experiences. For the first time in her existence Israel embarked upon a military operation against a neighbour that opened deep divisions within Israeli society, this being an act of calculated aggression that many Israelis found wholly unacceptable. Moreover, for the first time in her existence Israel encountered military failure. In the short term she was successful, ironically so: the expulsion of Palestinians from Lebanon, and the pictures of ships

arriving at Lebanese ports to take them to more hospitable shores, mocked the Israeli claims that the Arabs threatened to destroy the state of Israel and drive its people into the sea. But whatever military success was commanded counted for little alongside reality that Israel embraced a long-term commitment in southern Lebanon that she could not escape. In much of this area Israeli forces had been welcomed by the indigenous population, weary of war and resentful of the Palestinian presence in their country, but Israeli behaviour turned this population against and saddled Israel with a commitment to support Christian Falangist forces that, in the final analysis, were unable to sustain themselves without Israeli backing: the idea of securing Israel's northern border by proxy, which had begun in March 1978 with an Israeli incursion and establishment of a cordon sanitaire in the border area, finally miscarried. In fact Israel's failure was even more profound because her attempt to re-assert a Christian supremacy in the Lebanon that had long died provoked the inevitable anti-Israeli reaction among the various peoples of southern Lebanon that Israel had to win to her side, and in so doing the Israelis managed to rescue defeat from the very real victory that she won in the first three days of this operation. What was no less significant was that in the process the Israeli state revealed itself as possessed of characteristics that rendered it indistinguishable from its PLO enemy. The PLO struggle against Israel after 1967 was generally described in the West as terrorist, and the Palestinian leadership was routinely condemned by Israelis as murderers and worse. But the massacres at the Sabra and Shatilla refugee camps in southern Beirut by Falangist militia operating in an area controlled by Israeli forces (16/18 September 1982) and the Israeli naval, air and artillery bombardment and deliberate blockade of the Moslem areas of the city by the denial of food, medical supplies, electricity and water cost Israel its claims on the moral high ground, both in this specific conflict but more generally in the context of the Arab-Israeli dispute as a whole. If before this time Israeli terrorism was selective and for the most part discreet whereas Palestinian terrorism most definitely was neither, Israeli behaviour in southern Lebanon in 1982 meant that the various denunciatory labels thereafter attached themselves to all sides with equal impartiality.

In terms of warfare Operation Peace for Galilee was significant because of the manner in which it was fought, specifically on two separate counts.

First, given the initial intention to destroy Palestinian forces in southern Lebanon, the Israelis, with its Northern Command allocated a total of seven divisions, "force-packaged" a corps equivalent on three separate axes of advance, along the coastal plain, via Beaufort Castle into the area between the Litani and Zaharani rivers, and up the Beqaa valley. Given the nature of the terrain and the wretchedness of the roads in these areas, each formation was specially strengthened with engineers, but with a plan that involved a series of divergent attacks across a linear front and with fully mechanized formations the Israelis adopted a form of attack and all-arms formation that was very similar to that to which the Soviet Army had begun to move in the Seventies. The need to integrate armour and infantry, and to have the whole properly supported by artillery and services, was the prime lesson of the October 1973 War, and in practical terms this meant a mechanized infantry able to put down general suppressive fire. With the Merkava tank making its operational debut in this conflict, the Israelis invested their separate efforts with considerable defensive power and relied upon mobility and the support afforded primarily by Cobra and Defender helicopters for firepower. This is not to suggest, however, that either the Israelis were not without their problems or that their arrangements were innovative: the American military assessment of the Israeli performance was that the 1982 campaign revealed very little advance relative to the October 1973 War while the Israeli effort in southern Lebanon was beset by logistical problems and over-concentration of helicopters in the assault role.

In the first two days of Operation Peace for Galilee the Israelis were able to sweep aside hopelessly out-gunned and out-classed Palestinian forces and were almost on the line of the Awali river, and within another twenty-four hours had advanced on Damour and through the Shouf to secure Beit el Dine, some ten miles south of the main Beirut-Damascus road. But on the unsecured right flank Syrian forces remained, and despite an initial Israeli intention not to seek battle with these forces fire had been exchanged in the Beqaa on the first day and the Israelis had prepared an alternative plan - Operation Big Pines - that involved an offensive against both the Palestinian and Syrian forces in Lebanon. On the second day of the campaign the Israelis again encountered Syrian resistance, this time around Jezzine, and strengthened their forces in the eastern sector: on the third day Israeli formations clashed with and defeated Syrian forces in

front of the Bessri and around Jezzine and pushed up the Beqaa valley to within ten miles of the main Syrian defensive positions around Rashaiya. Herein the second factor of significance in terms of the manner in which this conflict was fought was summoned.

The unprecedented scale and extent of the Israeli offensive throughout southern Lebanon compromised the position of the Syrians. Having intervened in March 1976 ostensibly in an attempt to end the civil war but in effect to save the Christians from being defeated by the Lebanese Moslems and their PLO allies, Syria in June 1982 could not afford to see her special position in Lebanon usurped by Israel and could not stand aside while the Palestinians were defeated and her military position compromised. But her strengthening of her forces in the Beqaa and the Ante-Lebanon led the Israelis to implement their second alternative, which opened on 9 June. Over the previous days the Israelis had conducted extensive electronic surveillance of Syrian positions and installations both in Syria itself and eastern Lebanon, and on the fourth day of this campaign began a series of operations designed to force the Syrian Air Force to give battle. In this the Israelis were successful, and a minimum of 22 Syrian fighters that were put into the air were destroyed in a single action by an Israeli Air Force that, having used drones to read Syrian radar signatures, used four E-2C Hawkeye AWACS/ESM and four Boeing E-3 ECM/ELINT aircraft to jam Syrian radar and communications and to direct Israeli fighters to the battle. In addition, the E-2C, which can track 200 aircraft simultaneously and fly a F-14 and fire its missiles, were able to direct the attention of Israel ECM fighter-bombers and strike aircraft, which were equipped with jam-resistant secured voice and data links, against the Syrian missile batteries in the Beqaa, the Israelis using AGM-45 Shrikes against the missile radars and ordinary bombs against the missiles and their launchers. With 198 aircraft committed in two strikes, the Israelis, in addition to winning the air battle, were able to destroy seventeen of nineteen SAM-6 Gainful batteries, plus a number of obsolescent SAM-2 Guideline and SAM-3 Goa batteries, in one three-hour period on the 9th, the surviving two Gainful batteries being destroyed the next day. No Israeli aircraft were lost in the course of these operations.

Operation Peace for Galilee was to continue, despite a number of cease-

fires, until 3 September 1982 with an international peace-keeping force drawn from the France, Italy and the United States deployed into Beirut in the last ten days of August to ensure the orderly and safe withdrawal of Palestinian and Syria forces trapped in the city. West and southwest Beirut were subjected to siege after 26 June, by which stage the Israelis had overrun the whole of southern Lebanon, dominated the Beirut-Damascus road and controlled the whole of the southern part of the Beqaa valley. In the process the Israelis mauled various Syrian formations, destroying an estimated 400 tanks, while losing about forty in the course of the whole operation. Militarily the campaign was as one-sided as all the previous conflicts between Israel and her neighbours, and its outcome was the result of a general Israeli possession of the initiative and superior technique that had decided the four previous major wars between Israel and her Arab enemies. But the events of 9 June clearly possessed singular significance, most obviously the contrast with the air campaign on the Sinai front during the 1973 War.

The first use of electronic counter-measures in war occurred in February 1904 in the very first days of the first war that saw the employment of wireless: Russian radio operators at Port Arthur jammed transmissions by Japanese warships off the base. In the First World War the French use of jamming from the Eiffel Tower is well known, but in the opening weeks of hostilities when both mobility and time were at a premium all the major combatants employed jamming and eavesdropped enemies that were obliged to transmit in clear. In the Second World War the naval wars in both the North Atlantic and Pacific and the German bombing campaign against Britain and the Allied strategic bombing campaign against Germany witnessed technological, radio and intelligence struggles that were of major importance in deciding the course of events. The Vietnam and 1973 wars brought home the critical importance of defensive ECM. But the sequence of events on 9 June 1982 clearly represented something that was very significant. It was not that the Israelis were able to win air supremacy since there can be little doubt that the Israeli Air Force held supremacy before that date and would have won any campaign against the Syrian Air Force, but the Israeli Air Force was able to command air space by virtue of its ability to paralyse its enemy and prevent its offering battle effectively. Those Syrian aircraft that did challenge Israeli supremacy on 9 June 1982 were denied protection and effective-

ness on account of the Israeli ability to destroy Syrian command and control facilities through electronic counter-measures, and the extent of Israeli effectiveness is proven not just in the ease with which Syrian aircraft were destroyed in the air on this particular day but the fact that the Israeli Air Force was able to beat down every subsequent Syrian attempt to challenge Israeli air supremacy with equal ease. In the course of Operation Peace for Galilee as a whole Israeli fighters, primarily using the first third-generation AIM-9L Sidewinder, shot down a total of 85 Syrian fighters while suffering the loss of three aircraft. Israeli supremacy in the fields of electronic warfare meant that Syrian forces that sought to give battle were blinded and were singly, successively and collectively destroyed.

The circumstances of the 9 June effort, plus the Israeli air strike (Operation Babylon) that destroyed the nuclear power station then nearing completion at Osirak outside Baghdad one year previously, pointed to a future possibility that was not lost upon the U.S. Air Force, indeed it had anticipated it and hence its chagrin at the way in which the AirLand Battle episode unfolded after October 1981. The concept of supremacy had been at the heart of air power certainly since 1916 if not from the first employment of aircraft in war, but had proved elusive and won only at considerable cost and through protracted attritional campaigns in the course of the Second World War. Israeli success in the June 1967 War was very different, so different as to be both unique and unrepeatable since it was a war that brought the pre-missile era to a close as the events of 1973 proved, but 1982 was very different. In a very meaningful sense it brought the ideas of Douhet, specifically the concept of commanding the skies by the exercise of air power, appreciably closer to realization. Inevitably the subsequent public analysis and argument was dominated by a simple sound byte - control of the electro-magnetic spectrum - that belied the complexity of what was involved, most notably in two respects: that counter-argument to the normal air power claims to the effect that the speed and reach of air power has increased its vulnerability to ECM in a way that surfaced-based systems have avoided, and the fact that the sheer scale of Soviet and Warsaw Pact air defence systems represented a very different proposition as far as NATO was concerned relative to Israel and Syria and the events of June 1982. But by this time, 1981-1982, the reality was that with the new generation of fighters and

proven missiles in place, the U.S. Air Force had equipped itself with the means to win a battle for air supremacy that possibly was not necessary. The 1994 TRADOC prediction that command and control supremacy was essential even before air supremacy was a rather belated acknowledgement of the obvious as far as Air Forces were concerned: the Douhetian argument was that events in the Middle East in June 1982 showed that command and control supremacy provided the route to control of the air.

One is tempted to conclude that the real difference between FM 100-5 1982 and 1986 is that whereas the former is a prosletysing document, the latter is more measured and has the assurance conferred by a period, albeit short, of acceptance. Certainly there are points of difference, most notably the recognition in FM 100-5 1986 that the battle in depth, given Soviet capability, would involve rear operations as well as the operations at contact and along an enemy axis of deployment that the 1982 manual had stressed, but it is possible to represent FM 100-5 1986 as the finished article whereas FM 100-5 1982 was the factory item, lacking the packaging. FM 100-5 1986 certainly marked the end of a decade-long process, the journey from Active Defence, and it also marked the end of this process in another sense: the congressional decision in 1985 not to fund follow-on programmes that were under consideration as part of AirLand Battle 2000, which was to provide for the period 1995-2005, indicated that the impetus of the Reagan administration was spent, at least in terms of a defence budget cornucopia. But in another sense the linking of the two manuals is misleading, and for a reason that is not immediately obvious: one can see the Gulf campaign of 1991 in terms of FM 100-5 1986 but not so directly FM 100-5 1982, and the difference is not to be explained simply by reference to the weapons and surveillance systems that moved onto centre stage in the intervening years though clearly these provide part of the answer.

Discerning threads of continuity and change beset any attempt to interpret the 1991 campaign. The latter was barely over when the first claims set out the view that the campaign was not AirLand Battle, and if an Air Force pedigree invited the obvious comment of what could one expect from a pig except a grunt one fact was inescapable: the claim was quite correct. The essence of AirLand Battle, as defined in successive field man-

uals, was the use of air and naval assets in support of ground forces to fight and win tactical battles linked operationally, and however much the latter might try to evade the issue the fact was that in this conflict the primary task of destruction fell upon air power without reference to the conduct of a land campaign. But this, in itself, describes rather than explains, and in seeking to explain, and in seeking to explain the 1991 campaign by reference to FM 100-5 1982 and 1986, two matters, critical to an understanding of the elements of continuity and change, would seem to be relevant.

The first matter relates to what appears to be a shift between field manuals in dealing with manoeuvre and concentration. In the 1982 manual the concept of manoeuvre concerned both formations and firepower with the emphasis placed upon destruction of enemy forces as the means of disruption and paralysis. In the 1986 manual the concept of manoeuvre concerned both firepower and formations with the emphasis placed upon separation and destruction of enemy forces as the means of disruption and paralysis. The difference between the two manuals is not explicit, yet the qualitative leap in military imagination between the two concepts is to be found, for those inclined to look, in Soviet concepts and practice of Deep Battle. The Soviet way of war sought to separate enemy front-line formations from rear support in the certain knowledge that if an armoured mass could be concentrated between those elements of the enemy that had to be shielded and those that had to be supplied the defeat of both would follow, the extent of that defeat and depth of penetration being largely dependent upon the size of force and its speed of operations. In the Second World War the operational shock thus imparted to an enemy defensive system was primarily inflicted by armoured movement into the enemy rear areas, a concept that would seem to have been adopted in FM 100-5 1982. By the Seventies, however, enhanced conventional capability meant that the Soviets had moved to deep strike by ground forces supported by airborne and air forces. FM 100-5 1986 followed and developed that move with the emphasis seemingly placed upon disruption induced less by the forward movement of ground forces into the rear of the enemy than by concentrated firepower. The points of difference, the distinction, between FM 100-5 1982 and FM 100-5 1986 are elusive and beset by the problem of the reading of the record backward and attribution of matters that came after 1986 to the period

between the two manuals, but the critical point would seem to be that, in a process that was evolutionary and which continued after 1986, whereas in the 1982 manual the elements of ground, air mobile and air forces were weighted in favour of ground formations moving across the battlefield to the point of contact, in the 1986 manual the ground element complemented the others, and specifically firepower. What cannot be doubted is that between them the two manuals represented a move from manpower or from formations toward firepower, but the intellectual recognition of this change was not fully forthcoming, not even in 1991 except on the part of the U.S. Air Force.

The second matter that would seem to be relevant in any consideration of the 1991 campaign relative to the 1982 and 1986 field manuals concerns the definition of attrition. It may be argued that annihilation represents instant attrition, but on the evidence of the 1991 campaign it may be that attrition can presently be inflicted on a scale and at a speed that renders it all but indistinguishable from annihilation. Major wars, on account of their protracted nature, have necessarily involved attrition, but if the 1991 campaign heralded the restoration of decisiveness to warfare it may well be that the distinction between attrition and annihilation will be rendered ever less meaningful as a consequence. By extension, an examination of the 1991 campaign would present the question of whether or not the Coalition effort represented the realization of the elusive "decisive battle."

The idea of the vernichtungsschlacht or the single battle of annihilation has been so discredited in the course of the twentieth century that the suggestion that the technological developments of the last two decades may have restored such battles to the military repertoire would seem to border on the absurd. Certainly the suggestion is flawed in one respect. The concept of the "decisive battle" historically has concerned itself with a narrowly military phenomenon, namely the destruction of enemy field formations, yet at the present time the idea of a defeat that did not embrace state, society and military would seem to be wholly unrealistic: the nature of the state in the late twentieth century renders the idea of a victory with only a military dimension - against an army in the field - quixotic. But, perversely, any consideration of the 1991 campaign must provoke two thoughts: that the decrease in the size of armies and the dif-

ficulties of reconstitution that have been constants since 1945 must expose an army to the danger of defeat in a single battle, and that in 1991 what was nominally the fourth largest military establishment in the world was effectively destroyed in a single campaign. Arguably such a defeat as the one sustained by the Iraqi military in 1991 - a comprehensive defeat incurred within a single campaign - was something that had not occurred since 1940 and the defeat of France, and the parallels between the two events are quite close, even if one of the most important differences was that the aspect of single-nation advantage was no more by 1991. Both France in 1940 and Iraq in 1991 shared a lack of strategic depth despite considerable area, massive inferiority in the air, less than adequate understanding of the balance between the offence and defence as it existed at the times in question, communications systems that were simply overwhelmed, and possessed of, perhaps more accurately trapped by, experience of out-dated forms of warfare that actually contributed to defeat. The defeat of France in 1940, however, is very much the exception in warfare in the twentieth century and is the only case of a great power being defeated in the course of a single campaign: 1940 excepted, however much great powers sought "the decisive battle" in two world wars the vernichtungsschlacht was incapable of realization. Without dignifying Iraq with such status, her defeat in 1991 would seem to mark the point in time when the element of decisiveness was restored to war by virtue of the fact that such a battle had once more emerged as a practical and practicable option in the conduct of operations. The one crucial point of difference between the authorized and revised versions - albeit a highly contentious point of difference - would seem to be that, on the evidence of the 1991 campaign, a vernichtungsschlacht can now be fought and won by air power, and, more doubtfully, perhaps by air power alone.

Stating the matter delicately, Manoeuvre Warfare and AirLand Battle aroused a certain polite scepticism on the part of America's allies: at best somewhat futuristic, FM 100-5 1982 most obviously left a great deal to chance, given its dependence on highly advanced technology not all of which was in place at the time of the manual's publication. AirLand Battle was a statement of belief on the part of the U.S. military and demanded an act of faith on the part of America's partners, but in this respect the whole of the seven years before AirLand Battle's adoption had

involved an act of faith on the part of America's allies: the aftermath of the Vietnam War, the uncertainties and irresolution of the Carter years and the first chaotic year or so of the Reagan administration were the years of endurance, and if AirLand Battle seemed to some of these allies to border on the fantastical it was a model of both simplicity and sanity compared to some aspects of the handling of strategic nuclear issues in this period.

AirLand Battle's gestation period coincided with a major deterioration of Soviet-American relations, and, indeed, it has been suggested that by 1975 detente was dead though very few people realized it at the time. Undoubtedly the deterioration of the relationship between the two superpowers was a major factor in the complexity of nuclear issues in the Seventies - insistence on "linkage" to alleged Soviet behaviour or action by various members of Congress made any proposal dependent on a capricious and singularly ill-informed opinion - but the real difficulties that arose ironically stemmed from the stability that had been brought about by virtue of mutually assured destruction and by the fact that in the course of the Seventies the Soviet Union achieved strategic parity with the United States

The reality of strategic parity was crucially important in that it provided the basis of detente and for the first attempts to limit the number of nuclear weapons held by the two superpowers - the SALT I Treaty was signed in Moscow in May 1972 - because there would have been no basis of any agreement, limited though it was, without a basic equality between the two superpowers. But the asymmetry of the superpower arsenals meant that when the second SALT negotiations began questions of equivalence inevitably concentrated upon dissimilarities with the result that weapons presented themselves in different classifications, specifically strategic, inter-mediate and short-range. The immediate difficulties that this presented concerned the European NATO powers, already somewhat concerned by the implications of Flexible Response and not sure of the distinction between different types of nuclear missiles all of which could strike at their homelands. Inevitably there was unease on the part of these powers at the prospect of the superpowers dividing the negotiations into separate packages but which would separate strategic and theatre issues, i.e. threaten the direct links that bound the United

States to western Europe. These did not prevent a SALT II agreement eventually being signed on 18 June 1979, but they served to re-direct attention to what had been discredited in the Fifties, the idea of Limited Nuclear War and escalation up a nuclear ladder, but ultimately with an ironic twist. The security of the American deterrent since 1962 had rested upon the secure second strike vested with the Polaris-Poseidon submarine force and was directed against civilian society, in large measure because sea-launched missiles lacked the accuracy to strike against military targets. Increased accuracy of weapons systems meant that a precision counter-strike could be contemplated, and with it the full-scale exchange directed against military targets: with the commissioning of the first Trident system all the systems in the American nuclear arsenal had first-strike capability and increasing the rationale for the American deterrent force had to be "launch-on-warning" if not before. This future reality led to the adoption of P.D. 59 in 1980 and the concept of countervailing strategy within the context of protracted and large-scale - but not all-out - nuclear war. If the Carter administration's idea was that the United States should seek to retain effective options at different levels of war, the distinctions were largely lost upon allies such as West Germany and most certainly fell foul of one basic reality: the elements of detachment and deliberate calculation were very unlikely to impose themselves at the forefront of the decision-making process in the event of nuclear weapons having already been used. But what compounded this unreality was the notion that the accuracy of systems would allow strikes against command and control facilities within the Soviet Union, the nadir of this line of lack of reasoning coming in the form of the proposal for attacks on key Soviet political and military installations that were justified on the basis of Just War criteria with the claims that such attacks would be moral, most certainly in comparison with the policy of counter-value targeting and its deliberate selection of cities as the targets of a retaliatory strike. How warheads were to distinguish between a communist party command system within a city and the latter's civilian society was not exactly clear, and such arrant stupidity could have been dismissed by affording it the silent contempt it deserved but for the fact that with the installation of the Reagan administration it most definitely seemed that the doubts and hesitations of the Seventies, and the stability born of parity, had been set aside in favour of individuals who genuinely did believe that a future war could and should involve the use of nuclear weapons

and that a nuclear war could be won. In a very obvious sense the whole idea of American armed forces being "freed" to win a war to which it was committed came full circle with the inauguration of an administration that seemingly repudiated the entire *detente* and SALT processes and which apparently was unconcerned by the prospect of global nuclear war. In this there was an irony that involved the reversal of usual perspective of hawks and doves. After January 1981 the most important moderating force within the administration in Washington was the military: the Joint Chiefs of Staff sought to preserve and develop the SALT process despite the declared prejudices of their civilian masters.

The Reagan years were years of paradox: in virtually every field of activity, not excluding the conduct of the nation's defence and its wars, the predominant characteristic was the disparity between policy and reality, between cause and effect. Perhaps the most serious, at least in its long-term implications, was manifested in social policy and its consequences: the Reagan administration was fervent in its assault upon the concept of the state as it had evolved since the time of Roosevelt and in its policy of economic transformation by the repudiation of Keynesian ideas, yet the resultant social problems - the breakdown of community ethic, social unrest, racial alienation, increasing unemployment and poverty, and burgeoning lawlessness - were treated as wholly unrelated, indeed were the product of the disastrously corrosive effects of liberal policies of previous administrations. But the most obvious manifestations of the disparity between policy and reality was presented in the conduct of foreign policy, specifically with regard to dealings with the Soviet Union. Certainly the relationship between the two superpowers in the period 1981-1985 was worst than at any time since the death of Stalin in 1953, yet within another four years there had emerged the basis of co-operation that was unprecedented. In this process the president who had sought to abolish nuclear weapons and who in November 1981 made his "zero-option" proposal in 1982, made the "build-down" proposal, but who nevertheless rejected the "Walk in the Woods" suggestion in 1982, deliberately violated the SALT II agreement with the B-52/ALCM programme, launched the strategic defence initiative and scuttled the Reykjavik summit in October 1986, ultimately committed the United States to the START process and to the "double-zero global option" embodied in the INF treaty of 8 December 1987. In this process, too, and very perverse-

ly, it was to be the Reaganite programme that emerged triumphant, yet even in its success was inconsistency and paradox. The policy of confrontation with the Soviet Union, and deliberately seeking to destroy the latter by the intensification of programmes that would impose impossible financial demands upon the latter, could have provoked only one reaction on the part of the Soviet Union if the Reagan rhetoric that attributed to that country's leadership the meanest behaviour was accurate: if the Soviet Union was as consistent or persistent in its pursuit of a wholly amoral programme as was alleged then it followed that the Soviet Union would have used any means to ensure that it would not be destroyed in the competition that the United States under Reagan imposed upon her. There were elements in the Soviet leadership that were prepared to meet the American challenge, and Ogarkov coined the phrase "the revolution in military affairs" as part of an answer that would have resulted in the deliberate reduction of consumer production in order to ensure the militarization of industry and society and which seemed willing to make use of a seeming "window of opportunity" to ensure the survival of the Soviet system. Leaving aside the question of the wisdom or otherwise of embarking upon a race to destruction with a hostile leadership thus described and also ignoring the historical parallel that in 1981 the Reagan administration quite deliberately placed in United States in exactly the same position relative to the Soviet Union that the United States inadvertently assumed in 1941 relative to Japan, the fact that the Soviet leadership desisted from such a course of action, admittedly in part because it never fully understood either the Soviet Union's weakness or the communist party's own weakness within the Soviet Union, would suggest that the Reagan rhetoric was somewhat flawed. In any event the Reagan administration never understood the process that it set in train, still less the result. The collapse of the Soviet empire in eastern Europe and the demise of the Soviet Union itself was seen as the triumph of Reaganite policies, but left unaddressed was the fact that in the twelve years of the Reagan and Bush administrations the American national debt quadrupled and in the Reagan years the United States went from the greatest creditor to the greatest debtor state in the world. Moreover, the assumption that underpinned so much of whatever little thinking that Reagan ever did - the trinity of economic liberalization, democracy and stability - was never more than a chimera: the experience of Latin America provided example enough that capitalism and democ-

racy need not go hand in hand and it never seemed to have occurred to the Washington of Reagan and Bush, with its insistence that the Soviet Union accelerate the process of economic change, that the maintenance of an intact, united and strong Russian state could provide the basis of future stability and peace. The collapse of the Soviet empire and the fragmentation of the Soviet Union had much the same result as the process of decolonialization in Africa: historically both the Soviet and western imperialist systems had the effect of holding in check very powerful ethnic, cultural or tribal hatreds, which virulently re-asserted themselves when these systems passed into History.

But if the START process, the Soviet withdrawal from Afghanistan beginning in 1989 and the convulsions that first gripped and then overwhelmed the Soviet system after 1988 dominated the second half of the Eighties and provided the lasting legacy of the Reagan years, the 1991 campaign nevertheless was the test of the Reagan administration's commitment to defence and of the Manoeuvre Warfare school and AirLand Battle. And here one faces immediate difficulty: the six years that have elapsed since this campaign have been noted for a proliferation of accounts of this conflict and an outpouring of doctrinal screeds most of which relating to the "Manoeuvrist Approach to Warfare" whatever that phrase might mean, if anything. What is not clear, however, is the historical basis of much of what presently passes for doctrine, and equally unclear is whether or not what has been written about the 1991 campaign really does represent an accurate record and assessment. Put very simply, present doctrine would claim to be the product of History and would point to this campaign as the basis of its claims on relevance, but one can legitimately question whether such claims can be sustained on the basis of the evidence provided by the Gulf campaign and whether current doctrine represents the product or the negation of History.

The ability to impose massive "shock and awe" and to be able to "turn the lights on and off" of an adversary as we choose, will so overload the perception, understanding and knowledge of that adversary that there will be no choice except to cease and desist or risk complete and total destruction, and presumably, being rational, mend its ways, as, of course, did the Japanese when faced with such a choice in 1941. Resisting the temptation to question the circumstances that might lead a superpower

to threaten a lesser society with "complete and total destruction" and the various limitations that the possession of the means to "turn the lights on and off" would inevitably entail, any consideration of warfare, and specifically warfare in the twentieth century, suggests that societies possess enormous capacity for adaptation and endurance and that the main impact of bombing campaigns has been to strengthen the will to resist. The simplicity of this statement conceals a profound point of change that such concepts as "Inside-Out Warfare" and "Shock and Awe" present. It is not so much that "Inside-Out Warfare" claims to be able to affect an enemy capacity that will result in air power being able to achieve what has hitherto been elusive whereas critics of this claim would hold to the belief that the concept of strategic bombing will never be brought to fruition because the basic idea is inherently flawed, but that the air lobby argument has blurred the distinction between the nature of war and the conduct of war and that its basic premise, technological effectiveness, runs counter to the fundamental characteristic of war: war is a human activity, not a laboratory exercise in applied technology, and doctrine is the servant, not the determinant, of war. Herein lies the gravest problem presented by the current obsession with doctrine, even more serious than that represented by the absurdities of "Shock and Awe." The latter, at least in part, does start from a premise based upon the changing nature of society and technology as they might affect the conduct of war: present doctrine, from the insularity endowed by assumed orthodoxy, would dictate a concept of operations which in turn would determine a vision of the nature of war: this is explicit in the concept of "Parallel Warfare," which comes complete with a basis of knowledge and correct anticipation of every aspect of an enemy's capabilities and intentions. By inverting what is the natural order of a relationship which is not singular but embraces both the nature and the conduct of war and one in which the various parts are mutually dependent and related, present doctrine in its certainty and purpose represents nothing but "danger on the utmost edge of hazard."

Any consideration of warfare over the last two hundred years, and particularly in the present century, points to societal capacity to endure that is not to be under-estimated. Human resilience, and the capacity of peoples bound together by common identity, language, culture and institutions to adapt and to continue to offer resistance even in the most appalling of circumstances has been demonstrated not just in the two

world wars of the twentieth century but also, and perhaps even more significantly, in other conflicts since 1945. This and the ability of non-western societies to survive conditions that would deeply divide democracies represents a clear indication of the critical importance of moral as opposed to material factors in the conduct of war. Any suggestion that the ability to destroy the capacity to resist on a scale and at a pace that are unprecedented will profoundly alter the will and ability to resist would seem to have little historical basis, while the level of expectation and demand in terms of war being portrayed as clean, swift, minimal in its claims on life and, critically, carries with it the certainty of victory may well present those who insist upon the efficacy of modern doctrine and weaponry with all but impossible problems of fulfilling wholly unrealistic public expectation. The idea of "Inside-Out Warfare" may be proven by future events, but in its present context it would seem to be part of a much wider concept that suggests, indeed insists, that war can be controlled. The insistence on the defined "end-state" of conflict by the U.S. military in the last decade has its origins in the Vietnam experience, yet it begs a number of questions even it is based upon the need to soothe a potentially volatile electorate. If Roosevelt in 1941 had been subjected to such requirements the United States probably would still be waiting to enter the Second World War, but the more pertinent point about this "end-state" demand is its being indicative of a desire to control the peace or at least set the agenda for peace, yet the conduct of peace necessarily presents greater problems than the conduct of war. The experience of twentieth century warfare would suggest that the ability of any single nation or associated group of nations to control the terms of reference of war is illusory: as Clausewitz had taught us, in war everything is uncertain, and wars invariably assume courses and outcomes very different from that intended by their authors. The whole notion of being able to control warfare, whether it be definition of "end-state" or offensive operations of surgical precision, runs directly counter to the fundamental Clausewitzian element in war, chance. War is not the preserve of the intellect and is not intrinsically rational or scientific. Man made War in his own image, complete with all the elements of human failure, misjudgement and incompetence therein, and, hopefully, thus it will remain. Current doctrine and predictions for the future of war that are now on the table would seem to assume otherwise, that somehow the certainties provided by technology will provide certainties in the conduct of war

that will in themselves transform the nature of war. Doctrine cannot be divorced from the past, but if, as Svechin is credited as having written, doctrine is the daughter of History, on the basis of some of the more recent doctrinal papers one has had the misfortune to read one is left to ponder the identity of the father, still more the question of whether or not the parents were married. Current doctrine would seem to represent neither the daughter nor the product but the end of History, and the end of the primacy of Man in terms of the nature and conduct of War.

# Manoeuvre and Attrition: A Historical Perspective

*Hew Strachan*

What I am going to talk about is manoeuvre and its relationship to attrition. I am going to talk about it in a historical sense. What I am actually going to do is span the whole 20th century, which is really ambitious. Beginning with the First World War, which is what I happen to be working on, may seem particularly perverse, because if there is any low point in the conduct of war in the 20th century, it would seem to be there. Certainly if you talk to anybody from Britain, France or Germany, that is what they would say. Norway may have done the sensible thing and stayed out of that war, but I suspect that generals of the First World War have a bad image here as well, not least thanks to Blackadder. One of the reasons that Blackadder is so good is that it is pretty well spot on in terms of how people see that war. There is a very successful book available now in the UK on British generals called *British Butchers and Bunglers of World War I* by John Laffin.

So why begin with the First World War? If you think in terms of international relations these days, then it is perfectly logical to begin with the First World War, because at the end of the 20th century, with the Cold War concluded, we have a greater sense of the fact that an epoch began in 1914 and ended around 1990. But, in terms of the conduct of war it may be harder to justify that decision. The justification I want to put forward rests on two lines of argument: One is biographical and one is technical.

The biographical one is that the First World War was the formative experience for many people who then went on to shape our understanding of war in the 20th century. To take one obvious example, Basil Liddell Hart, who had as profound an influence on British military thought and British military history as anybody else this century, joined up as a young

officer in 1914. He was wounded at the Somme in 1916, and that experience remained for him the defining moment in his attitude to war. The rest of his career was concerned with ways of limiting and of managing war, of trying to understand how it could be curbed, and again and again he came back to those ideas as his departure point. After 1945, with the advent of nuclear weapons, he felt that he had found some sort of solution to that problem, because he agreed that nuclear weapons had actually made war a manageable instrument in international relations, and that deterrence provided some sort of logic to the problems that he had posed himself. He died in 1970, and when many people die a period follows in which everyone says that all the ideas they propounded were rubbish. He suffered as badly as anybody in that respect. I have to say I agree with many of the criticisms that have been made of what Liddell Hart wrote, but then about ten years ago, I suppose by the time when the British Army discovered manoeuvre warfare, Liddell Hart came back into fashion again, and at the British Staff College today they are reading Liddell Hart once more. That probably says more about the Staff College than it does about the eternal validity of Liddell Hart's ideas, but the point remains that here we have a man whose influence has shaped much of our thinking throughout the 20th century, and that influence finds its origins in the First World War. You can make the same point in relation to the generals of the Second World War. These were men, who found their ideas of war on the battlefields of Verdun, of Ypres, men like Rommel, Montgomery, men who were determined not to repeat what they felt they had suffered on the Western front. If you extend the argument for much of the Cold War, the NATO powers were looking back to the battles that those men had fought as generals in 1944 and 1945, as case studies for how to fight the defensive battle on the north German plain if the forces of the Warsaw Pact ever attacked. The span therefore, the span that I want to embrace in terms of military thought, is essentially the span of one man's life, assuming he is granted his biblical "three score and ten years".

The other argument, the argument that is technological rather then biographical, has to do with the fact that the weapons-systems of the 20th century have shaped so much of what we now understand as constitute elements of the "AirLand Battle". Those weapons-systems find their infancy in the First World War and come to maturity during the Second

World War. I hesitate to say, as I am going to mention aircraft in an Air Force Academy, that they are old age at the end of the 20th century. But let us just forget about aircraft for the moment, and about the future of the unmanned aircraft, and think instead about the tank. It obviously finds its infancy in the First World War; it finds its maturity in the Second World War; and then by the end of the 20th century it is confronted with the argument that precision-guided munitions have made it redundant on the battlefield. The argument about redundancy has been going on for as long as I can remember, and certainly since 1973, and we still have the tank. I do not know if that says something about bloody-mindessness on the part of armoured regiments or whether it says that we should not rush into premature conclusions about death. So those two themes – the biographical and the technological – are my justifications for seeing the First World War as the pivot of 20th century warfare.

It is the war that sees for the first time the application on the battlefield of the mass army. That is another reason why it is peculiarly relevant to us today as we confront the possible demise of the mass army. The idea of conscription finds its roots in the French revolution. It is the French revolution that gives the power to the state which enables the state to say: You are a citizen and as a citizen you have military obligations as well as civic privileges and you will therefore serve the state in time of war. It is the French revolution that we see as giving the expression to that political idea. But it is no more than a political idea at the beginning of the 19th century. It is no more than a political idea, because if you mobilise every able-bodied male in the state in 1800 you cannot begin to equip all of them. You cannot begin to give them all uniforms. You cannot begin to give them all muskets. You cannot begin to create enough artillery to support them. By the end of the 19th century you can begin to think about those things, because you are dealing with industrialised societies. You can equip a mass army. That is not to say there are no problems: There are very profound problems in equipping a mass army even in an industrialised society, but it becomes at least practical finally to turn theory into some sort of effect.

Before 1914 it was possible still for a numerically smaller army to defeat a much bigger force, nearly always because the former had superior technology. The obvious example would be the campaigns fought by imperi-

al armies in their colonies, where frequently comparatively small armies faced very large numbers of opponents and those comparatively small armies won. But they won also by virtue of discipline and organisation, and in the Crimean War, for example, the difference in the technologies of the two sides was not that great, and yet the smaller force, the British and the French, defeated the major force, the Russians. Industrialisation, therefore, and the ability to move to serious mass production of firearms and produce the ammunition for those firearms, was crucial to the advent of the mass army. The other thing that was crucial to the advent of the mass army was to be able to feed those men, once you had got them onto the battlefield, and here the railway was the key component. The fact that the railway enabled you to draw on the productive potential of your state and to make sure that you can deliver the equipment that you need to the front line, and the food you need to the front line, that is what enabled you to tie the resources of the state to the army in the field. So in 1914, mass armies took to the battlefield for the first time. On mobilisation, the armies of Germany, France and Russia went from the order of 800,000 men each to 2,5- 3 million men each. I think the Germans mobilised something like 13 million men during the course of the First World War. But the mass army, although now possible in terms of economics, and in terms of social and political organisation, created enormous operational problems, and that is the level of war that we really want to think of this morning.

The first problem it created was the problem forward of the railhead. The railway was all very well, but it was a fixed line, and it took time to build it. In 1914 the armies of Europe were committed to a form of manoeuvre warfare. They were committed to trying to outflank each other with movements which embraced a great deal of north-western Europe. The campaign of the Marne in 1914 is one of the most spectacular involving large armies in the history of war in Europe, and the victory of the Germans at Tannenberg on the Eastern front is equally impressive. These were exactly the sorts of manoeuvres which the 19$^{th}$ century staff colleges had prepared generals to expect. But by the time of the Battle of Marne the Germans' 1$^{st}$-, 2$^{nd}$- and 3$^{rd}$ Armies, which were the German armies of the right wing, which had swung through Belgium and come down into France from the north, cutting across the main railway lines in France, which radiated out from Paris. Those armies were something

like a hundred miles ahead of their railheads. The final hundred miles between the railhead and the forward fighting units, for each of those armies, were covered by horse. The 1st German Army had 84,000 horses in it, and needed two million pounds of fodder per day to feed those horses. Thanks to Blackadder you have an image of the First World War as being particularly destructive of human life, but it was also particularly destructive of horses' lives. We tend to forget about the horses. 25% of the horses mobilised by the French Army in 1914 were dead within three months, and 90% of those had died through exhaustion and malnutrition, and not through enemy action. So the horse still remained fundamental to the mobility and manoeuvrability of an army, because beyond the railhead its logistic systems were still tied to the horse. The mass army has therefore created an operational difficulty in terms of carrying out manoeuvre.

The other thing that mass armies had done was to create problems for commanders. In ancient warfare the commander was simultaneously an administrator and a leader. He was the heroic figure who led from the front. Alexander the Great was just as likely to be killed in action as any one of his men. Even at Waterloo, the pictures we have, at least of Wellington and of Napoleon, are of generals on horseback on the battlefield itself, who could in theory have seen the whole of the battlefield if the smoke had ever cleared. But even at Waterloo we are beginning to get some indication of the problems of the future. When the Prussians came onto the battlefield, Napoleon hoped it was going to be Grouchy's returning French Corps coming to reinforce him, and not the Prussians coming to reinforce the British and their allies, but he could not see that far early enough to be sure which way things were going to break.

By the time of the wars of the German unification in 1866 and 1870, the image of the general was radically different. Moltke the Elder, the chief of the German staff, is normally portrayed sitting at his desk with a map behind him. He was no longer the heroic figure on horseback, and of course by the time of the First World War, the image is of generals sitting in their chateau, very far removed from the battlefront and in danger of seeming entirely cut off from it. Heroic leadership and tactical command was being exercised at lower and lower levels. It was the junior officers, who now had the responsibility of making the key decisions on the bat-

tlefield itself, because there was simply no opportunity for the commander-in-chief to know what was going on. The tendency was for the commander-in-chief to plan everything in advance, because the moment the battle began he had essentially lost control. If you read Haig's diary for 1 July 1916, which is the first day of the Battle of the Somme, there is virtually nothing in it. Haig was sitting in his headquarters and there was nothing more that he could do. He had prepared his battle, the battle had begun, the infantry had gone over the top at seven o'clock that morning, but he had to sit and twiddle his thumbs and probably would not get any reports back until the end of the day, or possibly even the following morning. The consequence in operational terms was loss of flexibility, because the commander was inevitably slow to respond, and at the same time there was a tendency for the commander to try to pre-plan and anticipate everything that might happen. The big limitation here is the lack of real-time communications. In 1914 the radio had been invented, but it was a very bulky and a very cumbersome instrument. It was not something you would want to take into the field with you, and it certainly was not man-portable. In 1912 Falkenhayn, the man who becomes the German Chief of the General Staff in 1914 and holds that job until 1916, organised a Corps exercise, using telephones, wirelesses and motorcars. These were the available means of communications: Motorcars, for carrying dispatches around; telephones provided fixed lines; and wirelesses were being tested. His conclusion was that "When these inventions of the devil work, then what they achieve is more than amazing. When they do not work, then they achieve less than nothing". I think we all recognise that problem with all forms of new technology. His conclusion was that the best thing was to have all systems available to you, so that one could act as a backup to the other, and that you use wirelesses but also have the old systems available.

What were the old systems? To go back to Blackadder: Runners were the most obvious one. Baldrick is always being summoned to make the heroic gesture and run back across no-man's land carrying a message. That was a very unreliable means of communications, not just because the runner might be somebody like Baldrick, but also because the runner might get killed on the way. Certainly Baldrick might succumb to the temptation to find a shell-hole into which to dive and stay for some time. By the time the message got back, if it got back, it was going to be pret-

ty old news. It was going to be historic. It was not going to be real time. Pigeons were used. I do not actually raise pigeons myself, but I am told they require a good wind and a clear day. As you may have noticed, in most of northern Europe there are days which are not clear, where the clouds are low and there might be rain and mist. In conditions like that pigeons will not fly. The Germans had rather more success with dogs. They put messages around the collars of dogs, and they did run. Of course they are rather lower to the ground than the Baldricks of this world and they were quite good at taking messages. The French used rockets. The forward infantry would fire a rocket to show their artillery where they had got to, to make sure that the artillery did not shoot them, but shot beyond them. Again it depended on the weather conditions: How much smoke there was and how clear the sky was. Flags were used in a very similar way. These communications are all vulnerable, variable and uneven in their performance. What you had was a battlefield in which communications up to the frontline were secure, because you could use a telephone for that. You could lay the cable below the ground, you could dig it into the ground so it is secure from artillery fire. The chain of command could work perfectly satisfactorily up to the frontline trench, but once men got beyond the frontline trench, then they were going into a world where they were likely to lose contact with the chain of command.

So command was being exercised at lower and lower levels of formation, because there was no means of communicating directly back up the command chain. The German solution to that problem was "Auftragstaktik". It involved the delegation of command to the lower levels and an insistence that the forces behind the follow-up formations should respond to the initiative of the forward formations, to back up success and not spend much time trying to redeem failure. The danger with "Auftragstaktik", a danger which became very clear in March 1918, was that the junior commanders follow their noses. They went where the break-through was occurring, which was natural enough, and they exploited the success that was available to them in tactical terms, but that might not be where the army needed to go in strategic terms or operational terms. Tactical success does not necessarily lead to an operational break-through if it is in the wrong place. What essentially happened in March 1918 was that the British 3rd Army, which was holding the very

ground that the Germans really most needed, held successfully, and where the Germans achieved a break-through was where the ground did not matter, and that was of course what the junior commanders were effectively exploiting and reinforcing.

What has happened here is that a division between management and command also leads to a division between operations and tactics. Command in the 19th century had meant operational command. The model was Napoleon, and Napoleon's focus was on the vocabulary of operations. It was on "manoeuvre", it was on "envelopment", it was on operations on "interior"- and "exterior lines". Napoleon was not very much interested in the matters of tactics. The General Staff tradition and the military academies had focused on this level of war - the operational level of war. But between 1870 and 1914, new technology had presented war with a fundamental change at the tactical level. In terms of operations the vocabulary is constant over time: "Envelopment" is a word which is as perfectly understandable to us today as it was to Napoleon. It means the same thing, and at the operational level things are not changing. But at the tactical level war has been changing continuously through the introduction of new weapons-systems. Between 1870 and 1914 that change was particularly rapid: The introduction of magazine breech-loading rifles, of rifled quick-firing artillery, and just before the war, the development of the aircraft and its application on the battlefield, and during the war itself the advent of the tank. The result was that a frontal attack across a far-swept zone became to all intents and purposes impossible. Confronted with that tactical problem most generals before 1914 realised perfectly well how profound that problem was going to be, and the generals' solution was operational rather than tactical. The generals' solution was to seek the flank: To envelop in the case of the German General Staff. The solution was to get round the French positions facing Germany on the Eastern by going around to the north.

In the First World War effective command on the battlefield was being exercised at lower and lower levels. Tactics determined far more of the complexion of warfare than did operations. The key issue became the ability to achieve a break-in, and then the break-through of the trench system. The break-out and the exploitation of the break-out through manoeuvre became secondary considerations. Not secondary in order of

importance, because that was how the victory would ultimately be achieved, but secondary in order of time. There is no point in thinking of the break-out and the subsequent manoeuvre if you cannot achieve the break-in and the break-through. What tended to happen was the development of tactical solutions for operational purposes. The armies of 1914-1918 are thinking of a way of resolving this tactical conundrum in the hope that they could achieve the break-through and then the break-out. The trench system, which we now see as absolutely characteristic of the First World War, was the first stage in that process. Trenches may be smelly, muddy, wet and horrible, but they save lives. That is the number one reason for digging trenches: It is much better to have a trench than to have no trench. However negative the image of the trench now is, thanks to the First World War, it is of course vital for protection and the saving of lives. The other key-point about the trench is that it enables ground to be held with fewer people. It enables you to hold ground defensively, to strip that position of men, and to use those men elsewhere for the purposes of manoeuvre. The irony of the trench in the First World War was that it was adopted by the Germans in the winter of 1914 as a deliberate device to create a means to manoeuvre elsewhere. The Germans developed a strong defensive system from Belgium to Switzerland, so that they could hold the Western front with fewer people, and so release four corps for an offensive in the East. In 1915 they overran most of Poland, and then Serbia.

In the end the trenches become a system in themselves. The trenches took over and the whole business of dealing with trenches became the end rather than the means, and the trenches became the focus of the war. The tactical answer to the trenches was seen to be artillery. Artillery became even more important because the war had become static and because mobility had been lost. If war remained flexible and mobile, then the difficulty of bringing up shells and of keeping the guns moving on muddy roads itself limits your ability to apply firepower. But if the war is static, then your lines of supply and your lines of communication are short and comparatively secure, and the supply of shells can be constant. More and more artillery was therefore used on the Western front, and with more and more artillery, surprise was lost. The preliminary bombardment before the assault went in, told the enemy that you were coming. You tended to have a long bombardment. You had to register your

guns before they found their target. All those things led to a loss of tactical flexibility. Systems were developed whereby the artillery barrage crept forward. It went forward in leaps. The range was extended in leaps and bounds, and the infantry was meant to follow, but the consequence of that was that the infantry formations themselves became very stereotyped, because they were close to the line of the artillery barrage, and that tended to mean they were in the line: As the artillery barrage went forward so the infantry followed up in line. By 1916 the pressing need was to reintegrate fire and movement, because those two components of war became separated. The artillery was providing the fire while the infantry was providing the movement, and the danger was that as the artillery barrage went forward, it lost contact with the supporting infantry. It went forward probably faster than the infantry was able to keep up, and as that happened, fire and movement became separated into different phases, and the two were therefore not mutually enforcing.

There were two solutions to that problem of fire and movement. One solution is what I have called "the German solution". That meant in part "Auftragstaktik" and the delegation of command forward, but it also meant giving fire back to the infantry. Taking firepower away from the artillery, and giving it to the infantry in the shape of things like machine-guns, grenades and flame-throwers, and using those infantry squads to bypass strong-points: To aim through the soft-points and to aim deep. There was another solution, and that is what I call, for the sake of argument, "the British solution". That was one that tried to make artillery more sophisticated in its performance and tried to retain artillery as the dominant firepower element but to make sure that it could be more effectively integrated with the infantry battle. You did that through improved registration of guns, through the ability to engage in predicted fire so that with any luck your shell would land on the target. You did that through flash-spotting, sound-ranging and through better calibration of the guns. You did that through improved meteorology, so you knew how the atmospheric conditions were going to affect the performance of the guns, and you gave the gunners themselves better training. You can train infantrymen quickly, because we all know that infantrymen are very thick and stupid, but you cannot train gunners so quickly because they are intelligent and highly articulate and it is all a little more demanding for them, so it takes longer to make a good gunner than to

make a good infantryman. Therefore, one of the consequences of the rapid expansion of armies in 1914-1918 was that the performance of the artillery lagged behind that of the infantry. But by 1917-1918 gunners were much better, and they have also got better equipment. They have got better fuses, they have got better shells, and they have got more heavy guns. By 1917-1918 artillery performance had been transformed. You could shoot off the map without preliminary registration, and ultimately in this reintegration of fire and movement, both tanks and aircraft would play their part. The tank represents the reunification of fire and movement, because it is a mobile gun-platform, and the aircraft if it is used in close air support role is also able to do that, and it was doing that by 1918. The result was that by 1918 the execution of a successful limited attack, is now possible on the Western front. It was entirely realisable for a commander to set himself a limited objective and be pretty sure of achieving that objective. The difficulty remained how to convert that limited tactical success to operational and even strategic success. In other words, how do you reintegrate tactics and operations?

This is a front line, side A, and that is the front line, side B, and the problem is how do you convert tactical success into operational success? One of the early ideas developed in the winter of 1914-1915, associated with the British General Rawlinson, was that side A will attack side B's front line. Side A would take a bit out of the line and that was all it would do. You knew you could take the front line and do it successfully. What you now did was to force side B to counterattack to regain the ground that it has lost, and what that meant was that side B had now become the side exposed to the strength of defensive firepower. They would be the ones who would suffer the greater losses because they were doing the attacking, and if they continued to try to regain the lost ground, then ultimately the balance of losses would swing against side B. This was rationalised as attrition.

Now attrition had no real place in the operational vocabulary used in military theory and at staff colleges before 1914. Hans Delbrück, the German academic military historian, had used the word before 1914, but he meant by that the exhaustion of an enemy through avoiding battle. What he was referring to was the campaigns of Fredrick the Great in the Seven Years' War, where he said that Fredrick the Great had manoeuvred

in order to exhaust the stronger enemy that was facing him. He had taken his enemy around the countryside and relied on the difficulties of supply and communication to cause the breakdown of his opponent's armies. That was what he meant by attrition. This was not trying to achieve attrition through battle itself, through the application of firepower. It is in the First World War that attrition acquired its contemporary meaning: The application of firepower in order to wear down the enemy. It began at the tactical level, with this idea of a limited attack achieving a limited break-through or a limited break-in, but it had operational consequences. It is a vague word because it can also be elevated up to the strategic level. Remember in the First World War, both sides were conducting economic war against each other. The Allies were blockading the Central powers – Germany and Austria-Hungary – and in 1917 the Germans began U-boat warfare against the Allies. You can argue that that too is a form of trying to exhaust your enemy. In other words, attrition has an application at the strategic level as well as at the tactical and operational levels.

But ultimately attrition here is a means, and not an end. It is a means to achieving the possibility of a break-through in the end. The presumption here is that side B is eventually going to run out of men to the point where you can then achieve a break-through. What happened in many First World War battles was that the commander in the battle in question announced that he was *intending* to achieve a break-through. When he did not achieve a break-through, then he said what he was trying to achieve was attrition, that he was trying to wear out the other side. So he rationalises his own failure as an attritional battle. Haig, for example, before the Battle of the Somme, said, and I paraphrase: What we are hoping to achieve is a break-through; we will release the cavalry, and we will roll the German line up. That was in the summer of 1916. When the Battle of the Somme became a long and indecisive battle, Haig says: What we are trying to achieve is the wearing out of the German Army through attrition. So they retained some purpose in this battle when he failed to achieve his original purpose. The most notorious example of this is the Battle of Verdun in 1916. Falkenhayn, the Chief of the German General Staff in 1916, says in his memoirs that he intended it as a battle which was designed to bleed the French Army white. What he decided to do was to attack a place where the French would feel they would have

to hold the ground, that is Verdun, and force them to commit more and more men to the battle, and the manpower equation would therefore swing against the French. I believe, because our only source for this is the retrospective evidence of his memoirs, that this was a rationalisation of the fact that he failed to capture Verdun and he explained it in terms of attrition after the event rather than before the event.

The point here is that attrition is only possible if side B wishes to hold on to that ground. It is perfectly conceivable that side B will say: Look this is a nasty and muddy piece of ground, not much good to anybody anyway, you can have it. Why should we fight? Why should we lose valuable men trying to regain it? The answer to that question is, you will fight to regain it if it is of military importance, and so the great attritional battles of the First World War were fought where the ground matters, that is, where the loss or gain of that ground could have an effect on the war. So why fight for Verdun? If the French had lost Verdun, sited as it is on the apex of the Western front, then the enemy would actually have achieved an objective worth having. The allies could have been outflanked to the right or the left. Alternatively, if the French decided to put large quantities of their army into holding Verdun, then the chances were that they would weaken the line elsewhere and enable men to manoeuvre elsewhere. In other words, Verdun did matter as a bit of ground to be won or lost.

The other big focus of attritional battles from the British point of view was at Ypres. The significance of Ypres for the British was that it guarded the channel ports, and the channel ports were their main line of communications back to the United Kingdom, which enabled the re-supply of the forces in the field. If they lost the channel ports, then they would have been unable to keep a footing on the continent. For the Germans the significance of Ypres was that the main railway communications from Germany past through just behind Ypres, through the railway junction of Roulers. Again, a British break-through at Ypres would have had immense operational consequences for the Germans. So both those places – Verdun and Ypres - became the focus of attritional battles, because there were operational consequences that might follow from the gain or loss of the terrain concerned. The point here is that the battle can only be possible on that ground if the ground matters. Now, sure, as with

trenches, there is a moment where attrition becomes an end in itself, and as I have said, the generals of the First World War colluded in that, because they explained their failure to achieve a break-through by saying the intention always was to fight an attritional battle.

During the war trench newspapers were one of the ways that the soldiers serving at the front line expressed their satire and discontent. One of the best known examples was a newspaper produced at Ypres by the British Army, "the Wipers Times", and it explained attrition like this: "In this article I wish to show plainly that under existing conditions everything points to a speedy disintegration of the enemy. We will take first of all the effect of war on the male population of Germany. First let us take the figure of 12 million as the total fighting population of Germany. Of these 8 million are killed or being killed, hence we have 4 million remaining. Of these 1 million are non-combatants, being in the Navy. Of the 3 million remaining we can write off 2,5 million as temperamentally unsuitable for fighting, owing to obesity and other elements engendered by a gross mode of living. This leaves us 500,000 as the whole strength. Of these 497,240 are known to suffer from incurable diseases. Of the remaining 600, 584 are generals and staff. Thus we find that there are 16 men on the Western front. This number I maintain is not enough to give them even a fair chance of resisting four more big pushes and hence the collapse of the Western campaign". This is a very good take-off of the sort of rationalisation which Haig would use when he was presenting what he was doing at the Somme or at Ypres to the War Cabinet in London. When you are trying to explain failure those are exactly the terms you use. It is a strange thing also that every calculation on the British side was that within six months the Germans would run out of men. The British said it in 1914, 1915, 1916, and 1917 - and in 1918 they were right. What follows from all this is that the First World War makes attrition and manoeuvre seem opposites, but this is an illusion. What I am trying to argue here is that even in the First World War attrition and manoeuvre are in a deep symbiotic relationship. I am going to try and show that to you in terms of an equation.

Manoeuvre in terms of traditional military thought functions at the operational level. It has to do with ideas, like "envelopment" and "movement on interior lines". Ideas at that level have continuity built into

them. They mean roughly the same to us as they did to Napoleon. Attrition on the other hand, begins above all at the tactical level, and because it is to do with tactics, it is built around technology. It is much affected by the firepower revolution that takes place at the end of the 19th century. Since it has to do with technology it has to do with change. Those are the two lines, and in so much military thought they seem to be operating on two totally different levels. Attrition has become a dirty word. But those elements are interchanging all the time. At every point operations clearly depend on what you can do tactically. Continuity and change are in relationship to each other, and technology and ideas are in relationship to each other. What confuses, or confirms, the confusion of the division in this relationship, between manoeuvre and attrition, is what happens in 1918, and how the events of 1918 are subsequently interpreted.

By 1918 all armies were running short of manpower. Industry in all the belligerent countries had now been fully converted to war-production. So that in 1918 the obvious conclusion was to diminish your reliance on the mass army, on manpower, and to increase your reliance on material, on industry. To have a trade-off. To use machinery, and in the jargon of today, to use it as a force multiplier. In 1918 most armies in their infantry divisions reduced the number of men and increased the number of guns of various sorts. That was exactly the sort of thought that they then carried through into the twenties. In the 1920s armies were facing reduced defence budgets. Their home governments were very anxious to turn their back on excessive defensive expenditure, on the sort of expenditure that they have had to lay out during the First World War, and looked to technology for a replacement for manpower. The tank embodied that idea best of all. The tank combines fire and movement, but also allows the machine to substitute for men. Liddell Hart, whom I began this talk with, was violently opposed to the reintroduction of conscription in Britain in the inter-war period. He was talking about a small elite army. De Gaulle in France wrote a book arguing in favour of armoured formations and armoured divisions for France, but the significance of that book was not that it called for armoured formations, but that it called for those armoured formations to be manned by professional forces - something that was deeply unsympathetic to the Third Republic. The presumption was that a small mechanised army would have speed and

mobility, and therefore a small mechanised army would elevate the top line in my equation over the bottom line. It will elevate operations over tactics, and manoeuvre over attrition. Liddell Hart, who was one of the principal spokesmen for armoured warfare thinking in the inter-war period, belonged to the school which stresses continuity in military ideas. He saw unchanging principles in what he was writing about. He was happy to take examples from ancient warfare to argue a case in modern warfare. Manoeuvre creates a virtual circle. In the sort of thinking that these writers developed after the First World War, the argument goes something like this: If an army is small and mechanised, it can move fast. If it moves fast, then it fires less ammunition, because it is not confronting fixed positions, as in the First World War. It will aim for the flank, it will aim for the rear and it will aim deep. The less ammunition it fires, the freer it becomes of logistic constraints. What causes an army to slow down, in part, is the need to re-supply. If it is not firing much ammunition, the argument goes, it does not have to pause to re-supply, and so it can maintain its own momentum.

Noticeably absent from this conclusion, and mostly absent from most of Liddell Hart's and JFC Fuller's thinking, is the role of fuel in all this. Vehicles need fuel. They have to pause to re-supply with petrol, oil and all the rest of it, but Liddell Hart and others tended just to think about the firepower equation, and not much about the fuel equation. So this sort of thinking becomes self-contained, and a mechanised army was more realisable in the 1920s and the 1930s if an army was small. If you reject conscription and have a small army, then your equipment levels can be higher. There is a trade-off here in terms of defence budgets. If you have a big army, then you are spending more money on manpower, and therefore you have less money for equipment. An all-tank and all-armoured fighting vehicle formation enables you to be mobile, and the consequence of that is that you tend to be rude about the arms that are not mobile. The infantry and the artillery get pushed to one side, and it means that you would want to fight on ground that is good for manoeuvre. You will avoid fixed defences, rather than thinking of engaging them. So the objective of this sort of army must not be the destruction of the enemy's forces, but the mind of the commander. Liddell Hart and JFC Fuller saw the decisive way of winning a battle as unhinging the mind of the enemy commander, and upsetting his psychological equilibrium -

not destroying his forces in the field, because that is associated with the bottom line, with attrition, and you have created this small highly mobile force, a force that lacks the firepower, and lacks the punch, to be able to carry through the bottom line. It does not have the capacity to destroy the enemy.

That sort of thinking became rooted in the British Army, and it had a baleful effect on the performance on the British Army between 1940 and 1942: Succession of defeats, not only when it decided to intervene here in Norway, but also in France, in Greece and in North Africa. The reason it was defeated was not because it had neglected the tank, but because it had gone overboard for one form of tank warfare. It stressed mobility over firepower and it stressed an armoured division that is tank dominant and which neglected artillery and infantry as crucial components of the armoured division. The British, when they looked at the German victory in France in May 1940 saw evidence which for them confirmed all these trends. They saw that victory as further confirmation that the mass army was not doing its job. The mass army that was defeated, in 1940, was of course the French Army, and what they saw was a German Army which for them was centred around the ten panzer divisions - the ten armoured divisions of the German Army - and not around all the other divisions of the German Army. They looked at that as the elite element. They looked at that as the element for emulation. Liddell Hart was writing furiously throughout the war trying to refurbish his own reputation as a military theorist, and his influence was extraordinarily profound both in the latter stages of the Second World War, and immediately afterwards. He and others saw the victory as one that had been achieved over the minds of the French command. France seemed to have collapsed in May 1940, because the French high command was paralysed through the speed of German manoeuvre at the operational level.

In reality, of course, the real causes of the German victory in May 1940 were rather different. The Germans managed to concentrate five of their ten panzer divisions on the decisive sector of the front; they confronted very weak anti-tank defences, because of the derogation of artillery; they confronted an enemy with poor radio and wireless communications; they confronted an enemy that failed to use aircraft in close air support; and

they failed to use aircraft on interdiction missions on the German lines of communications. But having achieved that victory in May 1940, what then happened was elevated to the stage of doctrine. Blitzkrieg was a rationalisation of something that has happened, rather than a plan for something that will happen. Germany itself was still anticipating that what it had embarked upon was a war where firepower will matter, and where it would be important to have a mass army that is fully equipped and fully mobilised, to enable it to fight a succession of major campaigns over a long war.

In reality, German production in the Second World War, could never meet the targets that the German Army set it, and the German Army was always under-equipped in the Second World War. Germany might have wanted to go to that second line in the equation in the Second World War, but it could not do it, because it had not got the kit. In 1941 when the Germans invaded the Soviet Union they had twenty panzer divisions, out of a total of over a hundred divisions all together, and of those twenty panzer divisions half of them had tanks which had been captured from the defeated enemies of the previous two years. In other words, they were not German-produced tanks. The actual numbers of tanks per division were roughly two thirds of those that which the German armour experts thought they should have. So they were short of tanks, both overall, and within the individual divisions. The transport of the rest of the German Army was still horse-drawn, and it remained horse-drawn throughout the war. It had not moved beyond the problems that the German Army was confronting in its advance in 1914. So Germany had to fight a manoeuvre war partly by default, because it had not got enough armour and enough equipment to enable it to fight a battle of destruction, or a battle of attrition during a long war. An attritional battle was out as far as the Germans were concerned. The payoff for them was the war on the Eastern front, because the Soviet Army in the inter-war period did create itself as a mass army, which was also equipped and mechanised throughout, and capable of straddling both those lines of the equation. What happened on the Eastern front possessed an element of continuity with the First World War, but also recognised the validity of both lines of that equation.

On the Eastern front in the Second World War, between 1941 and 1945,

as on the Western front in the First World War, the achievement of surprise remained very difficult. To do that, you have to have balanced forces, you have to have large quantities of artillery, which are especially important in the initial break-in. In other words, you have to look at the bottom line of that equation. The key phase in the Second World War, as in the First, remained the conversion of the break-in to the break-out, and the important thing beyond that was to maintain tempo, before the defence had time to counter. Real-time communications were crucial here. Both sides had the opportunity to react more quickly, thanks to the radio, and therefore to sustain the tempo of operations to make sure that you were inside the decision-making loop. The radio was crucial on the Eastern front, and air power became vital in terms of interdiction of the battlefield, and in terms of close air support. The first stage of this battle was the physical destruction of enemy forces through attrition. And then, having broken through, you were then talking about manoeuvre and the operational level of war.

During the Second World War neither the British nor the Americans really grasped these essential points, because their own experience of this level of war was limited to north-western Europe in 1944 and 1945. They were fighting other campaigns elsewhere, but their experiences of directly and indirectly fighting the Germans was limited to that brief period. That lack of experience was reflected in what happened to doctrine after 1945. The key point in terms of this debate between manoeuvre and attrition for the Americans was of course the Vietnam War. The Vietnam War, for the Americans, is seen as the low point, and one in which the Americans occupy that bottom line of that equation, where they are thinking about attrition. It is a campaign, where, according to the American Army's critics, it overemphasised the importance of industrial capability and firepower, and forgot about manoeuvre, ideas and the operational level of war. Again these two were being set up as opposites, and in the early 1980s there was a major debate that swung the balance from the bottom line of the equation to the top line, to manoeuvre operations and ideas. In 1989 the British began to reflect the power of that argument when they themselves embraced the operational level of war, and in 1989 for the first time the British published a doctrine for the British Army, something called the "British Design for Military Operations". That defines manoeuvre warfare as follows: "Generally the

aim is to defeat enemy intentions by the disposition of forces with only the minimum of essential fighting". In other words, you are not trying to destroy the enemy, you are trying to upset his command level, to upset his equilibrium, "with the minimum of essential fighting". So you have taken the weight right away from that bottom line and put it up towards the top line. The British Army, being a small army, a professional army without conscription, rejected the mass army earlier than other armies in NATO. In rejecting the mass army it found itself bound much more to that top line, simply because it was unable to renew itself to replace its losses. American thought never went quite that far. American thought was less extreme. In relation to AirLand Battle for example, the thought very much was that the purpose of manoeuvre was to bring fire to bear. The Americans did not emphasise manoeuvre as an end in itself, in the way that the British did. The 1982 Field Manual 100-5 says: "Firepower provides the enabling of violent destructive force essential to successful manoeuvre. Manoeuvre and firepower are inseparable and complimentary aspects of combat". The NATO definition from 1996 of manoeuvre is not dissimilar: "The employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in response to the enemy, in order to accomplish a mission". In other words, what the NATO definition now tries to do is finally to settle that particular division. It tries to bring these two elements together rather than to see them as alternatives, that is, to see firepower and attrition as standing together, and having to work together.

# Part II

# Air Power in Peace Inducement: Contributions and Implications

*Tony Mason*

In the aftermath of the Gulf War, air power enthusiasts were exultant, and with good reason. Air power had denied Saddam Hussein the opportunity to impose a strategy of ground force attrition on the Coalition. It had isolated his occupation forces in Kuwait, shattered their morale and war fighting cohesion to such an extent that they could be swept aside by Coalition land forces in 100 hours with but a handful of friendly casualties. Air power's capacity had finally caught up with the promise of so many years. In "Desert Storm", the enemy had been clearly identified, the political objective was unambiguous and agreed between Coalition members. Military objectives were defined and executed in a unified military command structure. The Coalition enjoyed considerable numerical and technological superiority in the air. The enemy ground forces were largely static and highly visible on terrain favourable to air attack in weather, which despite unseasonable lapses, was generally good. But in a little more than twelve months exultation began to turn to frustration as a very different operational environment began to evolve in the territory of the fractured state of Yugoslavia. It is difficult to envisage more contrasting circumstances from those of the Gulf than the civil war in Bosnia. For over three years there was constant disagreement among nominal coalition partners about political objectives and strategy. While the Serbs were frequently identified as aggressors, only in 1995 was coalition combat air power heavily and systematically applied against them. There were few formal "enemy" ground force deployments, no recognisable "front lines" and frequently little separation between belligerent formations and the surrounding civil population. Terrain was mountainous; inhibiting surveillance and reconnaissance while topography provided cover for small mobile units. The weather was standard European: featuring cloud, wind and rain for much of each year. Since then some of

those circumstances have been repeated in Kosovo. In 1999 however, there are the further complications of an ethnic group opposing an internationally recognised central government as well as the presence of a large number of unarmed UN/OSCE observers. It is dangerous to project future guide lines from a single region, but certain characteristics in the peace support environment in the Former Republic of Yugoslavia may be identified which are likely to reoccur elsewhere. A decision to intervene with armed force in any civil war will be made hesitantly. Ultimately, and reluctantly, ground forces will be committed. Now however, it is also possible to identify the considerable, cost-effective contribution which air power can make.

This paper prefers the expression "peace inducement" for all aspects of peace support, only one of which is actually "peacekeeping". It explores political features of the peace inducement environment, which are particularly conducive to the application of air power. It examines air power's potential contribution and the constraints upon it, highlights the significance of Operation Deliberate Force in Bosnia in 1995 and finally argues that, while aerospace technology may be readily adapted to peace inducing, less tangible problems will require resolution. Its central thesis is that aerospace power is extremely well suited to make a major contribution to peace inducement operations.

There may be several reasons why a state or supra national organisation may wish to intervene in a civil war, but the objective is likely to differ considerably from intervention in a conflict between a government, however frail, and insurgents. In Afghanistan, Western support of the Mujahadin was intended to discomfit the USSR. In Vietnam, the situation had been the reverse. In peace inducement, the objective of intervention is to stop the conflict and to bring the belligerents to the conference table. Intervening states may be concerned about the impact of the war on essential natural resources in the region or access to them. Without the escalatory constraint of super power confrontation, there may be a risk of the civil war spreading across frontiers and stimulating regional conflict. Or instability may tempt intervention from a potentially hostile power, which should be forestalled. A smaller state may wish to build up international credit by participating in a coalition. In the absence of any of these raisons d'etat there may be the pressure "to do

something", prompted by international media transmission of scenes of atrocities.

One factor is common to all these dispositions to intervene: the core security interests of the putative intervener are not at stake. Since the ending of superpower confrontation, the states from whom the interveners would most likely be drawn have two levels of option: first whether to intervene at all, and second, if so, then how far and for how long. From this basic position a number of sensitive political and military considerations flow which are likely to re-occur whenever peace inducement intervention is being considered. Some states may view international peace keeping as a means to fund their armed services, but most western governments are seeking to reduce defence expenditure and intervention will inevitably interrupt that process. Consequently, the cheapest method will be attractive. Finite, low risk, minimal casualty, short duration, small-scale commitments will be preferred. In democratic states, the absence of threat to core security interests leaves room for political opportunism. A government may be condemned for becoming involved, or for not becoming involved. It will be vulnerable to partisan politics if "success" appears illusory, or if military mistakes are made, or if "needless" casualties are incurred. Consequently, political objectives may be ill defined, limited, transient, variable and unpredictable, creating difficult circumstances for the application of any military force. Politicians will wish to exercise tight political control. That may be irksome to air force commanders but it will place a high premium on flexibility and responsiveness, executed by politically sensitive but highly professional leaders and subordinates. Air power's versatility is most compatible with such circumstances.

The media is likely to be influential; highlighting the horrors, which stimulate the demand for intervention, and then publicising any collateral damage or suffering inflicted by peace inducing forces. Public opinion will itself be volatile, fluctuating between outrage at scenes of horror and concern at casualties among friendly forces incurred in trying to stop them. Susceptibility to public opinion may induce governments to adopt ambivalent positions and to be disproportionately influenced by relatively small numbers of casualties, as in Somalia in 1993 after the mutilated bodies of 15 US servicemen in Mogadishu were shown on international

television. From 1992 to 1995 the vulnerability of British troops in Bosnia to reprisals stimulated consistent British opposition to the use of offensive air power against recalcitrant Serbs.

Every country will evaluate the likely benefits and costs of intervention. In a coalition, consensus will be determined by the compounded caution of the entire group. There may be a common interest in inducing the belligerents to reach a peaceful settlement but there may not be agreement on the extent of the commitment to be made, or the price to be paid. Not surprisingly, the hesitation and disagreement between the US and European governments over the use of force in Bosnia has been repeated in Kosovo. Conversely, the political considerations of the warring factions in a civil war are likely to stimulate very deep commitment to clearly defined objectives. Recent events suggest that they will be fighting over the remains of a fragmented or decaying political entity as in Rwanda, Somalia, Moldova or Bosnia. The conflict may have tribal, ethnic, ideological or cultural roots and it may have erupted spontaneously or it may have been stimulated by more cynical political opportunism. While their motivation may be deep and intangible however, the belligerents' objectives are likely to be territorial and political control. Their motivation and historical perspectives will stimulate hatred, fear and suspicion, leaving little room for compromise or conciliation. They are likely to equate security with territorial and political domination. The imminence or actual outbreak of civil war will signal their determination to achieve that security or aggrandisement by armed force. Throughout history, civil war has been characterised by brutality, destruction and intimidation, frequently applied by formations lacking traditional military discipline, organisation or command and control structure. There is no reason to assume that such characteristics will disappear from future peace support environments, even when one side, as in Kosovo, claims political legitimacy for its objectives. The factions in a civil war do, however, share one major weakness. They are totally dependent on armed force to achieve their objectives. Military supplies, formations, command, control and infrastructure will frequently have been divided. Air defence co-ordination is particularly likely to have been weakened by fragmentation. Arms factories might have been inherited but if so, their location will be well known. If embargoes or sanctions are in force, both sides will have finite supplies of war stocks and spares, especially of heavy weapons, aircraft

and armoured vehicles. Their locations also are likely to be well known. As a result, both sides are likely to be particularly vulnerable to attack on, and interdiction of, weapon sources, stocks and infrastructure.

Four phases of peace inducement have been defined by the United Nations.

1) Preventative Diplomacy: Action to prevent disputes from arising between parties, to prevent existing disputes from escalating into conflicts and to limit the spread of the latter when they occur.

2) Peace Making: Diplomatic action to bring hostile parties to negotiated agreement, essentially through peaceful means as those foreseen in Chapter VI of the "Charter of the United Nations".

3) Peace Keeping: The deployment of a UN presence in the field, hitherto with the onsent of all the parties concerned, to implement or monitor arrangements relating to the control of conflicts and/or to protect humanitarian relief.

4) Peace Enforcing: May be needed when peaceful means fail. It consists of action under Chapter VII of the UN Charter, including the use of armed force, to maintain or restore international peace and security in situations where the Security Council has determined the existence of a threat to the peace, breach of the peace or act of aggression.

In all four phases, a distinctive feature is the fact that all the inducements are applied by a third party and, therefore, subject not only to the perceptions of the faction which is currently being "targeted" but also to those of its adversary. This is an environment of deep-rooted mistrust, suspicion, reluctance to make concessions, unpredictable responses and local intransigence even when the factional leadership has acquiesced in the peace process. If force is to be included among the inducements, it is essential that it be applied impartially and with legitimate authority. Consent, however grudging and resentful, may be induced by force as well as by cajolery and promises of economic assistance. Impartiality does not imply equality of force against all factions when one is intransigent and the others are not.

While the factions are relying on force to achieve their political objectives in classical Clausewitzian mode, the use of force by the interventionists has a very different purpose, varying in application in different phases but sharing an underlying objective. Their objective is not a military victory over one side or the other, but to coerce both to the conference table. Intervening force is unlikely to compel reconciliation between the factions. It will be used concurrently with other inducements and diplomatic pressure to persuade the belligerents that they are likely to achieve a better outcome by negotiation than by armed force and that, once having reached a negotiated settlement, it is in their own interests to adhere to it.

Aircraft do not need to be deployed to disputed or turbulent territory to influence events within it. Operating from secure bases in the region, aircraft do not require extensive and vulnerable logistic links within the territory itself. Such deployment may be deterrent in nature, especially in the preventive diplomacy and peace making phases, or it may be to contribute to peace inducing coercive operations. If no airfields are available in the region, or if neighbouring states are hostile to the intervening powers, the ability to sustain any intervention, not just the application of air power, must be highly debatable. The responsiveness of air power is particularly valuable in peace inducement. It may be swiftly deployed and equally swiftly removed from a theatre, without the military and political penalties of highly visible withdrawal of ground forces. Its operations may be concentrated in space and time or intermittent: activated and suspended in cadence with diplomatic and other pressures in the peace building process. It may be held at various levels of readiness over long periods without the problems associated with sustaining ground forces during a cease-fire among a resentful population. In peace inducement, as in any other circumstances, air power may be employed to prepare the environment for exploitation by ground forces, or in support of deployed ground forces or independently of any other armed forces. It is sometimes argued that the use of air power indicates a weaker commitment than the deployment of ground forces. However, the withdrawal of US ground forces from the Lebanon after the Beirut tragedy of 1982, and early extraction from Mogadishu after casualties in 1993 call that view into question. It is the impact of the commitment on the warring factions, which is important, not the perceptions of reluctant coalition partners.

Most of the traditional roles of air power will be required whether ground forces are deployed or not. In all phases, surveillance and reconnaissance will be essential. They may disclose belligerents' intentions and capabilities, locate weapon, ammunition, fuel and other stocks; identify supply routes or breaking of embargoes, locate fortifications, command posts, road blocks and heavy weapons; monitor treaty compliance and contravention, and swiftly investigate claims or even rumours of atrocities. Both defensive and offensive combat air power will be required. Belligerent aircraft and air defences will need to be neutralised, because of the disproportionate political effect even of slight coalition aircraft losses, or of small hit and run air attack on friendly forces or opposing factions.

Offensive air power can deny a belligerent the ability to concentrate his own ground forces or to move them confidently into excluded territory, thereby conferring escalation dominance on a coalition. It can directly reduce the military advantage held by a belligerent to a point where not only is he incapable of imposing his will on a competitor, but he may actually be in danger of conceding the coercive advantage to him. Under such circumstances air power becomes a force equaliser, as happened in Bosnia in August 1995. Some targets however, will be off-limits or unproductive. Snipers or light mortars operating from built up areas, even if precisely located, are unlikely to be neutralised by air attack without civilian casualties and collateral damage. Attacks on social and economic infrastructure: power stations, oil refineries, industry etc. will increase the discomfort of all concerned but will prolong and complicate economic reconstruction essential to cement the peace making process, without necessarily furthering it. They are just as likely to stiffen belligerent support as undermine it. Similarly, while the character and intransigence of some belligerent leaders may tempt personal targeting, their violent removal is as likely to induce martyrdom as concessions. Discrediting by military failure is likely to be more effective and permanent.

The objective of force equalisation by air attack does not require the meting out of large scale death and destruction. It is to reduce the belligerent's military capacity to a point where he can no longer impose his own solution by force. Indeed to reduce his forces beyond an "equalisation"

level may induce his opponent to press home his own military advantage, to the further detriment of the peace building process. This is an obvious risk in the use of heavy air power against Serbian forces in the Kosovo crisis. Such a process calls for fine judgement and, to a certain extent, revision of some cherished military principles. Intermittent action may inhibit concentration of force. Withholding pursuit or curtailing a successful operation before the achievement of traditional 'victory' may be detrimental to morale. One of the many advantages of air power in this environment however, is that retaliation or punitive action may be taken against widely spread, numerous targets, all of which have been publicly identified. Moreover, postponing or cancelling further air attacks from secure bases is much easier than disengaging arbitrarily from contact on the ground.

Military suspicion of gradualism: the limited escalation of military pressure to achieve political ends is a legacy of Vietnam, especially in the USAF. The peace support environment is far different, but the basic principle may, on occasions, have substance. Therefore, if air attacks have to be made they should be against such significant targets with such force as to leave no doubt whatever in the intransigent's mind about the outcome of continued military opposition to the peace keeping process, or of seeking to take advantage of a bombing halt. The attacks can still be limited in duration, weight and targets. All the contributions of air power noted above may be made in an attempt to avoid the commitment of ground forces altogether or to create more favourable circumstances for them to exploit. When friendly ground forces or other agencies are deployed, their effectiveness can be enhanced by the provision of traditional "tactical" air support, including air mobility, reinforcement, vertical outflanking and envelopment of hostile forces.

Assertion of such potential for air power prompts a very obvious question: "Why did it take so long to be effective in Bosnia?" The Yugoslavian tragedy has not reached its last Act but circumstances from 1992 to September 1995 already offer almost as many lessons about how not to apply armed force as did the earlier tragedy of Vietnam. With hindsight, it is obvious that too many well founded political and military principles were overlooked; too much emphasis was placed on differences in the peace inducing environment and not enough on factors common to all

application of military force. There was no external agreement on the political objective: which should have been an acceptable peace plan. Ground troops were deployed in insufficient numbers to discharge their increasing responsibilities. Ultimately, they became hostages impeding the application of heavier, coercive, air power. There appeared to be little anticipation of the fact that in a civil war, humanitarian relief to either side would be interpreted as direct assistance to the other. UN ground force weakness induced heavy dependence on the consent of the warring factions to its activities, which inevitably rewarded intransigence and hostility.

Early proposals to use air power as a force equaliser were strongly opposed in Europe. Those countries with deployed ground forces feared for their vulnerability to reprisals. The exaggerated response of the USA to the loss of one F-16 showed that there was not much difference in such sensitivity on either side of the Atlantic. The principle of "proportionality" - responsive, defensive fire power restricted to the same level as an attack - was enshrined in very tight rules of engagement which constrained both air to air and air to surface operations. Concern about possible civilian casualties and collateral damage was widely expressed. Needless to say, the Bosnian Serbs seldom lost an opportunity in the international media to exploit this enervating compound of uncertainty, disagreement, idealism and fear among the intervening powers. Even had there been earlier agreement on the use of air power, the duplicated, tortuous chain of command, from the UN Secretary General to UN civilian and military commanders in the field, alongside that from the NATO Council to the squadrons in Italy, would have inhibited its use. Finally, even when air attacks were made, "proportionate" targets of individual tanks or other small mobile and concealed targets were of little significance. Meanwhile, in the skies above, the shooting down of four Bosnian Serb aircraft was an isolated coalition success in an otherwise widely infringed air exclusion zone, which contributed little to the struggle for territorial control and UN objectives. Under such circumstances, threats of severe retaliation from the air by the UN, NATO and local commanders alike were hollow, and contemptuously disdained by the Bosnian Serbs.

The turning point came in May 1995, when, after one more Bosnian Serb failure to meet another UN deadline to withdraw heavy weapons in the regions of Bihac and Sarajevo. NATO aircraft, for the first time, were freed from the constraints of previous rules of engagement and, instead of striking the offending weaponry, hit Bosnian Serb ammunition bunkers near Pale. This attack was to be the turning point in the peace inducement process. For the first time, the air strike had not been "proportionate". It hit the weakest point in the Bosnian coercive strategy: their finite war stocks. The versatility, reach and precision of air power had finally been exploited without civilian casualties or collateral damage. The damaging potential of the attack was realised immediately by the Bosnian Serbs who swiftly and indiscriminately retaliated by shelling Sarajevo, Bihac, Gorazde, Srebrenica and Tuzla, inflicting heavy civilian casualties, and taking 300 UN troops hostage and as human shields against further bombing. Consequently, the air attacks were widely portrayed by the media as counter productive, producing exactly the disastrous results forecast by many policy makers and analysts. The significance of NATO's response, to increase troop contributions, to establish a Rapid Reaction Force and to withdraw UN ground personnel from exposed positions, was not given the same media cover.

Over the next few weeks the command and control chain was simplified and shortened. The Croatian and Bosnian Moslem armies began to exert heavy pressure on the Bosnian Serbs, forcing them to draw down more heavily on their resources and to become more dependent on reinforcement and supply. The US increased diplomatic pressure on the Bosnian Serbs to accept a peace settlement. At the end of August, after a mortar shell exploded in a crowded market in Sarajevo, NATO airforces launched operation "Deliberate Force". The offending weapon was identified as a single Bosnian Serb mortar, but NATO's response, over a period of 16 days, comprised 4,000 sorties. Of those, approximately 25% delivered weapons, against command bunkers, radar and control centres, ammunition storage bunkers and bridges on Bosnian Serbs reinforcement routes. The Bosnian Serb capacity to coerce its opponents was severely reduced, NATO and UN authority was re-established and the way to the Dayton agreement was cleared. Air power had not imposed a solution to the problem; but by acting finally as a force equaliser it had created conditions in which a settlement could be negotiated.

In the end, a combination of pressures brought the Serbs to the conference table: resurgent and threatening Croatian-Bosnian ground forces, heavy diplomatic pressure and sanctions, increased allied artillery fire in the critical area of Mount Igman, and the "disproportionate" impact of allied air power in total force synergy. Concentration of force, versatility and depth in targeting, destruction of instruments of power, exploitation of technological superiority, weapon precision, minimal casualties and collateral damage, greatly reduced requirements for ground forces (the 4,000 troops of the UK Air Mobile Brigade were not employed) and a sense of powerlessness among the Bosnian Serbs were the features of "Deliberate Force". The circumstances had been very different from those of "Desert Storm", but the impact of air power was very similar.

In the spectrum of uncertainty, which lies ahead, many armed forces are faced with a difficult choice: whether to prepare and equip for high intensity conflict, which may threaten national security but which, may be very remote. Or for low intensity operations, including peace inducement, which may be in support of lesser interests but occur much more frequently. Fortunately for air power, most of the technology procured for high intensity operations is equally valuable in peace inducement, and vice versa. It includes multi-spectrum reconnaissance and surveillance satellites, aircraft and UAVs; defence suppression weapons, defensive and offensive counter air systems and weapons, night/all weather target identification and acquisition systems; precision guided munitions; airlift; real time C3l nets and comprehensive electronic warfare suites. All can be used in either a "Desert Storm" or a "Deliberate Force". There is, however, a less tangible constraint. In the 1920s and 1930s the Royal Air Force very successfully carried out low-intensity policing duties in various parts of the Empire, sustaining its independence in a period of international uncertainty. It thereby failed to prepare or equip for modern large-scale warfare until the eleventh hour, with tragic results in the early years of World War II.

Using air power in peace inducement is likely to reduce the costs of overall national commitment, but it will not be cost free. The environment is likely to be hostile, with threats from both air and ground. But the demands of a large scale conflict, in a multi-threat, high pressure, dense electronic warfare environment are likely to be very different and com-

bat efficiency must be maintained by appropriate training. Peace inducement missions may need to be flown in addition to such training. In which case aircraft fatigue life, engines and spares will be consumed more rapidly. Either peacetime air and ground crew manning must be increased or workloads must be expanded, risking over-stretch and dissatisfaction. If, on the other hand, peace inducement were to be given priority over training, or even replace it, combat aircrew would risk suffering the RAF experience. There might also be a temptation to reduce priorities in procurement of advanced platforms, weapons and systems. There is obviously a need to ensure that politicians fully understand both the potential and implications of employing air power in peace inducement.

The contribution of air power to the Bosnian tragedy in 1995, in circumstances so different from those of the Gulf, demonstrated its enormous versatility and potential for the wide-ranging uncertainties of the next century. Peace inducement operations may not be accorded the same political enthusiasm after the Balkan experiences as in the heady days of the "New World Order". But if they are, air power has shown that, despite many different circumstances, it can make a similar contribution to peace inducement as it did in the Gulf. It can determine the conditions of conflict and deny a belligerent the ground based strategy of his choice. It can reduce the number of friendly ground troops required, thereby reducing potential casualties. As in the Gulf, it can capitalise on the technological advantages likely to be possessed by the intervening powers and on long standing habits of operational co-operation and cultural affinity shared by many air forces. Above all, provided that all the implications of its potential use are considered from the outset, it can generate enormous combined force synergy.

One final thought: Peace inducement is likely to be but one of several contributions of air power to conflict in the 21st century. Politicians and populations of nations, which have long and honourable traditions of international responsibility, are unlikely to abandon them when faced with evidence of genocide or other threats to international stability. No doubt there will be some airmen who will have little enthusiasm for the constrained operations of peace inducement. But an air force, which is only considered relevant when national security itself is threatened, may well put its political support and resource allocation at risk.

# An American View of Peace Support Operations: A Perspective on Air Power

*Robert C. Owen*

In the world of military policy and operations, peace operations are a growth industry. The United Nations (UN) activated just 13 peace keeping operations in the forty years between 1948 and 1988. In the last ten years the international body has activated or endorsed 36 others, including peace enforcement operations in Somalia, Haiti, and Bosnia-Herzegovina.[1] The sudden expansion of peace operations is a product of collapsed economic and political systems in various parts of the world and the post-Cold War freedom of developed countries to expend economic, political, and military capital on them. And capital is what peace operations require. Besides costing billions of dollars, peace operations cost lives; over 1580 soldiers lost to all causes between 1948 and 1998.[2] Peace operations also exert tremendous pressures on peacetime military establishments and on individual soldiers. Those costs are what bring us here today. If our governments choose to be involved in peace operations, we must develop ways to do them effectively and at minimum cost. As airmen and those who think about the utility of aerospace power, these goals naturally lead us to consider the role of our chosen arm in such operations. To develop operational plans, we need to understand the absolute contribution aerospace power can make to peace operations. To make force-structure policy, we must consider the relative effectiveness and costs of aerospace operations in comparison to, or in conjunction with, other forms of military power, particularly land power. [3] Only with those pieces of information in hand, can we go to our governments and suggest the kinds and scale of aerospace forces needed to best serve their commitments to peace operations.

My charter then is to present “an American view of peace support operations”. More specifically, I intend to narrow my focus to a presentation

of my assessment of the relative value of aerospace forces in peace operations. This narrower focus will avoid a tedious and ultimately hopeless effort to capture a typically "American" view on peace support operations. One only has to read the literature to know that no such thing exists. This focus also will spotlight two fairly clear-cut focal questions for examination. First, is the utility of aerospace power, in relation to land power, increasing or decreasing? Second, how should governments take advantage of the dynamics of that relationship? By addressing the utility of aerospace power in a relative sense, rather than in an absolute one, this examination becomes a little more complicated and risky, but it also becomes more likely to produce an answer of some value to military force structure policy. Everyone knows that military aerospace forces can contribute to peace operations in an absolute sense. That is interesting information, but hardly instructive to decisions about the size and composition of either air forces or of their proportional role in any given defense establishment. Only by knowing how aerospace power stacks up against land power can defense planners get into the serious business of picking and choosing force mixes and doctrines.

My approach to exploring the relationship between aerospace power and peace operations will be straightforward. First, and at the risk of patronizing the many experts in this audience, I will encapsulate the nature of peace operations with an eye to their relationship to the attributes of land and aerospace power. Then I will describe some of the more important operational-level elements of those two forms of military power in relation to the demands of peace operations. This section will be followed by a discussion of the specific capabilities of aerospace power at the tactical level of peace operations. Since I am only a plugger in the doctrines and capabilities of land forces, I hope that others in the audience will contribute their greater knowledge of that subject after the merciful end of my prepared remarks.

The American joint doctrine publication, *Joint Publication 3-07, Military Operations Other than War*, defines *peace operations* as a category that "encompasses peacekeeping operations and peace enforcement operations conducted in support of diplomatic efforts to establish and maintain peace." The publication goes on to define "peacekeeping" as "military operations undertaken with the consent of all major parties to a dis-

pute, designed to monitor and facilitate implementation of an agreement…and support diplomatic efforts to reach a long-term political settlement." As we all might expect, the document presents "peace enforcement" as "application of military force, or the threat of its use…to compel compliance with resolutions or sanctions designed to maintain or restore peace and order."[4] These are useful definitions that capture the main difference between the two types of peace support operations: one assumes broad permission and co-operation from the "major parties" of a dispute, while the other assumes that one or more of those parties needs a little slapping around. But, a closer look at these definitions reveals that, in their careful brevity, they miss or gloss over some essential elements in the nature of peace operations that have relevance to the present discussion.

The naked reality of peace operations is that they are interventions by wealthy and powerful outsiders into the affairs of less well-endowed local governments, groups, and factions. However public relations officers and pundits might wish to present peace operations, it is useful for military planners and operators to recognize their core reality. They are applications of state power to direct or facilitate the movement of the social, economic, and political affairs of others in directions that the intervening states believe they would not go without that application of power. The directions intervening states wish local affairs to go may be laudable. They may wish to prevent the dissolution of failed states, mid-wife the birth of new states, block genocide, or to achieve other worthy objectives. Intervention objectives also may be self-interested, such as protecting economic interests, alliance structures, or to just getting those awful images off of the Cable News Network. Whatever the case, states intervene or, in current usage, conduct peace operations to accomplish their objectives, mainly by helping or making the natives behave.

I use that distinctly pejorative term, "making the natives behave," with a purpose. I want to emphasize that, as interventions into the affairs of others, peace operations, in reality or at least in the views of some of their recipients, amount to little more than a type of or continuation of western imperialism.[5] If that term is too harsh for some, then peace operations also could be presented as assertions of economic, political, and moral hegemony. Essentially, they involve developed states accepting

obligations or asserting rights to shape directly the lives and destinies of peoples and organizations that fall outside of the political structures of the intervening states. Whether the rich states are intervening to prevent locals from behaving badly or from suffering the consequences of their own political or economic failures or bad luck, the essence of the act is the same—hegemony. For the intervention to be "peacekeeping" the intervened state and/or disputants must accept the consequent reduction of their sovereignty and self-reliance. If one or more of those parties do not accept the intervention or its intent, then the operation likely will become one of "peace enforcement." In that case, the intervening states will have to fight to impose their visions on local circumstances; visions that may or may not even conform to those of the government or factions upon whose "behalf" the big powers are intervening.

That peace operations represent a species of imperialism is manifest from several perspectives. How else but as imperialism will many perceive a national policy statement that multilateral peace operations "can serve U.S. interests by promoting democracy, regional security, and economic growth"? [6] In the eyes of many, even the "promotion of democracy" will appear as an assertion of cultural imperialism by developed countries seeking security by having the world conform to their ideas of political propriety. Similarly, when states bomb one faction in a civil war to both defend the borders of a forming state, and to prove to the world that their collective military and political alliances are sound; that will read to many like an act of moral and political self-interest, hegemony, or imperialism—call it what you will. We should not be surprised or dismissive, therefore, when the Serbs link UN-sponsored peace operations to Nazi conquest.[7] While such statements certainly reflect their odious brand of bullying diplomacy, they also reveal their perception of the motives of intervening states. Inaccurate and unfair though it may be, such a perception can have great effect on the course and outcome of a peace operation.

Thus, the value of describing peace operations as a form of "real politik" is neither to discredit them or even to address the argument of whether imperialism is right, wrong, or just an inevitable feature of the intercourse of nations. Rather, the value of such a description, assuming it is correct, lies in its support for accurate analysis of the military character-

istics and strategic essentials of peace operations, and of aerospace power's role in them. To put it bluntly, mushy descriptions of peace operations as humanitarian and neutral efforts to promote peace, stability, and motherhood do not explain why so many soldiers die in them or why they so strain the resources of our states. Understanding that "peace operation" is the current term for self-interested interventions by states into the internal affairs of others does go a little further down the path toward explaining those realities. People and some disputing factions benefit from such interventions, while others do not, and sometimes the dissatisfied ones fight.

As interventions, peace operations make intervening states and their soldiers active members of local society, politics, and culture. In open war, societies focus on destroying, capturing, or threatening one another's resources until their opponents capitulate. In peace operations, outsiders come into the life of a country by permission or force and, along with its regular citizens, take on a role in shaping its features and future. Of course, the effects of this interaction go both ways. By asserting some ownership of events in intervened states and societies, intervention states are shaped by them politically and socially, in turn. As a case in point, consider the effects on our domestic politics of the televised images of the Market Squares of Death in Sarajevo and of dead Americans in the streets of Mogadishu. For every force, there is an equal and opposite reaction.

Interaction with intervened states and societies, of course, makes intervening states liable for subsequent events. Depending on what they have asked, helped, or forced the factions in a conflict to do, the intervening states also may find themselves emotionally or politically vested in them in ways that make withdrawal difficult, even when the initial crisis is over.[8] The United States could and did withdraw from Granada quickly and easily, for example, partly because it asked the people of the country to commit to or change nothing, other than to bid farewell to the Cubans. In contrast, the Bosnian Federation and many of its citizens live and may even begin to thrive as a consequence of the UN-NATO intervention, which may explain why both alliances assume a moral obligation to preserve the new state until that distant day it hopefully will stand on its own.

Also, as self-interested intrusions into local affairs, peace operations are highly unlikely to be viewed as politically neutral events, except in the eyes of the most hopeful or doctrinaire among the interventionists themselves. Despite official pronouncements that "peacekeeping…demands that the peacekeeping force maintain strict neutrality," and derivative statements that "peace operations interject politically neutral military forces into contested areas," real neutrality is unattainable in peace operations.[9] To the point, one can not enter a state like Somalia and interfere with the factional competition for control of the flow of foreign aid, which was the primary currency of political power, without becoming a biased actor in local politics, at least in the eyes of the factions. Experience bears this out in the rapid evolution of the U.N. mandates in Somalia; from humanitarian relief, to disarming the factions to secure the flow of relief, to a specific manhunt for Mohammed Aideed.[10] Likewise, no matter their self-perception, United Nations "peacekeepers" became participants in the Bosnian civil war the moment the UN passed resolutions forbidding the factions from using combat air power and from attacking Bosnian cities. Moreover, since only the Bosnian Serbs had combat aircraft or were conquering cities at the time, the partisan and inequitable effects of the U.N. mandates were obvious to most.[11] The reality is that, even in what appear to be the most humanitarian and benign of peace operations, soldiers keeping and, certainly, enforcing the peace will find allies among those who benefit from their intervention, and they will find enemies among those who do not.

These processes of interaction and of finding friends and enemies suggest that mission creep is inherent to and almost instantaneous in peace operations. In an analog to the Heisenberg Principle of Physics, peace keepers and enforcers change the circumstances in which they intervene, simply by the act of intervention itself. Missions simply will not stay put in these kinds of operations where, in the words of one analyst, "the success of the original mission depends on picking up additional missions."[12] The U.S. government sent Marines into Haiti in 1915 to reestablish order, but found itself unable to withdraw them until 1934, and only after undertaking a large program of public works, education, and attempted cultural reengineering. To stabilize a government, the Marines had to build a nation.[13] NATO entered the Bosnian conflict to underpin United Nations sanctions and humanitarian relief efforts. But now the alliance is

engaged in a long-term presence upon which hinges the survival of the Bosnian state. In reasonable likelihood, if NATO leaves anytime soon, tens of thousands will die. To secure the safe areas, then, the intervening states have had to help rebuild Bosnia politically, militarily, and to some degree psychologically. No wonder that one student of international relations recently wrote, "to imagine that the United States can send a company or a corps into [an intervention] with a clear, finite mission statement that will not evolve takes a remarkable mind."[14]

Tactically, peace operations can demand the full range of capabilities incumbent in conventional military forces. In the past, peace soldiers have faced threats ranging from terrorists and guerillas to conventional land forces and even air arms. The weapons of their opponents ranged from land mines and small arms, to armored fighting vehicles, artillery, and aircraft. Peace force tactical operations have included the traditional ones of taking posts between warring factions, observation, patrolling, reconnaissance by land and aerospace systems, de-mining, corps of engineers construction projects, coercive confrontations, conventional offensive operations, and others. In short, peace operations are distinguished from open conflict not by the types of tactical operations undertaken, but by their intent. Consistent with this view, United States Army doctrine does not discount the applicability of traditional principles of war to peace operations, though it adds several other principles to peacekeeping to reflect its focus on utilizing minimum force to restore the conditions of peace as quickly as possible.[15]

Because peace operations demand so much from the military, they certainly can "feel" like war, at least in terms of the resource pressures and emotional trauma they impose. As General Frank Kitson discovered for land forces over a generation ago, preparing officers and troops for peacekeeping requires substantial investments in education and training, though he believed that many of the basic skills thus imparted would be transferable to conventional roles.[16] But overall, units engaged in peace operations have little time or opportunity to engage in the training, battle drills, and exercises needed to keep them ready for their conventional roles. Similarly, Air Forces maintaining air occupations over places like Bosnia and Iraq have also discovered that the air-to-air combat and other skills of their fighter pilots quickly degrade in a regimen marked by long

patrolling and minimal continuation training. Peace operations also demand much in the way of psychological stress, particularly from ground troops engaged in the inevitable processes of interacting with intervened societies, while all the time watching their backs. Recent studies, as cases in point, indicate that veterans of peacekeeping in Somalia experienced a similar rate of post-traumatic stress disorders as soldiers from the Gulf War, about eight percent. Their traumas emerged not from combat, but from its absence under the "nerve wracking conditions of peacekeeping [and] the need to exercise restraint in a country full of armed bands."[17] The resource pressures of peace operations can also be formidable for militaries simultaneously trying to maintain their readiness for conventional war and to sustain troop moral at a level necessary to keep soldiers from resigning in mass. Largely as an effort to balance these pressures, the Chief of Staff of the United States Air Force, General Michael Ryan, launched the Expeditionary Aerospace Force concept last August of 1997. His guidance to his major commands was to develop a package of personnel policies, force scheduling procedures, and logistics concepts to make more bearable the burdens of maintaining standing deployments.[18]

All these factors considered, it is reasonable to point out that peace operations have more in common with war than many would like to admit. Their genesis lies not in the existence of tumult and tragedy in the world, but rather in the desire of strong states to intervene. Tumults and tragedies are always with us. They only become peace operations when wealthy states find it in their interests to protect others from the consequences of their own actions, to protect weak factions from strong ones, to help or force others to adhere to moral and political norms attractive to the interventionists, or simply to get peoples and their ugly actions off of television. As in the realm of war, such intrusions into the affairs of others can be causes of conflict or at least acts that make the intruders participants in conflict.

Understanding that peace operations have much to do with hegemony and conflict greatly simplifies an analytical approach to the two most important strategic questions about them. The first is, "which of the many opportunities for intervention should be taken"? Just as it is in any rationalist approach to conflict in general, the basic answer to this ques-

tion is "whichever ones truly involve significant national interests and that can be accomplished with a net improvement in the national conditions of both the intervened and intervening states." This answer clearly is implied in American presidential policy, which holds that intervention decisions will be based on national security requirements, the scale of the threat or breach to international security, and the presence of international support for an intervention.19 The devils of such a policy are in the details, of course. To intervene to achieve a net improvement in the national condition requires a clear knowledge of end-state goals and the probable outcomes of the action. End-state goals are difficult to calculate, because they must accommodate, among many things, national desires to gain economic and political strength, preserve military capabilities to handle vital threats, and to enhance the moral self-confidence, prestige and alliance structures of the intervening state. At least one realist analysis of this decision process has suggested that the final answer to this question is, in essence, "hardly ever." Another has said only when "there is a genuine threat to the interests of the United States," and only when end-state goals will not "require a revolution in indigenous values and beliefs."[20] In any case, before intervening a nation should at least try to determine that the intervention truly is necessary and that it likely will come out of the intervention stronger than when it went in. Any less disciplined approach is the first step to strategic overreach.

The second fundamental strategic question emerging from an understanding of peace operations as actions of hegemony and conflict is, "once governments decide to intervene, how do militaries achieve national goals at least cost in blood, treasure, and heartache"? Simplistically, the answer is "through astute combinations of doctrine, preparation, and operational exploitation of existing and/or readily obtainable forces singly and in combination with one another." Concisely put, probably every thoughtful strategist understands that peace operations are won by intelligently employed Joint and, hopefully, Combined forces, applied in concert with equally astute diplomatic actions. This insight, in turn, re-spotlights the focal questions of this presentation; (1) is the utility of aerospace power, in relation to land power, increasing or decreasing, and (2) how should governments take advantage of the dynamics of that relationship? Once again, getting at this one narrow aspect of the broader problem of "fighting" peace oper-

ations requires a shift of focus from their nature to operational-level discussion of the relative roles of aerospace and land forces in such activities, and then to tactical-level discussion of aerospace power's changing role in an absolute sense.

Quick definitions of land and aerospace power will be useful here. "Power" means the same thing for both terms. Power is the ability to do work or, in the military context, to make someone or group do things that they were not intending to do otherwise. Land and aerospace power share the same objective then - compelling enemies to do things - they only differ in their means and methodologies. Land forces compel enemies through maneuver, fire, and presence operations by forces that move on the surface of the earth, or by auxiliary air arms that move above the surface but whose operations largely are oriented to the movements and positions of their parent land forces. Aerospace forces compel enemies through maneuver, fire, and presence operations by forces that move above the surface of the Earth. In simple terms then, air and land forces do similar things in different mediums. This simple relationship is useful, because it makes comparisons of land and air power easier than often is understood. It is from their different mediums that each mode of fighting draws its distinct operational-level advantages and disadvantages in peace operations.

The salient advantage of land forces in peace operations is that, by operating on the surface of an intervened state, they are there and, compared to aerospace forces, it is difficult to extract them from there. As any soldier will tell you, land forces do their job most decisively in close quarters with the enemy, even if that "enemy" is an uncooperative Haitian policeman unwilling to enforce the law. So, to keep or enforce the peace, armies seek to deploy as widely as the security situation permits to engage in eyeball-to-eyeball cultural interaction with the locals. Close contact is the sine qua non of armies, and it gives them unequalled ability to come to grips with local conditions, distinguish between allies and enemies, and to execute schemes to shape social and political developments. Soldiers walk the streets and enter buildings, sometimes without destroying them first. They talk to people, read posters, and otherwise plumb and characterize the "atmosphere" of a place. So, in peace operations, land forces seek to deploy as widely as the security situation permits.

Given the capabilities of modern weapons, command and control systems, and tactical mobility platforms, intervening armies also have the ability to spread out and "cover" larger areas. Last, since armies are not easily moved out of conflict environments, their presence is, in the words of two senior American doctrinalists, "is an irreducible "bonafide" of alliance commitment, especially for the nation claiming leadership of that alliance."[21]

The salient disadvantage of land forces in peace operations is that, by operating on the surface of an intervened state, they are there and, compared to aerospace forces, it is difficult to extract them from there. In close quarters with the citizens of foreign cultures, peacekeepers often find their duties characterized by confusion, frustration, and boredom laced with frequent moments of anxiety and fear. Soldiers in peace operations are vulnerable, as casualty figures from Somalia and Bosnia attest. Death or injury can come to them from bombs, bullets, the clubs and knives of a mob, or a thousand other ways. And peace soldiers do become the targets of attack, particularly when their duties call on them to coerce and/or kill locals. When peace soldiers kill or are killed, the relationship between interventionist and intervened will change. Consequently, interventionist "investment" and liability may increase and the mission likely will creep or plunge toward greater or lesser involvement. The direction of movement often is unpredictable. After eighteen U.S. soldiers died in Somalia on 3-4 October 1993, the U.S. began a policy shift that had it out of the country by the following March. In contrast, when the Bosnian Serbs took several hundred peacekeepers hostage to halt NATO bombing raids in May 1995, the U.S. cooperated with several other countries to prepare the way for a sustained air campaign against the Serbs, which came off at the end of the following August. The air campaign, in turn, opened the way for the insertion of over 20,000 peacekeepers into Bosnia that winter. In other words, armies find both power and vulnerability in close-quarters interaction with intervened societies. Close-quarters interaction gives intervention governments an indispensable ability to shape events, and it also exposes them to liability and mission creep. As many have pointed out, these vulnerabilities can be minimized by proper education and training of troops to conduct themselves effectively in unexpected circumstances. But, such vulnerabilities can not be eliminated.[22]

The salient advantage of aerospace forces is that, by operating above the surface of the intervened state, they normally are not there, and compared to armies, it is easy, indeed routine to extract them when they do overfly there. As any airman will be glad to tell you, the speed, range, agility, and elevation of their aircraft and space systems, combined with the unprecedented lethality of their weapons and the capabilities of their information, surveillance, and reconnaissance systems allow them to exert great effect from afar. Given time, airmen are getting ever nearer to former United States Air Force Chief of Staff Ronald Fogleman's claim that "in the first quarter of the 21st century you will be able to find, fix or track, and target—in near real time—anything of consequence that moves upon or is located on the face of the Earth." Consequently, aerospace forces do not need emotional or physical nearness with intervened states or cultures to do their primary jobs of observing, holding at risk, or destroying their resources and people. Indeed, close contact for airmen can be counterproductive. Part of their psychological effect in peace operations, has been their ability to observe and attack in something like cold blood. Because they can be nearly invulnerable to the defenses of disputing factions, airmen in modern aerospace forces have opportunities to time and structure their operations in ways that are systematic, unstoppable, dispassionate, and enormously useful to their governments. As Ambassador Richard Holbrooke and others have recorded, such operations had a profound psychological effect on Serbian leaders in the fall of 1995.[23] Such operations also can shape conditions to let ground forces spread out and do their jobs more effectively and at more bearable cost. Further, as in the case of "Deliberate Force", air operations often produce minimum friendly and enemy casualties, which in turn reduces the generation of and overwhelming pressure to change the political cohesion and mission focus of an intervention.

As by now must be obvious, the salient disadvantage of aerospace forces is that, by operating above the surface of the intervened state, they normally are not there, and compared to armies, it is easy, indeed routine to extract them when they do overfly there. The distance between airmen and intervened cultures prevents them from doing some things as well as their Army brethren. Professional airmen do not look their opponents in the eye. They do not negotiate with local commanders, warlords, civil servants, or refugees. They do not watch, interrogate or arrest people. In the first quar-

ter of the 21st century, they likely will not be able to find, fix or track, and target all the significant things that will be hidden beneath the surface of the earth or other forms of camouflage, or that will be hidden behind the eyes of an enemy. In short, airmen have limited ability to build detailed pictures of what is going on at the human level or to shape local events or developments in positive ways, except in conjunction with activities by forces, diplomats, and non-governmental workers on the ground.

The ease with which political leaders can halt offensive air operations is a two-edged sword. Numerous military thinkers have pointed to on-again-off-again air operations as ineffective, even counterproductive actions in peace operations and war. The observation is true, of course. It has also been true for land forces in cases, like the Gulf War, when their offensives were turned off short of what hindsight now tells us would have been a better victory than the one attained. On the other hand, the knowledge that air operations could be turned off quickly, with little residual liability or vulnerability, was an important factor in NATO's decision to take offensive actions against the Bosnian Serbs in the fall of 1995. In other words, aerospace forces find both power and security in episodic interaction with intervened societies. Episodic interaction, in comparison to the close quarters interaction of armies, gives intervention governments indispensable freedom to shape events at greatly reduced liability and exposure to mission creep.

In broad terms, then, the comparative utilities of land and aerospace forces in peace operations are obvious and mirror-imaged. Land forces are as good an instrument as we have to undertake the positive military aspects of peace operations, such as reconstruction and confidence building. But, if used to accomplish the negative aspects of peace operations, such as coercion and combat against factions, land forces are likely to be very expensive instruments in terms of costs, casualties, mission creep, and liability. Aerospace forces, in contrast, can be used to accomplish the negative functions in ways that minimize those costs. On the other hand, their utility in the positive aspects of peacekeeping generally is limited to providing mobility, information support, and to providing latent coercion to help keep disputants in line. In general, then, strategists should consider land and aerospace power as complementary tools to be used in ways that offset each other's weaknesses and maximize their strengths and

combined synergy. At the core of such a strategy probably should be an appreciation that aerospace power should be the tool of first recourse in peace enforcement, while land power retains preeminence in peacekeeping and as the tool of second recourse in peace enforcement.

This idea that aerospace power leads in peace enforcement and land power leads in peacekeeping commends itself on at least two accounts. First, it conforms to recent experience in Bosnia, where intervening states used aerospace power to enforce the peace and to set the conditions for a peaceful insertion of land forces. The likely costs and liabilities of land power-based peace enforcement simply were not acceptable under the circumstances.[24] Second, a division of peace enforcement and peacekeeping duties between the land and air arms could offer an interesting opportunity to play "good-cop-bad-cop" in a peace operation. As many observers have pointed out, it is very difficult to conduct peacekeeping and peace enforcement in the same situation simultaneously. The passions and distrust engendered by peace enforcement operations can, at least in the short term, undermine the work of peacekeepers, humanitarian relief workers, and others trying to patch things together.[25] It seems reasonable to think, however, that employing airmen to beat up on the bad guys can minimize the souring effect of enforcement operations on relations between local disputants and peacekeepers on the ground. There is enough indication of this possibility in the Bosnian experience to suggest that the idea at least is worth considering. Imagine the consequences on peacekeeping in Bosnia today had NATO opted for a multidivision land campaign instead of air power to force the Serbs back from the safe areas and to the conference table. Likewise, would Somalia have turned out differently had the Americans first tried to bottle up Mohammed Aideed with unmanned aerial vehicles, AC-130 gunships, naval air, and ground reconnaissance teams, instead of with rangers and light helicopters? These are unanswerable questions, of course, but they do prick the imagination.

This discussion leads naturally to a shift in focus to consideration of the evolving tactical capabilities of aerospace power in peace operations. If ground power is going to pick up the slack for aerospace power in peace enforcement, we need to know where that slack begins. In his valuable work on aircraft and unconventional war, historian Philip Towle argued

that aerospace power has had uneven, but generally restricted success at suppressing guerilla forces or performing other internal security operations, particularly in broken, covered, and urban terrain. Success was even more elusive, Towle discovered, when air action occurred independent of cooperation with effective land forces, or when its intended targets enjoyed protected sanctuaries.[26] Recent experience and unfolding technological developments, however, suggest that aerospace power's ability to do many of the tactical tasks relevant to peace operations may in fact be increasing in absolute terms and in relation to the abilities of land power. Examining that proposition requires first categorizing those tasks, and then examining the ability of aerospace systems to do them.

To argue that aerospace power's tactical effectiveness in peace operations is increasing in absolute terms requires a description of the tactical tasks involved in that assessment, at least at the categorical level. Professor Jim Corum sometime ago noted the relatively skeletal nature of American service and joint doctrines for peace operations, particularly in the cases of air power and peace enforcement.[27] Recently, however, several doctrinal publications have emerged to lay out the broad missions and tasks of peace operations, though air power and peace enforcement remain relatively under-treated.[28] In the case of peacekeeping, I would paraphrase American doctrine as broadly categorizing its tasks as:

- Observation to record and report the implementation and violations of the truce process; to include cease fire or border violations and troop dispositions.
- Interposition of peacekeeping forces between belligerents to establish and maintain buffer zones, discourage border violations, infiltration, confrontations, and other truce violations.
- Patrolling to enhance the visibility, credibility, and effectiveness of the peacekeeping operation, and to supplement the observation and interposition missions.
- Civic Actions to enhance the stability and confidence of the disputants, to include actions such as information reporting, assistance to law enforcement, provision of specialist advisors, escorting convoys, protecting economic assets, and an almost limitless list of others.[29]

These doctrine publications also assert roles in all of these tactical categories for every medium of military operations—land, sea, air, and space. Air and land forces complement one another in all areas. Naval forces overlap with land and air in many tactical tasks, while bringing unique capabilities to the table in areas such as environmental protection, fisheries patrol and escort, and maritime patrol and inspection. Space forces contribute by providing communications, navigation, and imagery support for activities such as mapping, truce monitoring, and diplomatic negotiations.

U.S. Joint and service doctrines are less explicit and detailed for the relatively new mission of peace enforcement than they are for the more established one of peacekeeping. The keystone Joint publication only devotes a half page to defining peace enforcement and, in contrast to peacekeeping, there is no stand-alone publication for the mission.[30] The absence of a stand-alone joint pub probably reflects the implicit assumption in American service publications that peace enforcement is so much like war, that it can be covered as a subset of it. As suggested earlier, the United States Army assumes that peace operations largely are subject to the basic principles of war. Accordingly, its basic doctrine publication merely restates the Joint definition. In its general discussion of military operations other than war, the Army's pub does advise that, when peacekeepers are called upon to defend themselves, "the use of overwhelming force may complicate the process toward the Army's stated objectives."[31] United States Air Force's basic doctrine manuals are even more vague on MOOTW and peace operations. *AF Doctrine Document (AFDD) 1: Air Force Basic Doctrine*, lists peace operations in its brief discussion of MOOTW, but does not define them. Even the new and exhaustive *AFDD 2: Organization and Employment of Aerospace Power* scarcely mentions peace operations, even to the point of leaving them out of its discussion of "Peacetime Engagement and Crisis Response," which does include mention of topics like "Arms Control" and "Counterterrorism." [32]

The presumption implicit in this shallow treatment of peace enforcement, that it basically is subject to the same principles and doctrines already developed for war in general, simplifies the task of categorizing the missions of peace operations. The only mission category added by peace enforcement is:

- *Combat* to compel or coerce resisting factions to conform to the provisions of the truce and/or the diplomatic demands of the intervention, to include the full range of Combined, Joint and service combatant actions as appropriate to the situation and the objectives of the intervention.

As this general discussion now turns to the more specific ones of aerospace power's absolute and relative roles in the tactical mission categories of peace operations, it is not going to discuss several issues. First, for reasons of time and security classification, the discussion can not become a detailed effort to describe the applications of specific systems and weapons against specific tasks. Second, it is not going to devolve into a polemic about whether or not the world is moving into a chaotic era of cultural or mass conflicts that will subsume the state-based warfare of the present and the past, and incidentally render air power an ineffective instrument of war. This latter thought, raised so strongly by Martin van Creveld, merits a separate line of discourse, but one separate from this study.[33] Last, the remaining discussion here will not address the question of whether the current tactical advantages of aerospace power in relation to land power are likely to last for very long or will be swept away by continued technological development. One military thinker recently has suggested that the maturation of the current revolution in military affairs eventually will favor land forces over air forces, overweighing their current advantages in stealth, maneuver, and precision.[34] This is a particularly important and seductive issue for aerospace thinkers, but it is not immediately germane to the questions under study and will be passed over.

Two background issues *do* require mention, because they apply equally to all of the forthcoming mission area discussions. The first issue is vulnerability. Intentional vulnerability helps peacekeepers do their jobs. Often, their manifestation of an inoffensive, under-armed vulnerability is central to their efforts to gain credibility and the appearance of neutrality. But, if peace soldiers can be rendered vulnerable, peace airmen usually are not so easily trussed for the altar of peace, as demonstrated by the casualty figures. So, any discussion of the relative merits of air and land power must be understood against a background understanding of the advantages and disadvantages of vulnerability.

The second background issue is air mobility. As basic United States doctrine points out airlift often is not only the fastest way to move assets, it may be the only way to move them. [35] Experience suggests that this may be so for reasons of politics, security, logistical efficiency and even the basic health of the interventionist forces.[36] Thus, in many applications of the mission categories discussed here, air mobility is a key enabler of the forces involved. Peacekeepers rely on airlift for secure movement between their posts and patrols, and for day-to-day logistics support. Peace enforcers, particularly if they are airmen, will require both airlift and aerial refueling to get to the fight. So, any assessment of the total or relative contribution of aerospace power in peace operations must include at least acknowledgement of the ubiquitous contribution of air mobility to everyone's success. Now - back to the roles of aerospace power in the mission areas of *observation, interposition, patrolling, civic actions, and combat.*

*Observation:* This one is easy; for the truly astounding advances in the ability of air- and space-borne systems to locate, see, measure, categorize, and report are generally known, making a recitation of specific systems and capabilities is thus unnecessary and would be tedious. But, it is worth noting that over the past twenty years, aerospace reconnaissance and surveillance systems, when used in combination, have gone a long way down the road to solving their two main weaknesses - dwell time and close-in detail. Unmanned aerial vehicles (UAVs), high-endurance airborne platforms, and satellite systems, matched with modern sensors, can give military forces the ability to observe specific targets and areas for long periods of time, even continually. UAVs, by moving in close, and satellites, though high-resolution sensors, can also search and observe in great detail. Even at the commercial level, almost anyone can buy satellite imagery down to a few meters of definition. Importantly, in current peace operations, the increased quality and duration of aerospace observation comes at greatly reduced exposure and costs for peacekeeping forces. One can survey an exodus of desperate refugees and disgruntled soldiers by exposing several peacekeeper parties to close-in danger over a period of days, or by maintaining a UAV and satellite watch. UAVs certainly are costly and currently limited in reliability, but imagine the cost advantages of replacing several manned observation posts with each one.

Clearly though, aerospace observation systems likely will retain critical weaknesses in the foreseeable future. They still can not see under roofs, open boxes of contraband, look into vehicles, or in all the other places peacekeepers must explore. Perhaps most importantly, aerospace systems can not look into someone's eyes during and interview, meeting, or interrogation. But, by gathering key information, like the existence of mass graves and the presence of factional forces in the wrong places, aerospace observation can make the job of land-based observation much easier, certain, and productive. The point here is that land and aerospace observation are indispensable elements of the same task of just knowing what is going on. But, because aerospace observation systems can do an ever wider range of tasks more cheaply, more safely, and often better than land systems, their role in operations and the budget must be balanced carefully.

*Interposition*: This one is tougher. Aerospace forces are not good at vulnerability. But, part of the usefulness of interposing peacekeeping forces between belligerents derives from the vulnerability of the peacekeepers. The prospect of shooting a flesh-and-blood national of a great power may give greater pause than the prospect of shooting down an orbiting UAV, hopefully. Still, experience shows that some belligerents have shot anyway, and some have used peacekeepers as hostages or macabre political statements. Moreover, as intervening powers more frequently confront the aftermath of failed states, or pseudo-states that never quite were, it becomes more likely that they will meet groups and individuals who do not know or care about the niceties of civilized peacekeeping.[37] So, if close-in observation and/or vulnerability are required, use peace soldiers. But, if distant observation will do, use peace airmen.

*Patrolling:* To the extent that patrolling is about gathering information, then the preceding comments about observation apply. But, patrolling is also about establishing control and it often carries the possibility of confrontation and combat. Here again, peacekeepers must weigh the countervailing values of vulnerability, and the advantages of air and land maneuver as mechanisms for establishing control. Air's advantages, of course, are its probably reduced vulnerability and its ability to cover large areas and revisit specific targets frequently. Combat air and patrolling air can also leverage and protect the efforts of land-based patrols, thereby

allowing them to spread out and do their jobs with greater confidence and security. Air's disadvantages may be the ubiquitous one of not being able to get really close to people or to look under cover. UAVs can get pretty close, but they also become more vulnerable at the same time. Peacekeeping operators and force planners should consider, therefore, the consequences of having a faction shoot down a UAV, and of the intervention either responding or not responding to the provocation. Providing enjoyable target practice for dolts with AK-47s is not good peacekeeping. In the final analysis, the right force structure solution to patrolling will lead to a mixed reliance on land and air assets, with air being the option of first choice for many purposes.

Air patrolling presents an intriguing mirror image of land patrolling. No-fly zones and air embargoes could be enforced to some degree by land-based forces, possibly at reduced risk. But, in comparison to air, land-based patrollers would not have the ability to get close to their subject, let alone take a look into its windows and openings. Also, land-based air patrol systems would face the classic and expensive problem of having to be everywhere at the same time with sensors and weapons of relatively short range compared to fighter aircraft.

*Civic Action:* The ability of airlift and aeromedical evacuation operations to sustain lives and confidence in peace operations has been well established for many years. In a sense, most humanitarian airlifts amount to low-key versions of peacekeeping in that they help to hold at bay the fractious forces of famine, illness, and disaster. A more recent discovery coming out of the Balkans experience has been that combat air forces and space forces can contribute to the environment of stability and confidence in an intervened state, both in combat and non-combat applications. NATO's enforcement of the no-fly zone and its air attacks of 1994 and early 1995, leaky and half-hearted as they were, nevertheless helped to restrain the region's violence. The use of space to detect and publicize the mass graves of Srebrenica, and to delineate the new internal borders of the Bosnian Federation, were important examples of the usefulness of that new medium. Still, civic action overwhelmingly remains a human-to-human activity. In all likelihood, the overwhelming military contribution of air power to civic action will be as an adjunct or support to activities by peacekeepers on the ground.

*Combat*: The case for aerospace forces as the lead arm in peace enforcement has already been made. Here the important issues are its potential for decisive intervention and methodology. At the moment, the data base for the specific effectiveness for combat air in peace enforcement is too small to draw any real conclusions. We can only draw examples from use in the Congo in 1960-61 and in the Balkans in 1994-95. In the case of Operation Deliberate Force in August-September 1995, air bombardment seems to have driven the Serbs back from the safe areas and to the conference table. But, air was employed in conjunction with high-pressure diplomacy and major land offensives by Croatia and the Bosnian Federation, and at the conclusion of over two years of horrible, exhausting fighting. There simply are too many unknowns in that equation to describe their relationships definitively. What we can say is that air certainly wielded substantial positive influence, from the intervention's perspective, on the outcome of the events of the moment. That air action did not solve the endemic political and social problems of the region is a weak criticism. First, the allies were not trying to reengineer Bosnian society and politics. They just wanted them to stop slaughtering one another and start talking. Second, what was the alternative?

The second issue, methodology, obviously is as huge as the subject of aerospace power in general. Any approach or combination of approaches that could be or have been valid in open war, potentially could be valid in peace enforcement. Bosnia provides an example of the effectiveness of indirect and asymmetric attack. The intervening coalition pursued its strategic objectives of securing the safe areas and prompting negotiations through strategic attacks against forces elsewhere in the region, lines of communication, and materiel. Their intent was not to interdict Serbian war supplies and forces before they reached the battle front, but rather it was to break the will of the thuggish leaders of the Serb Republic and Serbia proper. It seems to have worked. Likewise, one could easily project peace enforcement scenarios where the classic aerospace power missions of counterair and -space, interdiction and close air support would be effective and potentially decisive. This particularly would be the case in pursuit of objectives that were recognized by both an intervention and the intervened as of less than immediate life-or-death importance. In the context of well-conceived interventions, such confrontations should be rare events.

This finally brings us back to answering the focal question of this study. It should be clear, first of all, that aerospace power has become a much more useful peacekeeping tool in absolute terms and, largely because of that, in terms relative to the effectiveness of land power. This is not to say that an intervention could not be effective without fully exploiting the strengths and opportunities presented by aerospace forces. But, why would intervening states not want to exploit aerospace power, assuming they had the choice? Why pay a higher bill in treasure and troglodytic head bashing when not necessary? Second, it should be clear that governments anticipating peace interventions should take advantage of aerospace power's growing utility, by determining as precisely as possible where it leads, complements, and follows in relation to land power. Basically, where direct human contact and/or vulnerability are required to accomplish a specific task, land forces are the option of first choice. Where information is required and the mode of gathering it does not matter, then land and air systems should be evaluated against one another on the basis of cost effectiveness and the impact of their use on other intervention objectives. Where confrontation or combat is at least possible and/or vulnerability is not required for the task, then aerospace forces should be the option of first choice. Then, before would-be peace operators go out and buy anything, they should go through the whole drill again, this time factoring in the opportunities to get double duty from systems and forces in both wartime and peacetime missions. Simple in theory, this process of comparative force structuring obviously will be iterative, complex, and expensive. But, no one really has a choice to do otherwise, so it is useful to at least have a methodological approach.

## NOTES

1 United Nations, "UN Peacekeeping: Some Questions and Answers," [www.un.org/depts/dpqo/faq.htm], Sept 1998, 1.

2 United Nations, "Fatalities by Mission and Incident Type," [www.un.org/depts/dpko/fatalities/fatal2.htm], Sept 1998.

3 My decision not to include naval power in this discussion had everything to do with space available in this discussion and nothing to do with the scope of naval power's usefulness in peace operations, which can be considerable. While naval contributions to peace operations often come in the form of auxiliary land power (marines) and aerospace power (carriers), they also can come as distinctly maritime contributions, such as sanctions enforcement, blockades, shore bombardments, shows of force (presence), maritime inspections, interdictions, fisheries patrol, escort operations, and so on. These are important contributions, and I can only apologize to my naval counterparts for not finding the time to deal with them.

4 Definitions drawn from , Joint Publication 3-07, Military Operations Other than War (Washington, DC: U.S. Dept of Defense, 1996), GL-4.

5 Ralph Peters gives a very nice, if venomous, account of the imperialist nature of intervention in "Winning Against Warriors," Strategic Review, Summer 1996, 12-15.

6 U.S. Dept of State, Bureau of International Organizational Affairs, Clinton Administration Policy on Reforming Multilateral Peace Operations (PDD 25): Executive Summary, 22 Feb 1996, 1, 4.

7 Richard Holbrooke, To End a War (New York: Random House, 1997), 151.

8 Two experienced South African commanders recently wrote that "the suffering of the people…and the horror of watching people die for lack of help" can tempt military personnel to step beyond their limited peace support mandate to try to render help which they are neither funded or authorized to give. Soldiers in peace operations must resist this temptation, they argued, and "refer requests that are outside their mandate to the UN Command Headquarters." Brigadier Generals H.A.P. Potgieter and William P. Sass, "Logistical Air Power in UNTAG, UNAVEM II and ONUMOZ, in Carsten F. Rønnfeldt and Per Erik Solli, The Use of Air Power in Peace Operations (Oslo, Norway: Norwegian Institute of International Affairs, 1997) 74.

9 United States Army, Field Manual 100-5: Operations, June 1993, 13-0; and Col Charles H. Swannack Jr. and Lt Col David R. Gray, "Peace Enforcement Operations," Military Review 77:6, Nov-Dec 1997, 3.

10 Kenneth Allard, Somalia Operations: Lessons Learned (Washington, DC: National Defense University Press, 1995), 22-32.

11 For a summary of NATO and the UN's strategic and operational relationships to the Bosnian war, see Robert C. Owen, "The Balkans Air Campaign Study: Parts I and II," in Air Power Journal 11:2, 4-24 and 11: 3. 6-26. Respectively.

12 Yates, 58.

13 Lt Col Thomas K. Adams, "Intervention in Haiti: Lessons Relearned," Military Review 76:5, Sept-Oct 1996, 45-56.

14 Peters, 15.

15 FM 100-5, 13-3 through 13-4.

16 Gen Frank Kitson, Low Intensity Operations: Subversion, Insurgency and Peacekeeping (London: Faber and Faber, 1971), 165-81.

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18 At the time of writing, the author is the Chairman of the Air Mobility Command's "EAF Integrated Product Team" working to shape AMC's contribution to the Expeditionary Aerospace Force concept.
19 Executive Summary, (PDD 25).
20 Edward A. Olsen, "In Defense of International Abstention," Strategic Review 24:2, Spring 1996, 58-63; and Peters, 15-16.
21 LtGen Paul van Riper and Maj Gen Robert Scales, "Preparing for War in the 21st Century," Strategic Review 25:3, Summer 1997, 20.
22 For valuable explorations of the soldier-level issues of the preparation for and execution of peace operations, see the Sept-Oct 1996, July-August 1997, and Nov-Dec 1997 issues of Military Review: The Professional Journal of the United States Army. On the questions of preparing soldiers to deal with new cultural environments, see Lawrence A. Yates, "Military Stability and Support Operations: Analogies, Patterns, and Recurring Themes," and, for the idea of minimizing confrontation or the appearance of confrontation, see Major Robert C. Shaw, "Integrating Conventional and Special Operations Forces," both in Military Review 77:4, July-August 1997.
23 Holbrooke, 147-52.
24 In the course of extensive interviews with principle American military leaders and diplomats involved in the Bosnian situation, the author and his team members on the Air University Balkans Air Campaign Study were told repeatedly that offensive land operations by the intervention never were a serious possibility. The Implementation Force (IFOR) did indeed enter Bosnia heavily armed and ready for combat. But, it did not receive permission to enter from the intervention, until it was almost certain that it would not run into any serious armed resistance.
25 See, for example, Per Erik Solli, "In Bosnia, Deterrence Failed and Coercion Worked," in Rrnnfeldt and Solli, The Use of Air Power in Peace Operations, 99-101.
26 Philip Anthony Towle, Pilots and Rebels: The Use of Aircraft in Unconventional Warfare 1918-1988 (London: Brassey's, 1989), 2-3.
27 James S. Corum, "Airpower and Peace Enforcement," Airpower Journal 10 (4), Winter 1996.
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30 Joint Publication 3-07, III-13.
31 FM 100-5, 13-2.
32 AFDD 1: Air Force Basic Doctrine, Sept 1997, 7-9 and AFDD 2: Organization and Employment of Aerospace Power, Sept 1998, 12. Also see AFDD 2-3, Military Operations Other Than War, 5 Oct 1996, which includes only two very general pages on peace operations, along with a reference to Joint Publication 3-07.3.
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34 Volney J. Warner, "Technology Favors Future Land Forces," Strategic Review 26:3, Summer 1998, 45-50.
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# Part III

# Coalition Warfare – The Small Countries' Contribution: A Historical Perspective

*Richard Overy*

I would like first of all to take the opportunity to thank you very much for inviting me here. It is my first trip to Norway, and it has been a pleasure – so far! The first thing that I want to say is that I was asked to talk about small nations in coalitions in a historical perspective, and I am rooting my discussion in history rather than contemporary air power. The second thing is that almost everything that I have written so far about the Second World War, or about air power, has been about big nations. So, it is quite a challenge to start thinking about smaller nations, and where they fitted in. I am so used to writing about the big battalions that one tends to forget that in the Second World War, in particular, both sides were fighting coalition warfare. The other thing that I realised in coming to address the Royal Norwegian Air Force, is that I knew very little about your history. You all know a great deal about it, so I have decided not to discuss Norway, but to say a considerable amount about other countries. Do not feel that it is deliberate on my part: You can tell me a great deal more about Norway's air power history in the 20th century than I could possibly read up.

I ought to start off by defining in a sense the "small nation problem". I take as my starting point a book published by the Royal Australian Air Force some years ago by Shaun Clarke about small nations and air warfare. He argued that the real problem facing small nations is that over the course of the last fifty or sixty years no real attempt has been made to provide a body of strategic doctrine for small nations, or for small nation warfare. Most of the air strategy that has been formulated has been done with larger air powers in mind. The second thing that he claimed was that there was really no historical precedent for raising the profile of small nation air power, because small nations have always played very

subordinate parts in coalition warfare. He is right of course in that second sentence: Small nations have tended on the whole, to have a very small part to play in the great wars of the 20th century. Small nations hardly ever fight on their own against great powers. The one case we have is the heroic Polish resistance against the German invasion in September 1939, but it was snuffed out in a matter of days. Other small states facing the Luftwaffe, in the early stages of the Second World War, Norway included, again found the same sort of problem. There was a great degree of asymmetry between the combatant powers. Otherwise small nations have generally fought in wider coalitions. That was true in the Second World War for both sides. There were small nations fighting side by side with the Germans just as there were many small nations fighting side by side with the Soviet Union, the United States and Britain. It was also true for the Korean War, the Vietnam War and Desert Storm. The history of small nation air power in the 20th century has been essentially the history of operating within coalitions.

What I want to do today is to focus on the World War Two experiences in order to highlight what I see as some of the key issues that face small nations in the context of coalition warfare. The first of those I have called the problem of strategic partnership. The simple historical fact is that small nations have on the whole played a very small part in influencing the strategic and operational thinking of large powers. There are plenty of examples that one could point to from the Second World War to demonstrate that issue. Take Poland again. Poland was in 1939 an ally of Britain and France, and it went to war believing that Britain and France would go to its assistance. The British and the French governments had already decided beforehand to write off Poland: Poland could not be effectively defended and they would reconstruct it at some later date if they were able to win the war. The Poles did not know that of course, but their strategic interests were always regarded as subordinate to the interests of the two western states. That effectively remained the case for Poland really throughout the course of the Second World War. One thinks perhaps of another occasion, when Polish politicians abroad began to make a great deal of noise about the Warsaw-uprising in 1944, when they wanted the British and the Americans to provide them with air power assistance and on this occasion the three major allies between them failed to do so. The Polish interests were always subordinate in the

long run to the other operations of the allies. On both sides of the Second World War, the higher councils were dominated by great power interests. This was even true of the British Empire, which is perhaps the best example in the Second World War of what we might call pure coalition warfare. Australia, India and Canada were given little chance to discuss, argue or even alter British or American priorities. Indeed, over and over again in the early stages of the Pacific War where Australia, India or New Zealand had particular interests that they wanted to prosecute, the British priority was essentially the defence of the motherland. The defence of the outer dominions was something that they would have liked to support, but were unable to do for all kinds of reasons. Small nations would usually find themselves under those circumstances at the bottom of the list of priorities. The Second World War showed a particular political asymmetry, as well as a military one, in small-large nation coalitions. On the German side that was even more the case. There were very few opportunities for Romania, Slovakia or Croatia to discuss with, or alter, German strategic priorities.

The second issue seems to be the issue of sovereignty, which is something very important for small nation considerations. In coalitions of the Second World War the historical trend was for larger powers to subsume the units of smaller partners. In the German case on the Eastern front, for example, Romanian, Italian and Hungarian forces entered the German order of battle, even though they were able to retain a certain degree of battlefield independence. They had to comply with the overall framework of German strategy, and in many cases directly with German operational orders. Hungarian, Romanian and Italian divisions had German staffs and liaison officers attached to them to ensure compliance with that wider strategic aim. In a curious way one might even argue that the forces that operated in Operation Babarossa did represent a genuine kind of European security force, particularly when the German authorities later in the war tried to present their conflict with the Soviet Union as a conflict against Communist barbarism. But this European security force was throughout its history dominated entirely by the interests of the German centre.

There is one case in the Second World War where this issue of sovereignty became particularly important, and that was the relationship

between the Royal Canadian Air Force and the RAF. In 1941 this became a major political dispute between the two countries. By 1941 60% of Canada's airmen operated with other air forces, some with the American air force but most with the RAF. In 1941 there was a swing in the political mood of the Canadian public, with a demand for greater responsibility for their own armed forces. What they wanted was "Canadianization" – sovereignty over their nationals serving abroad. As one Canadian put it in June 1941:

> *The Canadian government should keep the status of young Canadians to something other than hirelings or mercenaries in the service of another state, which however closely we may be associated with it by ties of blood, interests or sympathy, is not the homeland of these young men.*

These were such strong words that in 1942 the Air Ministry in London was prepared to make a concession. The Royal Canadian Air Force was allowed to develop its own bomber squadrons within Bomber Command, and in January 1943 it was able to form six groups entirely from Canadian squadrons. But even that concession was watered down. The RAF insisted on keeping operational control over the six groups, and they continued to operate within the terms of the Combined US-British Bomber Offensive. In practice many non-Canadians continued to be posted to Canadian units. Even by the summer of 1944, one quarter of all those serving in the Canadian units were non-Canadians. The reasons given for persistent RAF control over the Canadian units was presented by the Air Ministry in the following terms:

> *Canada is a dominion, and as such, is no less entitled to a separate and autonomous air force than is the United Kingdom, but this right she has temporarily surrendered in the interest of war efficiency, accepting the fact that unity of organisation and operational command is essential in the prosecution of total war.*

That is an important explanation, or justification. American and British commanders assumed that those smaller states and smaller contingencies working within them would recognise that they all shared a single strategic aim, which was to defeat the Axis powers. If that meant temporarily

surrendering the question of sovereignty of their armed forces, then so be it – that was something worth sacrificing for the larger cause. Canada did not give up this attempt. In 1945, when plans were set up to establish a British Commonwealth air force for the Pacific - the so-called Tiger Force - the Canadian Air Force hoped that they would form this force and be able to perhaps operate independently from the RAF. But here again the British insisted on a unitary organisation and a unitary command. In the end the Tiger Force in the Pacific, which was of course never used, was made up of five RAF squadrons, two from the Canadian Air Force, one from Australia and one from New Zealand. This issue of sovereignty of the people's armed forces was complicated by the fact that during the Second World War a great many wanted to serve in the larger armed forces and actively chose to volunteer for service abroad. The RAF for example had a stream of volunteers in 1940 and 1941, both from airmen in occupied Europe or from the dominions and the colonies. In some way we can understand that volunteer mentality. There was the opportunity to get to grips with the enemy immediately and the sense that you were doing something that would produce real achievement if you were working within the context of the larger air force. It is interesting that one of the most successful airmen of the Second World War, Sir Keith Park, the Commander of 11 Group, was from New Zealand.

Now the third problem that I want to address is the problem of technology transfer. This is a very serious problem for small nations engaged in air combat. During the Second World War there was an extremely high dependence on the larger states such as Britain, and on supplies from the United States. It was precisely to avoid that dependence that the Poles had begun to set up their own aircraft industry in the 1930s, in order to produce air forces that were technically independent. A high level of dependence brings, as I am sure you all know some serious problems. One might think that the reliance on other larger air powers would reduce the risk of obsolescence. You could just buy in the best and the most recent equipment, and your problem would be solved. But in fact small nations are almost always the victim of obsolescence. They have to think very carefully where they want to buy in to the sophisticated technology of the larger powers. If you make the wrong choice, your equipment becomes obsolescent very quickly. There is a high cost as well. If you were in the Romanian or Australian Air Force in the Second World

War, you might well have found that you had to pay a substantial amount of money in relation to your total budget in order to buy in equipment from British aircraft producers. There is also likely to be a long replacement lag: You will chose a specific technology and you will be landed with it for a very long period of time. This was certainly a problem for some of Germany's allies during the Second World War, and it has been a problem for small nations making choices about air technology ever since 1945. This was certainly evident during the Second World War: Small nations tended to be discriminated against by their larger suppliers. Take the Royal Canadian Air Force again. It had one of the last units to get a full conversion to Lancasters and the Halifaxes during the course of the autumn of 1943. Many of them were making do with twin-engine aircraft when a great deal of the rest of the RAF had converted to four-engine craft. The same is true during the Battle of Britain. Britain exported quite a large number of aircraft during that critical period to the dominions, such as South Africa, Australia and India, but in almost all cases they exported poorer quality or obsolete aircraft, because that was all they felt that they could afford. The same thing was true of Germany in the Second World War. Its coalition partners repeatedly demanded the best technology available, and they wanted the Germans to supply their air forces, but German officials in Berlin preferred to supply the older technology. There also tended to be a substantial lag between the orders placed by their coalition partners and the supply of those aircraft. Just to take an example at random: In August 1943 there were orders on the Luftwaffe's books for 1,744 aircraft for its coalition partners, such as Hungary and Romania, but only 675 of these were sent, and most of them were only non-combat aircraft such as trainers.

Why are small nations discriminated at in Coalition warfare? In the Second World War the reasons are obvious. The argument was always priority for home forces - defending the Reich against the Combined Bomber Offensive, or priority for RAF fighter squadrons during the Battle of Britain. There is no doubt that this does make strategic sense. But there is also the problem of secrecy and security with vanguard technology. There was a great reluctance for major powers to pass on to smaller power technology which is right at the cutting edge of aviation research. German producers bitterly resisted any attempt to supply any of its coalition partners with the best quality aircraft available. Indeed the

Swiss got better aircraft than many of Germany's coalition partners. The other problem is of course the very high domestic wastage rate. As the war went on British wastage rates were extremely high, as was the German, so the tendency to place your own units first and coalition partners further and further down the list becomes more pressing the more vigorous the combat you are engaged in. But the issue of technology transfer is not simply about getting aircraft of course. It is about getting all those things that keep the aircraft flying. That was a serious problem in the Second World War, as was the problem of spares. Germany's coalition partners were in the end sent quantities of aircraft, and although often not the best available it was very difficult to supply them a regular quantity of necessary spares to keep the aircraft flying. They were in fact a wasting asset, as they were very difficult to keep in the air. It was also true of ancillary staff, maintenance staff and engineers necessary to keep those aircraft flying. The Canadian Air Force had a long-run shortage of engineering and maintenance staff of its own during the Second World War and had to rely for supplies on Britain throughout the war period. That meant of course that even with establishing sovereignty and developing technology, the small nation will always be hostage to the ability to sustain that technology in the long term, and that means spares and maintenance.

This highlights the fourth and final point that I want to make on the issues of small nations in coalitions, and that is the problem of low reproduction rate for the air force. They tend to take high casualties, partly because they tend to operate with inferior equipment and partly because they find it difficult to maintain. This was found again with the Canadian and Australian units attached to the RAF. They took proportionately higher casualties than the British units operated by only British crewmen. It may well be that smaller nations will fight with greater enthusiasm. A great many of those who volunteered to fight with the RAF in the Second World War, such as the Poles, were desperate to get back at the Germans. They fought with greater determination and recklessness perhaps than their British colleagues. The high casualties meant that it was even more difficult for small nations to maintain the supply of trained men necessary to secure sovereignty or any sense of separate identity. It also meant that it was hard to reproduce its technology and technological facilities easily, because in a situation of high losses you

need a very large production and distribution pool to be able to fill those losses. In that sense, under the condition of combat, the dependence on larger powers tends to increase for small nations, and it raises all kinds of additional problems. It also means that small nations' combat-effectiveness is likely to decline under combat conditions in relation to larger air powers. That low reproduction rate, and the difficulty of maintaining an air presence through time seems to me as one of the most important lessons from the Second World War, and one of the key issues that small nations have to confront.

Now, are there lessons from this history? The first lesson, which I think we need to remind ourselves of, is that small nations get something from coalition warfare. It is not a one-sided relationship. They get the assistance of very large air powers and they may well find themselves liberated as a consequence of the exercise of air power by the larger states. It may well give them the opportunity to be engaged in major conflict that they would not possibly be engaged with on their own. Finland, for example: Its war with the Soviet Union in the Second World War would have been impossible without the knowledge that Germany was fighting the bulk of the Red Army forces further to the south. It was the same with Romania and its recovery of the areas taken by the Soviet Union in 1940. Small nations fighting in coalitions achieve something. It could be argued that Poland got something in the end, since she was freed from German rule in 1945. But Poland was an unfortunate case, because the rule by the German dictatorship was rapidly substituted by domination from the Stalinist dictatorship. But setting that important issue aside: Small nations do get something from fighting within coalitions.

Shaun Clarke, to come back to the book that I mentioned in the beginning, argued in his conclusion, that small nations need to be able to build air strategies on their own. He suggested that small nations should engage in small pinpoint air attacks, which he called SPOT-bombing - Strategic Persuasion Oriented Targeting. Essentially, picking out a very small number of targets, perhaps the head of an enemy state - the Milosevics and the Colonel Gadaffis - and launching a pinpoint attack that will take out the enemy leader. He pointed to the high achievements of Deliberate Force in Bosnia and Allied Force in Kosovo as evidence that small nations with a relatively small quantity of aircraft, might be able to optimise their

impact, much more than was once thought. It does seem to me that this solution to small nation air power carries some serious dangers. First of all there is the danger of grabbing the tiger by the tail as the saying goes. If you undertake selective attacks against an enemy that has the power to retaliate in force, you may well find that you have bitten off a great deal more than you can chew. The other danger of course is that if you do adopt the idea of SPOT-bombing, hitting particular targets, or assassinating the enemy head of state, this can set an extraordinary precedent for the conduct of terror war in the 21st century which may well end up damaging the Western world much more than its absence.

I think there are other solutions besides SPOT-bombing. We could see even in the Second World War that there were occasional opportunities where small air forces were able to undertake some quite significant strategic operations. I can suggest a couple of examples. One is the role of the South African Air Force in the operation to occupy Madagascar, to prevent the Japanese from seizing the island and dominating the sea-rout around Southern Africa and the Western Indian Ocean. That was a move of very considerable strategic significance, and the failure to seize Madagascar would have had serious strategic implications. It was an operation conducted in the end largely by South African forces with a leavening of British forces as well. One might look at the Australian defence of Darwin against Japanese air attacks in the early stages of the Pacific War. Here too was a critical strategic turning point. The Japanese pushed into the Southern Pacific and needed to have some kind of halt-line placed there. In the end the Navy did of course play a very important part in doing that, but both these examples seem to me to highlight the fact that there are peripheral or regional opportunities for small nations to act strategically within broader coalitions. Indeed in some ways, defining the parameter of regional and peripheral activities is something which small nation air forces ought to engage in perhaps more.

But there are finally some obvious lessons to be drawn from the experience of the Second World War. The first is the importance of having some kind of strategic level exchange between the small nations and their larger coalition partners. There must come some opportunities were smaller nations are not simply sidelined in the strategic discussion, but where it is recognised that they should have some strategic input on their

own. Establishing the political parameters within which that takes place is very difficult indeed, but clearly having some kind of high-level strategic input would be a very significant step forward. The second thing I think is the importance of focusing on what I have called the reproduction rate of the air force, on issues of training, logistics and supplies. I am sure that I do not need to tell you that this is a priority area, but it is not simply a question of what force you have up front, but it is the ability to sustain and reproduce that force through combat time which is so significant. The third lesson is sovereignty. It may well be under the circumstances very important to retain full sovereignty over those armed forces, if only to maintain political support at home for involvement in particular operations. It is important to identify and sustain a distinct contribution by a small nation, for both political and psychological reasons. The fourth lesson is in some ways the most important. It comes back to what I have just been saying about the experience of peripheral strategy in the Second World War. It is the importance of defining parameters for small air forces. Those parameters could be functional parameters, within which that small air forces may find that they want to concentrate on a particular kind of air power. It may well be naval aviation, or developing an effective fighter-defence system. These parameters could be defined in terms of particular functions or technologies. But perhaps more significantly on the experience of the Second World War there are parameters that need to be defined geographically, in terms of regions or territories within which small nations might be able to play a more strategic role and exercise a larger degree of autonomy in the conduct of operations. Those four things: The strategic level exchange, the reproduction rate, the issue of sovereignty and clearly-defined operational parameters – are all lessons which can be drawn from the experience of small nations in the Second World War.

# Critical Aerospace Capabilities for Coalition Operations

*Richard P. Hallion*

Before I begin, I must admit that I feel at a bit of a disadvantage discussing the topic for today's symposium - whether smaller countries should size and shape their air forces for a more general, independent capability, or for specialized capabilities that contribute to shared defense arrangements.[1] I know each of you knows vastly more about the subjethan I do; further, as a "stand in" for Brigadier General David A. Deptula, one of our great air leaders, (and who very much regrets that he could not join you today for this discussion), I feel inadequate to this task. However, I would like to discuss a few insights about aerospace power capabilities and coalition operations that touch on these issues, and, I think, an interesting approach to this question is to briefly look at three coalition operations where aerospace forces played leading roles in coalition and alliance military operations. These three operations cover a wide-range of military operations, from the MTW size operations of Desert Storm to the much smaller, continuous regional shaping operations of Northern Watch. I will then present a few insights about future coalition operations, and the type of aerospace capabilities that a coalition commander will look for in the future.

The unique strategic situation of the U.S. has allowed - indeed forced - it to develop a truly global Air Force. Although we in theory often appear to possess the power to go it alone, this is not the reality of how the U.S. has conducted military operations in the past, nor is it how we are likely to conduct them in the future. The Second World War, the greatest of all wars, was quite clearly a coalition war. We fought Korea and Vietnam

1 This paper has been co-authored with Brigadier General David A. Deptula and Colonel Jim Tubbs.

as coalition wars. We fought in the desert as partners in a coalition. And, of course, most recently we fought over the Balkans as part of a NATO coalition. May I say, we were honored and gratified to have the men and women and combat power projection capability of the Royal Norwegian Air Force right there with us, taking the risks and carrying the fight to the enemy. Clearly, then, the U.S. has an historic and enduring interest in participating in coalitions of willing partners to the betterment of the security environment around the world. Thus, the perspective I propose to take during this presentation is that of the task force commander, or air component commander of a joint task force. From this viewpoint, I will focus on the aerospace capabilities provided by coalition partners. However, I will not presume to tell you how each of your Air Forces should proceed in the future. There are many essential strategic questions, a few of which are listed here, that every country must answer in making this decision. I only hope my perspective will be useful in informing the debate about the topic of this seminar. Also, before I begin I must mention one caveat. In line with the academic nature of this symposium, the ideas I am presenting today are my own, based on my impression of what has transpired since *Desert Storm* and what I see as the trends of the future. They in no way reflect the views of the USAF, or the U.S. Department of Defense. This caveat is what I call my "Get out of jail free" card!

To begin this discussion, I would like to briefly review three key aerospace campaigns of the last decade: Desert Storm, Northern Watch, and Allied Force. While some would argue that these are all anomalies, I believe they illustrate important trends in the future of coalition operations.

First, Desert Storm marked a fundamental change in how military commanders approach warfare. Strategically, it marked the future of U.S. military operations in the post Cold War environment. Operationally, the over 150 attacks on separate targets during the opening 24 hours of the Gulf War serviced a larger number of targets than those struck by the entire 8th AF in the CBO in Europe during the years 1942 and 1943 combined. In fact, it was the largest number of separate target attacks in the shortest period of time in history. This was an operational level plan supporting a strategy based on achieving specific effects rather than

absolute destruction. It was, in many ways, the emergence of what we now call "effects based warfare," where what enemy capabilities we degrade and remove is far more important than the number of forces or targets actually annihilated by physical destruction.

To review briefly, the objectives of the Desert Storm air campaign were:

- Isolate and Incapacitate Hussein Regime (Leadership and C3 Targets)

- Gain/Maintain Air Superiority to Permit Unhindered Air Ops (Air Defense and Airfield Target Sets)

- Destroy Iraqi Nuclear, Biological, and Chemical Warfare Capability

- Eliminate Iraq's Offensive Military Capability (Key Military Production, Infrastructure, and Power Projection - Air Force, Republican Guard and Scuds)

- Render Iraqi Army in Kuwait Ineffective, Causing Their Collapse (Bridge Destruction, Direct Destruction of Armor, Artillery and Personnel).

What enabled planning against such a large number of targets in such a relatively short period of time? In part the answer is technology - the combination of stealth, standoff weapons such as cruise missiles, and precision. However, a large part was the magnificent training and performance of crewmembers and support personnel from the Air Forces of the ten primary nations contributing to the Desert Storm air campaign. The contribution of each of these nations was an integral part of the overall success of the air campaign. Although the coalition numbered over 29 nations contributing to the war effort in some way, shape or form, the ten countries listed here are the primary coalition Air Forces that contributed combat forces to Desert Storm. Of note, only six countries contributed ground forces to combat - the U.S., Saudi Arabia, Egypt, Syria, France and the UK.

The U.S. played a predominant part in the Desert Storm air coalition, and flew almost 85% of the sorties flown during Desert Storm. More than just the total sorties, the U.S. also provided virtually all CAS, SOF, C2, SEAD, EW, Bombers, Cruise Missiles, and Stealth capability. However, these types of statistics mask the critically important operational contributions of coalition air forces above and beyond the strategic solidarity and international support and legitimacy they fostered as part of the coalition. In some areas, our coalition´s partners contributed disproportionately to the number of sorties flown based on the aircraft they committed to the campaign. For example, they flew about 1/3 of all the defensive counter air sorties, almost 1/4 of the offensive counter air sorties and intratheater lift sorties. The contributions of the different air forces reflected their approach to sizing and shaping their forces, and the capabilities they brought to the JFACC. For example, the Royal Air Force and l'Armée de l'Air (FAF), which like the U.S. were shaped based on Cold War needs, were capable of providing a broader range of capabilities than some of the smaller nations. The RAF contribution to missions like OCA (14% of total effort) and DCA (5% of total effort) reflect how their smaller air forces, sized for specific regional defense needs, still contributed mightily to the overall campaign. Likewise, the Saudi emphasis on DCA (18% of total effort) and intratheater lift is not surprising considering their geography and the strategic balance of power in the region. Some nations chose to specialize in the types of missions in which they felt they offered the biggest contribution. For example, Canada and Bahrain primarily contributed air-to-air capabilities, while Kuwait dedicated all of its 780 sorties to interdiction. The bottom line is that every contributing nation found a niche within which it could contribute something very important to the campaign.

While Desert Storm may represent the high end of coalition air operations, Operation Northern Watch (ONW) represents a significantly different type of coalition air operation. Operation Northern Watch, the follow on to Operation Provide Comfort that ended in the fall of 1996, is a long-term operation aimed at containing the regime in Iraq. ONW also helps shape the security environment in the region and addresses the long view of U.S. national security interests. Turkey will continue to play an increasingly important role in this region of the world, particularly if one considers the shortages of water developing in countries downstream

of the headwaters of the Tigris and Euphrates, and the energy resources of the Caspian Sea region and the potential for transit routes through Turkey.

Today, Operation Northern Watch air operations are focused on enforcing the no-fly zone above the 36th parallel in Northern Iraq. This action exerts pressure on Iraq, and continues to mark Iraq as a pariah in the international community. Operation Northern Watch should not be considered as a stand-alone operation. First, a companion - Operation Southern Watch - exerts similar pressure in southern Iraq. In addition to military activity, the economic and diplomatic sanctions against Iraq combine to preserve stability in a critical region.

While one country - in this case the United States - may contribute the preponderance of forces, part of ensuring the success of a coalition operation is recognizing that without the participation of each nation, the coalition ceases to be effective. Brig. Gen. David Deptula, the previous commander of ONW, remarked that one lesson he learned as the commander at ONW is that the size of force contribution is only one factor in coalition operations, and not necessarily as important as the commitment of the participating Nations. Additionally, he remarked that even a relatively small contribution can give the CTF commander important, unique capabilities. In this case UK aircraft give the ONW commander a unique capability that the U.S. does not provide, a CTF-controlled aerial reconnaissance capability, and, as well, furnish vital tanking support to EA-6B SEAD as well as the Jaguar reconnaissance aircraft. Before leaving the discussion of ONW, I would like to share another perspective of combined task force relationships. First, each coalition command relationship will be unique, and dependent on the make-up of the coalition. There will be very few textbook cases of operational command, and multi-command arrangements sometimes pose interesting challenges, as one would expect. However, openness, trust, and complete sharing of information are the keys to coalition command success. In ONW, each of the participating nation's senior commanders retained command authority over their individual forces. This is not a unique situation in coalitions operations. However in order to achieve unity of effort and military effectiveness, tactical control of all the forces was resident in the combined force air component commander - this is an absolute must.

The last case I want to look at is Operation Allied Force, as it demonstrates a lot what I believe will be continuing trends in coalition operations. Allied Force began with the unanimous approval of the nineteen nations in NATO, in cooperation with non-NATO countries that border Serbia such as Macedonia, Bulgaria, Romania and Albania. Gaining consensus among these nations was not easy, and maintaining it became a primary objective of military operations. Not surprisingly, aerospace forces provided the right balance of military force with political restraint to gain the consensus need to strike, and preserve that consensus over 78 days of continuous fighting - it was the best military option. The campaign was characterized by a phased, escalatory strategy that required political consent to proceed to the next phase. The survivability, precision lethality and brilliant execution of NATO crews were the keys to success. They allowed NATO to fight a highly constrained conflict with only 2 combat aircraft losses, no combat casualties and minimal collateral damage. In 78 days, over 23,000 weapons dropped with only a few incidents of collateral damage. It took this level of excellence in execution to keep the alliance firm. This was NATO's first military action of this magnitude. Although it is too soon to call Kosovo the template for the future, it does showcase the flexibility of aerospace forces to respond to the dynamics of coalition warfare in the next century.

These objectives are derived from Secretary Cohen's *Joint Statement on the Kosovo After Action Review,* 14 October 1999:

| STRATEGIC | MILITARY | END STATE |
|---|---|---|
| • Demonstrate NATO resolve and unity | • Compel withdrawal of FRY forces from Kosovo by raising cost of aggression to an unacceptable level | • Verifiable stop to military/paramilitary action |
| • Deter continuation of attacks on civilians in Kosovo | • Isolate and degrade combat capability of Serb military in Kosovo | • Withdraw forces |
| • Create conditions to *reverse* ethniccleansing | • Allow international force into Kosovo | • Unconditional return of refugees |
| • Deny FRY capability to wage war in future | • Reduce FRY capability to conduct and sustai offensive operations | • Work towards a political settlement |

As alliance resolve grew over time, especially after the April NATO Summit in Washington D.C., the air campaign grew more aggressive and eventually resulted in NATO achieving the conditions necessary to stop the bombing. In essence, all objectives were achieved. However, perhaps the biggest strategic error was the short war focus - we anticipated a quick capitulation by Milosevic, and did not have the proper force structure in place initially to pursue this objective. As such, we lost the initiative early in the campaign. However, we were able to regain the initiative and achieve our desired end state. Further, it shows the tremendous leverage of precision attack which, in this case, enabled a politically constrained Rolling Thunder-type air campaign to achieve - albeit on a longer than desired timeline - Desert Storm type results. One can only speculate what the outcome would have been had Desert Storm-type targeting and level of effort been pursued from the outset - certainly it would not have taken 78 days to achieve NATO objectives!

Although all nineteen nations in NATO approved military operations against the FRY, only fourteen countries actually provided aircraft for the prosecution of the air campaign. Perhaps the biggest trend marked by Allied Force was the fact that NATO countries other than the U.S. provided about 40% of the aircraft, and 40% of the sorties during OAF. What this boils down to is that, in consideration of the size of the Air Forces participating in OAF, each of the NATO countries contributed about the same percentage of their available aircraft to the fight. This marks a continuation of a trend, as the NATO allies also provided between 30-40% of the aircraft for Operation Deliberate Force in Bosnia in 1995.

I stated earlier that the true contribution of many countries to coalition air operations is at the strategic level, and cannot be measured by the number and capability of the aircraft sent to the fight. Allied Force provides another example of this point, as the primary contribution of many of the alliance and coalition partners was access to the infrastructure and airspace needed to conduct OAF. NATO, in fact, had unprecedented access to 24 bases in ten different countries, and access to the airspace from many others. The effect of this access was to surround and isolate the FRY. However, at the operational and tactical levels we see many of the same trends observed from the Gulf War. The U.S. continued to pro-

vide the bulk of the capability needed to conduct a robust air campaign - operational and tactical level C2, SEAD, EW, Bombers, Cruise Missiles, Stealth, Air Mobility, AAR, CSAR. In addition, we saw the emergence of some new U.S. capabilities, to include a sophisticated night capability, all weather precision, and an emerging capability for integrating ISR into a real-time "sensor to shooter network" for time critical targets. Although the capabilities gap between some NATO countries and the U.S. seem to have widened since the Gulf War, each of the NATO countries contributed to Allied Force in a very meaningful way, and in many of the same areas as we saw in Desert Storm, such as air-to-air defensive CAPs. NATO countries also demonstrated a good air-to-ground strike capability. Once the door to Northern Serbia was finally opened in late May, non-U.S. coalition aircraft flew the majority of the strike sorties in Northern Serbia. However, the shortage of PGM capable systems and limited survivability in a high threat environment (i.e. stealth, standoff munitions) meant that U.S. forces carried the bulk of the offensive load, especially in Northern Serbia, for much of the conflict. Finally, a few countries provided high-leverage, specialized capabilities to the operation. Lt. Gen. Mike Short specifically singled out the Dutch AF as an example of how a small AF can function as a tremendous coalition force multiplier. The Dutch F-16 Mid-Life Upgrade (MLU) program provides them a good beyond visual range air-to-air capability (as a FRY MiG-29 driver discovered to his sorrow), and Dutch tankers are completely compatible with USAF air refueling needs. Additional examples include UAVs (French and German UAVs flew over 1/3 of all UAV sorties), and the HARM capability of German, UK and Italian Tornadoes. However, it was the fantastic performance of the individual airmen in the coalition, and their excellence in execution, that was the coalitions biggest asset. The fact that over 1,000 aircraft from 14 countries were successfully integrated in a complex operation, with bad weather, in the complex European airspace structure, mixed in with civil airline traffic and radio frequency, language and capacity constraints of the European air traffic control system is testimony to this fact. NATO's biggest advantage during Allied Force was the edge it had gained through years of operating and training together.

I have highlighted here what Brig. Gen. Deptula recently expressed as the keys to an effective coalition operation. Certainly they are entirely con-

sistent with what recent experience tells me about the future of coalition operations. Among these you see some of the themes that underpin coalition operations - mutual interests/trust between all coalition partners, interoperability in C2 mechanisms at the operational and tactical levels of war, and operating standards and training that allow for smooth coalition interoperability at the tactical level. Although high-technology does not appear on the list, the capability gap that was highlighted during Allied Force could put the success of future coalitions at risk.

Following Allied Force there was a lot of angst on both sides of the Atlantic over the capability gap that was highlighted during the campaign. According to testimony by Gen. Wesley Clark after the war, Allied Force has solidified the determination of European countries to close this capabilities gap between American and NATO forces. Although I do not want to dwell on the subject, I believe a brief review of some of these concerns is in order, as they do point to some of the key areas that countries should examine as they look to develop better capabilities to support coalition aerospace operations. There was a general consensus in after action reports, on both sides of the Atlantic, that the gaps in capabilities are real, and may impede the ability of coalitions to operate at optimal effectiveness both now and in the future.

- *Precision Strike/Stealth/Standoff:* In many ways these three capabilities have driven the revolution in military affairs, and we must expand them into NATO's arsenal. Most of our coalition partners today, if they have a PGM capability, can only employ older U.S. laser guided weapons. Thus, the future air-to-ground weapons of choice, such as the JDAM, will not likely be universally available throughout future coalition aerospace forces. This needs to be remedied, and working together we can all make it happen.

- *Surveillance and Reconnaissance*: There are already a lot of encouraging signs in this area. As mentioned earlier, a few NATO nations have developed their own UAV capability, although with limited endurance and sensor capability, and contributed significant tactical reconnaissance capabilities to ONW and Desert Storm. This is a key niche area for smaller air forces.

- *C2 and Communications:* The U.S. is likely to provide the bulk of the operational and tactical level C2, from the CAOC through execution elements in the Tactical Air Control System such as ABCCC or AWACS. However, all coalition members will use it. Interoperability of ATO dissemination systems, C2 and Intel systems, classified and unclassified computer networking and even secure voice telephones will be critical in the future. In particular, the lack of interoperable secure/jam resistant airborne communications was a key limiting factor in Allied Force.

- *SEAD/EW*: Like Surveillance and Reconnaissance, this is a key niche area for smaller air forces to fill, especially in the role of electronic attack. U.S. resources are currently stretched very thin, especially in the area of airborne electronic attack - jamming. Coalition partners contributed greatly to NATO effectiveness here, and I would expect this to continue in the future.

- *Mobility:* The U.S. DoD Allied Force after action report identified the lack of intratheater lift as a factor that slowed the deployment of KFOR. However, as we saw in the Desert Storm example, this was a key area where coalition partners filled a critical need in terms of intra-theaterlift.

I would now like to shift the focus to a more general discussion of coalition operations in the future, based on the insights from these three operations. The previous disparities in capabilities are of even greater concern when one considers the future threats to coalition aerospace forces. America's best air-to-air fighter, the F-15, is today on par with current Russian fighters and behind many of Europe's future fighters. Russia's newest class of fighters is set to roll off production lines by 2005, and the F-22, which is increasing under attack at home, will not have an initial operating squadron until 2005. Finally, belligerent nations who chose to defy the norms of the international community will also learn from our recent experience and attempt to deny America access to airspace around the globe by obtaining low-cost, but sophisticated surface-to-air missile (SAM) systems. Estimates are that 21 countries will possess the most advanced "double digit" SAMs (such as the SA-10/12 and -20) by 2005.

*Allied Force* may have served as a signal to many countries that multinational operations are an increasingly important element of their national security strategy. Within the United States, our own defense community continues to emphasize the importance of multi-national operations as the logical and desirable method for most military operations. The U.S. will remain engaged abroad and will, therefore, emphasize coalition operations as a method to increase aggregate military power and enhance the political legitimacy of the response. Mastering the leadership and integration of multinational combined operations will continue to be critical to the success of future NATO military operations. A second observation, highlighted again by Allied Force, is that coalition operations will generally be fought for limited objectives. As a result, there will be an increasing emphasis on force protection and limiting collateral damage to help maintain coalition cohesion. Aerospace forces, using technology to their advantage, offer the political decision-maker an ideal tool around which to form a coalition. We should recognize that technology is radically transforming the means of warfare, and aerospace capability is leading this revolution in military affairs. Where precision, stealth, and standoff have lead the RMA in the past, *information technology* will likely take equal billing in the future. This allows for the unprecedented application of force simultaneously across the breath and depth of any theater, and allows us to *rapidly* overcome the tyranny of distance. Improved battlespace awareness combined with stealth, precision and standoff weapons will heavily influence how we fight the conflicts of the future. As such, I believe aerospace forces will continue to grow in importance as coalition building forces.

Aerospace power is ultimately an instrument that generates strategic influence. The technological advances we are seeing in modern aerospace forces in the U.S. - a move to pervasive stealth as the JSF, F-22 and B-2 become the bulk of our combat forces, all-weather precision engagement capabilities resident in our newest munitions, and improving information technologies and integration techniques - allow aerospace forces to do things today and more so in the future, than they have never been capable of doing. Modern coalition aerospace forces can defeat enemy anti-access strategies and achieve the dominance to secure freedom from attack, enabling our joint forces to attack and maneuver with less resistance and fewer casualties. The ability to maintain constant pressure on

an enemy from a safe distance, and ultimately rendering an enemy force ineffective before engaging in close combat should promote aerospace forces to the top of any future joint commanders list of must-have forces for coalition operations. As such, aerospace forces will be natural coalition building tools in the future. The inherent flexibility of aerospace forces allows every nation to contribute meaningfully to coalition operations by providing critical aerospace capabilities. Playing an active role is as important as numbers of aircraft committed. However, nations without modernized forces may find it increasingly difficult to play an active role. This is obviously a serious challenge, as NATO will increasingly rely on coalition aerospace capabilities for the execution and support of these operations and interoperability will be the key to successful aerospace power application.

What aerospace capabilities best match this view of future coalition warfare? Again, I would like to take the viewpoint of a future coalition commander, or air component commander, and postulate what key capabilities would enhance the contributions of aerospace power as the centerpiece of a coalition operation as envisioned in the previous slides. Regardless of whether an individual nation chooses to specialize as part of an interdependent mutual defense arrangement, or take a more general approach to developing its national aerospace power, these are still the types of capabilities one might pursue towards a goal of enhancing the contribution of its aerospace forces to future coalition operations.

- *C2 and information systems* must be developed with an eye towards being fully integrated with coalition operations from campaign planning to tactical execution. When I speak of a system, I am not only talking about interoperable information systems - ATO generation and reception, secure radios, data links etc. - but also having trained people capable of operating within a Combined Air Operations Center. Participating in NATO and/or U.S. C2 exercises, such as Blue Flag, is a must for nations that envision being an integral part of a NATO aerospace-based coalition

- *Precision Strike* is moving towards all-weather, day and night operations. Future commanders will find less and less need for aerospace forces that bring only a day-VFR dumb bomb capability. At a min-

imum, they will look for a capability to employ today's laser guided munitions, either day or night. We should also consider the air-to-air aspect of precision engagement - a beyond visual range air-to-air capability that can be employed in a restricted ROE environment is becoming an increasingly important capability.

- *Precision Surveillance and Reconnaissance* capabilities will continue to be in demand, with the ability to integrate into a rapid targeting system for mobile targets becoming increasingly important. This particular area offers a great niche capability, especially for those nations whose security and domestic policies may not support active employment of combat forces, but who still seek a role in coalition operations.

- *Force Protection* capabilities will remain essential. This includes not only a robust self-protection capability, but also the ability to provide SEAD, especially Electronic Attack, capability. This, again, is a great niche capability!

- *Force Projection Support* is the final area I think will be essential for future U.S. coalition partners. It is not reasonable to think smaller air forces can develop the type of strategic reach that the USAF provides. But even a limited tanker fleet can offer a high leverage capability, especially if it allows a nation's air forces to maintain air-refueling proficiency that is compatible with other coalition tanker capabilities. Also, theater airlift is an area where non-U.S. aerospace forces made a great contribution during Desert Storm, and is likely to remain a key enabler. Finally expeditionary logistics, focused on a rapid deployment force package, will be essential.

The recent past has seen a rise in the importance of aerospace power to coalition operations. If one believes that aerospace capabilities will be key to future coalition commanders, then developing modern aerospace capabilities should be important to any state that considers coalition operations in its strategic best interests. One thing is certain: partner Air Forces, appropriately modernized and well trained, will be even more vital to future successful coalition warfare as they have been in the past.

# Crisis of Russian Air Power

*Benjamin S. Lambeth*

Ever since the disintegration of the Soviet Union in 1991, military aviation in post-Soviet Russia has been in a state of steady decline.[1] Thanks to the overnight losses the former Soviet Air Force (Voenno-vozdushnye sily, or VVS) experienced to the newly-independent states in the wake of the USSR's collapse, as well as to the further reduction in deployed VVS assets that has continued to take place throughout the ensuing years, Russia's air strength has now almost literally been decimated from some 13,000 aircraft in 1990 to no more than around 2,000 in serviceable condition today.[2]

As one might expect, this unhappy experience has reflected the broader decline of the Russian economy and sociopolitical system that has occurred since the demise of Soviet communism. Russia's gross domestic product (GDP) fell by an average of around 9 percent almost every year since 1990, to a point where it is now only slightly larger than that of Mexico.[3] Its GDP finally rose again by 3.2 percent in real terms in 1999, thanks to the recovery of oil and other commodity prices as the 1998 ruble devaluation increased the competitiveness of Russian exports.[4] Nevertheless, owing to chronic underfunding and the uncorrected aftereffects of 74 years of communist misrule, Russia entered the 21st century, in the words of one expert observer, with a military establishment that was "in extreme disrepair, ill-equipped, ill-trained, ill-disciplined, significantly corrupted, criminalized, and demoralized."[5]

This paper offers a status report on the overall condition and vector of Russian air power today. It begins with a review of the organizational changes that were occasioned by the merger in 1998 of the former VVS and Russia's separate and independent Air Defense Forces (Voiska protivovozdushnoi oborony, or VPVO), to include a brief look at the composition and force structure of the newly-integrated VVS. It next examines

trends in force development and modernization, followed by snapshot overviews of evolving doctrine and concepts of operations, day-to-day training at the unit level, and the highlights of air combat activity during Moscow's second war in Chechnya, which began in late 1999 and continues intermittently to this day. The paper concludes with some thoughts on why any serious consideration of possible NATO cooperative operational ventures with the VVS would be premature at this point, followed by a recapitulation of the current status and near-term direction of Russian air power.

*Developments in Air Organization and Force Structure*

The long-awaited and long-discussed merger of Russia's VVS and VPVO finally came to pass staring in early 1998. The previous December, General Pyotr S. Deinekin, the commander in chief of the former VVS who took the helm after the abortive 1991 coup attempt and who shepherded Russia's air power through its first fitful years of post-Soviet retrenchment, was retired and replaced by a former VPVO officer, Colonel General Anatoly Kornukov, previously assigned as commander of the Moscow Air Defense District. One Russian commentator called the merger "the largest restructuring in the history of our military," adding that despite the objections of those in both former services who had resisted it, the unification made sense in that the nation's air "sword" and "shield" were now fully integrated, making it "easier to coordinate interaction between formations and units in their joint interests and to maintain combat readiness with stringent constraints on all types of resources."[6]

During the first year of its existence, the newly-merged VVS received less than 48 percent of its budget request, virtually all of which went to providing for personnel benefits and to supporting organizational changes associated with implementing the integration of the former VVS and VPVO.[7] The merger was accompanied by an accelerated downsizing of the two former services. The newly-integrated service saw a decline in its combined personnel strength from 225,000 in 1998 to 185,000 in 2000, as well as a reduction in force structure from 100 to 70 aircraft regiments.

Toward the end of 2000, General Kornukov announced plans to robust at least some of his remaining units by merging several regiments, pro-

viding them with three rather than two squadrons, retaining only their most experienced pilots, and striving for an 85-90 percent aircraft in commission rate.[8] He added that these three-squadron regiments would each have 36-40 aircraft per regiment and a crew ratio (the number of assigned aircrews per aircraft) of 1.5 to 1.7.[9] Earlier in 1999, six former VVS and VPVO training establishments were closed, 38 separate state repair enterprises were merged into a single repair network, and 14 maintenance depots were closed.

Some predictable and still-unresolved problems were created as a result of the merger. For example, former VVS aircrews were accomplished at deploying to alternate operating regions and were trained to operate out of any location, whereas those in the VPVO were accustomed to operating solely from a single base. The merger further spotlighted numerous interoperability problems occasioned by different types of equipment being brought together in a single command and by individuals raised in dissimilar operational cultures who have experienced persistent difficulty in relating to one another and working together efficiently.

Nevertheless, by mid-1999, the merger of the two services was called "practically complete."[10] It brought to an end the long-familiar existence of separate VVS branches. The former Long-Range Aviation, (LRA), Frontal Aviation (FA), and Military Transport Aviation (*Voenno-transportnaia aviatsiia*, or VTA) commands that had dominated VVS flight operations throughout the cold war were disestablished. In their place, LRA's assets were assigned to a new 37th Air Army of the Supreme High Command in Moscow. The transport aircraft of the former VTA went to a newly-established 61st Air Army of the Supreme High Command. In addition, two independent VVS air corps were established, with headquarters in Samara and Yekaterinburg, respectively. Finally, Russia's fighters and ground attack aircraft of the former VVS's Frontal Aviation Command and its interceptors of the former VPVO were reconstituted as four air armies of the new VVS:

- The 4th Air Army, headquartered in Rostov-on-Don
- The 6th Air Army, headquartered in St. Petersburg
- The 11th Air Army, headquartered in Khabarovsk
- The 23rd Air Army, headquartered in Chita

The original idea behind the reorganization plan was for all heavy bombers to be reassigned to a newly-created Joint Supreme Command of Strategic Deterrent Forces, leaving the VVS with only four medium bomber divisions, which would then be subordinated to the operational control of Russia's Military District commanders, all of whom wore army uniforms. In a clear win for the interests of Russian air power integration, that move was rescinded at the April 1999 session of the Russian Security Council.

As for force structure, the 37th Air Army, commanded by Lieutenant General Mikhail Oparin, maintains an inventory of 68 Tu-95 and 15 Tu-160 heavy bombers in two divisions at the Engels air base, as well as four additional divisions of Tu-22M3s, three in the Far East and the remaining one in European Russia. Each Tu-22 division maintains some 40-50 aircraft. In addition, a 5th Heavy Bomber Air Division is attached to the Russian Navy's northern Fleet, headquartered at Oleni. (The navy's other two bomber divisions were transferred to VVS control.)

The oldest Tu-95MS aircraft entered service only 15 years ago and can look forward to a service life out to at least 2020. The weakest components of the 37th Air Army are said to be its Tu-22MR reconnaissance bombers and its 20 Il-78 tankers, which are not nearly enough to meet Russia's inflight refueling needs. In late 1998, Russian bomber aviation was reporting only a 50 percent aircraft in-commission rate, with 75 percent of its Tu-95s in need of major servicing and only two of its six (at the time) Tu-160s in flyable condition.[11]

For its part, the 61st Air Army, commanded by Lieutenant General Viktor Denisov, has 280 transports consisting mainly of Il-76Ms, supplemented by smaller numbers of An-12, An-22, and An-124 transport aircraft. Military transport aviation accepted its last new aircraft in 1991. In 1999, the VVS's transport component was reduced in equipment and personnel by 30 percent. It now operates two transport divisions of 4-5 regiments each, as well as an operational conversion center for new and requalifying aircrews. Its principal operational tasking at present is to provide logistic support to Moscow's second war in Chechnya via the Makhachkala and Mozdok airfields in Transcaucasia (see below), as well as to support Russia's peacekeeping activities in Bosnia and Kosovo and

in Abkhazia and Tadzhikistan on Russia's southern periphery. Some 80 percent of the 61st Air Army's missions currently being flown are in direct support of the General Staff and higher Russian security organs. Its most experienced and proficient pilots are concentrated in a separate detachment that provides paid transport service to the commercial sector for extrabudgetary funds.[12]

General Denisov recently commented that the downgrading of VTA to the status of a numbered air army in the wake of the merger had been a "sound and logical decision at that stage of the military's reform," since it had made possible the harmonizing of transport aviation's staff and structure with national needs. But now, he said, "the situation has changed," since upward of 90 percent of transport aviation's missions are in support of the Supreme High Command, with a steadily increasing mission load. It would make more sense in the current situation, he suggested, were transport aviation directly subordinated to the VVS commander in chief rather than to joint and higher national agencies in Moscow. Moreover, he added, there are no transport units fielded in the two largest military districts, the Siberian and Far East, which must be supported by airlift missions flown from Europe, a practice Denisov said was "irrational."[13]

Russia's fighter, ground attack, and interceptor aircraft now assigned to the four regional air armies include 260 MiG-29s, 340 Su-27s, 280 MiG-31s, and 135 tactical reconnaissance aircraft (15 MiG-25Rs and 120 Su-24MRs). In addition, an advanced tactics development and application center at Lipetsk and another center for operational conversion and recurrency training together operate 65 tactical aircraft of all major types, including 20 MiG-29s, 35 Su-24s, and 15 Su-25s. Finally, five VVS flight schools for each aircraft category (fighter, ground attack, interceptor, bomber, and transport) operate a total of 1150 aircraft, including the L-29 and L-39 basic jet trainers, the Tu-134 transport used as a multiengine transition trainer, and dual-control MiG-23, MiG-29, Su-22, Su-25, and Su-27 advanced trainers.[14] All told, the VVS maintains a formal inventory of around 1500 tactical aircraft, 220 bombers, and 290 transports and tankers, with another 1200 aircraft at training schools and test centers and an additional 200 transports which are used solely for revenue-generating airlift missions.[15] For its part, Russia's naval

aviation component maintains some 244 combat aircraft broken down into five regiments, including 45 Tu-22Ms, 52 Su-24s, 10 Su-25s, and 52 Su-27s, 24 navalized Su-33 variants of which are assigned to the air wing of the carrier *Admiral Kuznetsov*, which is home-ported at Severomorsk.

Near the end of 2000, newly-elected Russian President Vladimir Putin called for "smaller armed forces that are better equipped."[16] His Security Council announced a long-delayed decision to eliminate an additional 600,000 positions from the defense payroll across the board, out of some 2.1 million servicemen and 966,000 civilians currently employed by the defense establishment, so as to clear the way for serious military reform. That announced cut included 470,000 military positions and 130,000 civilian jobs in 12 ministries and agencies which maintain and operate armed units. Planned cuts in the three main organizations of the Ministry of Defense included 180,000 personnel in the ground forces, 50,000 in the navy, and less than 40,000 in the VVS.[17]

As for other pending organizational moves, Russia's military space forces and the Moscow antiballistic missile (ABM) system, both now operated by the Strategic Rocket Forces (SRF), will be remanded to the direct operational control of the General Staff in 2001. Units operating military satellites will be transferred from the space forces to the VVS in 2002.[18] Finally, the ICBMs of the SRF are slated eventually to be placed under VVS command, thus completing the long-promised transition from a five-service arrangement to only three services, as is the practice in most Western countries.

### *The Bleak Outlook for Force Modernization*

A hallmark of the post-Soviet Russian defense effort across the board has been a plummeting of available funds for force development and modernization. Translated into dollars, Russia's official defense budget for 2000 was only some $5 billion, roughly the same as the annual defense spending of Singapore. To be sure, the International Institute for Strategic Studies has found that characterization highly misleading in terms of actual level of effort and has assessed Russia's real military spending in all categories at some $57 billion in 1999, or around 5 percent of

the nation's GDP. Only the United States exceeds that percentage in absolute terms. In relative terms, the IISS assessed Russian defense spending as a percentage of GDP at two to three times higher than that of the United States and its principal NATO allies.[19]

Nevertheless, thanks to a chronic shortage of funds, procurement of new equipment fell steadily from 1991 to only symbolic levels in 1998, with steadily declining numbers of new and replacement aircraft having been acquired each successive year since the USSR's collapse. The VVS took delivery of 77 new aircraft in 1992, 66 in 1993, 29 in 1994, 31 in 1995, 19 in 1996, 6 in 1997, and none in 1998. The year 1999 saw the lowest amount of state funds in constant dollars allocated to the defense sector at any time during the 8-year incumbency of President Boris Yeltsin. In contrast, at the height of the Soviet era during the 1980s, the average annual number of new aircraft deliveries to the VVS and VPVO was over 400.

Even profits from foreign military sales failed to make a significant contribution toward picking up the slack. Russia earned around $3.7 billion from arms exports in 2000, up 10 percent from 1999 and more than at any time since the USSR's dissolution. Yet that was a mere pittance compared to the $26.2 billion reaped by the United States, which accounted for 49 percent of the overall international arms market. One major problem hindering Moscow's arms sales effort lay in the realm of product support, which proved highly unsatisfactory, especially with respect to parts deliveries to its best customer, India. Both the Rosvooruzheniye and Promexport arms sales agencies were slow to respond to requests for spare parts and repairs, sometimes taking months to process orders.[20] That poor performance led the deputy director of Russia's Center for Strategic and Technological Analysis, Konstantin Makienko, to predict that Russia "will ultimately be squeezed out of the arms market."[21]

As a result of a defense ministry authorization of military efforts to earn extrabudgetary income, the VVS in 1998 brought in 98.7 million rubles over and beyond its state budget allocation for hauling commercial passengers and cargo on VVS transport aircraft. Those earnings, however, went entirely toward financing badly undersupported housing programs, attending to people needs, and keeping airfields and equipment in min-

imally acceptable repair. The VVS continues to nurture a vain hope of earning additional extrabudgetary income from selling off unneeded equipment, but it has found it to be no longer profitable to train foreign students at its military educational institutions, since the facility offerings of the latter are no longer even barely adequate, let alone competitive enough to warrant customer payment for such paltry service.

There also has been a dearth of state funding even for upgrades of existing equipment and the purchase of spare parts, quite apart from the acquisition of new aircraft. Only 1 percent of the VVS's current force structure is less than five years old, and more than 48 percent of its aircraft inventory is more than 15 years old. Colonel General Yury Klishin, the VVS's deputy commander in chief for procurement, said that many of the VVS's aircraft now on the books will reach the end of their service lives by 2005.[22] Only 20 percent or so of the overall VVS inventory can honestly be called "modern," and only about half of that inventory is kept in flyable condition.[23] This situation has been moderated somewhat, at least at the margins, by the fact that those flyable aircraft are not now flying much and accordingly are being stressed at a less than normal rate.

In an attempt to begin correcting this grim situation, President Putin's Security Council announced his administration's intent in principle in 2000 for a significant increase in the federal defense budget of more than 30 percent over the revised budget for 1999. The Security Council further reported that it had elected to do away with the former practice of providing equal funding for all services and to replace that practice with a more rational approach whereby funding for each service would be determined by that service's assigned tasks and mission needs.[24] That was a rather cryptic pronouncement, however, considering that upward of 80 percent of post-Soviet Russia's annual procurement and R&D spending has been allocated to the SRF and other nuclear forces. In contrast, the VVS's reported share of the defense ministry's annual R&D appropriation to all services has been only around 10 percent.[25] Nevertheless, Russia's defense minister, Marshal Igor Sergeyev, the former commander in chief of the SRF, told reporters that Russia's conventional forces would benefit most from the planned hike in 2001.[26] The announced goal is to spend 30 percent on procurement and R&D. However, unrequited personnel needs still compete aggressively, with priority funding required for

retirement packages for the 365,000 servicemen who will be released by all services over the next few years. Only after that slump is passed, perhaps in 2007, can the services afford to spend upward of half of their annual budget allocation on procurement and R&D.[27]

For now, prospects for the modernization of Russia's bomber, fighter, transport, and trainer inventory appear uniformly bleak. Sukhoi's proposed T-60 replacement for the Su-24 and Tu-22M3 medium bombers is going nowhere, and production of the Tu-160 heavy bomber was cancelled in 1992 after only 38 of a planned 100 had been built. Of that partial production run, many ended up as a windfall inheritance by Ukraine following the USSR's disintegration. In October 1999, after eight years of negotiations, Russia and Ukraine finally agreed to a transfer of 8 Tu-160s and three Tu-95MS bombers from the 184th Heavy Bomber Regiment at Priluki and the 182nd Heavy Bomber Regiment at Uzin-Shepelovka. Ukraine had initially demanded $3 billion equivalent for all Soviet VVS aircraft and equipment that had ended up in Ukraine, but finally settled on $285 million for 11 of the most serviceable aircraft, as well as 575 Kh-55 subsonic cruise missiles (roughly analogous to the U.S. Navy's Tomahawk), to be deducted from Ukraine's $1.5 billion debt to Russia for natural gas deliveries. That has now given the VVS 15 Tu-160s instead of six, enough to fully equip the 121st Heavy Bomber Regiment at Engels. Also, another Tu-160 now in slow-rate manufacture at the Tupolev factory in Kazan will be completed and delivered in the near future, thanks to a contract from the Ministry of Defense.[28]

As for fighters, the long-anticipated Russian answer to the USAF's F-22 is now completely dead in the water. RSK MiG's Article 1.44 fifth-generation air combat fighter prototype underwent high-speed taxi tests at Zhukovskii in early February 2000, even as the firm's director and general designer, Nikolai Nikitin, acknowledged that "everybody understands this aircraft will never enter series production."[29] Initially slated to make its maiden flight 11 months earlier, the aircraft finally got airborne on February 29, 2000 in an 18-minute flight with MiG's chief test pilot, Vladimir Gorbunov, at the controls.[30] It climbed to 3,300 ft and circled the airfield twice with its landing gear down at a maximum speed of 270-325 kt before landing. The aircraft has been flown only once again since. Similarly, Sukhoi's proclaimed fifth-generation concept demonstrator,

the forward-sweep S-37, also continues low-rate flight testing, although it is purely a design bureau initiative, as is MiG's Article 1.44. VVS test pilots have not flown either. The chief of the VVS's Scientific Engineering Committee, Major General Sergei Kolyadin, predicted last year that Russia will introduce a fifth-generation fighter in 2010 assuming at least a modicum of improvement in the funding outlook.[31] Yet a civilian aviation authority observed more realistically that any development and procurement of a Russian fifth-generation fighter will only occur if Mikoyan, Sukhoi, and "to some degree" Yakovlev all pool their respective talents in a consolidated firm. He further suggested that the aviation industry will recover and become revitalized only if Russia succeeds in overcoming "the mentality of self-isolation and rejects the idea that we are surrounded by enemies and that we have no allies."[32]

Meanwhile, the MiG-29SMT upgrade program, suspended in 1999, resumed in early 2000 with a funded VVS order for 180 reworked aircraft, of which some 20 had been delivered to line units by year's end. The upgrade involves the Phazotron Zhuk-M multimode radar designed to accommodate as many Western-developed weapons as possible, along with a new cockpit and an enlarged conformal fuel tank over the upper spine, plus an inflight refueling capability. The SMT upgrade will enable the aircraft to employ electro-optical and laser-guided air-to-ground munitions. (The basic MiG-29 is air-to-air capable only, except for the carriage of unguided bombs and rockets.) It will also give the aircraft an extended operating radius and a true multimission capability.[33] Finally, the air defense component of Russia's fighter aviation acquired 12 Su-30s during the mid-1990s, with a hope of more to come once the funding picture improves. The Su-30 was designed expressly for VPVO to offer a two-seat fighter controller capable of serving as a tactical airborne warning and control system (AWACS) and handing off targets to Su-27 interceptors via datalink.

In the airlift domain, the VVS has placed its first tentative orders for the Il-112V intratheater transport to replace the aging An-26 inventory. As for replacement basic trainers, the outlook continues to be forbidding for at least the near term, with the VVS having recently declared that it will simply soldier on with its tired but still-serviceable Czech-made L-29s and L-39s until it acquires enough discretionary funding to procure one

of the two follow-on trainer options that has long been available and ready for production in principle. Such a plan may prove workable, since there is now only a miniscule number of cadets in the VVS pilot training pipeline, and the aircraft in the VVS's flying schools are not being used anywhere near as heavily as they were a decade ago. VVS officials have further indicated that they will only select a replacement trainer for production whose principal components are all manufactured in Russia. That gives the MiG-AT candidate a distinct advantage over the Yak-130, since the home-grown RD-1700 engine now being successfully tested can easily replace the MiG-AT's current French SNECMA Larzac engines. Both feature similar performance specifics.[34]

*Doctrine and Concepts of Operations*

As yet additional evidence that the VVS has been marking time in recent years, there has been no change of note in what we have known for most of the past decade with respect to its doctrinal orientation and roles and missions. The latest draft military doctrine submitted to the Security Council by the defense ministry in 1999 to supersede the previous 1993 doctrine remains "strictly defensive" in focus, even though it characterized global security trends as having been largely inimical to Russia's interests during the preceding six years. The latest doctrine further spoke of a sharply diminished threat of world war, an increased likelihood of regional conflicts and local wars, and a rise in the likely incidence of terrorism and the spread of weapons of mass destruction.

Clearly reflecting Russia's traditional inclinations toward paranoia and its continued inability to accept the loss of its former superpower status with equanimity, the draft doctrine cited the continuing trend toward NATO's eastward expansion as a reason for special concern. It also cited what it portrayed as the relentless fielding of qualitatively new weapons by the principal Western defense establishments, shifting the global military balance increasingly to Russia's detriment and threatening to render Russia even more a second-rate power. In the face of Russia's growing conventional-force inferiority, and consistent with the earlier Russian national security strategy published in 1997, the 1999 draft military doctrine reemphasized the High Command's determination to rely on nuclear rather than conventional forces for large-scale contingencies as a cheaper solution. It also declined to rule out nuclear first use, declaring

instead that nuclear weapons may be employed in response to major conventional aggression against Russia.[35] All of this was codified in a new national security concept published on January 10, 2000 and in a new military doctrine issued on April 21, 2000, both of which recognized a decline in major threats of external aggression against Russia, offset by new threats of local conflict along Russia's troubled southern periphery.

Russian air experts have correctly understood the thrust of emerging air power thought in the West in spotlighting the new essence of strategic attack as being aimed at attempting to "destroy the air grouping of the opposing side and inflict severe losses at the very outset of the war by seizing the initiative."[36] However, as in Soviet times, such experts still tend to portray a notional air operation as being conducted only "briefly," over several days (two to ten on average). Yet at the same time, they warn of the dangers of ignoring the lessons not only of World War II, but also of the very different conflicts of the 1990s. They further stress that in any major conventional aggression against Russia, the VVS's first requirement will be to conduct a defensive air operation as a part of a larger aerospace offensive.[37] In that respect, the VVS's commander in chief, General Kornukov, noted that of all available military instruments, only the air weapon has enough reach and leverage to engage land and surface naval targets with precision strikes at medium and long ranges. He further noted that the battlespace beyond the army's reach of 50-70, or, at the absolute outside, 100 km from the line of contact represents the "undivided sway" of VVS theater and long-range aviation.[38]

In an effort to apply in practice elements of this emerging concept of operations, military representatives of Russia and Belarus have discussed plans to establish a unified air defense system to be backstopped by the Baranovichi early warning radar site in Belarus, which was slated to achieve initial operational status at the end of 1999. The two countries have also been holding joint exercises, exchanging information, and using each other's airfields on a limited basis since 1996. The commander of Belarus's air defense forces, General Valery Kostenko, called for an acceleration of that effort in response to NATO's continuing eastward expansion and, as he put it, growing ability to challenge Belarus and Russian airspace with provocative reconnaissance forays.[39]

*Continuation Training at the Unit Level*

Aircrew training in the VVS, already curtailed severely by the collapse of funding for operations and maintenance, was further afflicted by the loss of resources diverted in 1998 and 1999 to underwrite the merger of the VVS and VPVO. The VVS's chief of combat training, Lieutenant General A. N. Barsukov, said that the declining skill levels of maintenance personnel as a result of this chronic underfunding was occasioning errors in aircraft servicing, a decline in flight safety, and reduced overall readiness. He saw no prospect for improvement in the near future.

The total number of hours flown by the VVS in 1998 was only 57 percent of what had been planned, and it amounted to less than a quarter of the bare minimum acceptable for maintaining the most rudimentary aircrew flight proficiency. The average planned flight time allotted per aircrew member for 1999 was 50 hours. As it turned out, bomber aircrews in the 37th Air Army averaged only 21 hours in 1998 and 20 in 1999. Tactical aviation was affected even worse yet, with fighter pilots getting only 14-16 hours a year, not even enough to maintain more than basic landing currency. Ground-attack pilots averaged 22-24 hours a year. Transport aircrews, because of the nature of their missions, averaged the most, at around 60 hours a year. Some pilots still on flight orders have not flown for four years or more because of the shortage of funds for fuel. Only Moscow's second war in Chechnya (see below), with from 25-50 to as many as 100 combat sorties a day, was giving VVS aircrews any reasonable level of actual mission employment training. As a measure of the sharp decline in VVS continuation training since the USSR's collapse, the actual hours flown VVS-wide in 1999 were only 200,000, compared to 2 million in 1990.[40]

Relatedly, because of the lack of adequate maintenance support and a ready availability of spare parts, some 32 percent of the VVS aircraft inventory has been deemed permanently unserviceable. Cannibalization of aircraft to keep others flying has now become routine, even though it is universally disparaged as a practice conducive to a higher mishap rate. The average in-commission rate of line aircraft in 1999 was 61 percent, with the figure varying from 55 to 81 percent for each aircraft, depending on aircraft type. By 2005, 75 percent of Russia's military airfields will be in need of major repair and refurbishment.[41]

All of this has had a predictable impact on the VVS's flight safety record. In 1999-2000, the VVS experienced 12 major accidents over a 12-month period, of which 11 were directly attributable to pilot error. That contrasted with only four major accidents the previous year. The pilot error rate has doubled lately in comparison to that of the preceding eight years.[42] The MiG-31 long-range interceptor operated by former VPVO units has been particularly plagued in this respect. Since reaching initial operational capability in 1981, 36 have been lost in training accidents and 20 crewmembers have been killed, making for one of the worst aircraft safety records in the VVS.[43]

To meet the manifold shortages that have been occasioned by the funding crisis, extraordinary measures are now being taken at the unit level, including aircrew specialization in specific mission events and munitions types, limiting overall training, and generally prohibiting any exercises above the regimental level. Unit commanders have been forced to suspend their usual mission readiness standards and to tailor their training programs to the actual availability of fuel and spare parts. General Kornukov recently extended to regiment commanders further latitude to adjust downwardly their already meager training programs as needed to comport with available resources. Actual flight exercises even at the regimental and squadron levels have largely been supplanted by command post exercises, in which large-force employment scenarios are exercised only on paper. Moreover, the VVS is now retaining only its most experienced aircrews and is letting the less experienced ones go. That has raised the average serving fighter pilot's age to 36. As a result of the continuing crisis, test pilot Anatoly Kvochur recently admitted that there are "restrictions and limitations everywhere," since unit commanders must focus on their average pilots and since most units have few exceptionally experienced pilots who can fly enough to maintain their superior proficiency.[44] The funding crisis has affected the VVS's already truncated undergraduate pilot training (UPT) program as well. The flying portion of the curriculum in the VVS's five UPT schools is now only 100 hours for the awarding of an aeronautical rating, down from their long-standing previous norm of 250 hours. That means, in effect, that line units are now gaining badly undertrained UPT graduates who are unprepared to move on to advanced training in their assigned operational aircraft types. Many

newly-commissioned UPT graduates have not flown for years as a result of the shortage of funds for fuel.[45]

General Kornukov described 2000 as a "year of stabilization" during which the average flight time per line pilot rose to 25-30 hours, even though fighter pilots remained badly shortchanged because they are at the bottom of the priority list. The VVS received funding that year for only 500,000 tons of jet fuel, when it had requested 2.5 million tons just to meet its minimum planned training requirements.[46] Nevertheless, the number of unit-level exercises rose from 300 to 400. As for larger and more involved unit training and operational test exercises, *Zapad* ("West") '99 conducted in June 1999 included two Tu-25MS heavy bombers of the 37th Air Army which flew 15 hours northward from Engels air base to the vicinity of Iceland, where they were intercepted on arrival by U.S. F-15s. In that same exercise, a pair of Tu-160s flew northward from Engels around the Kola peninsula and down the coast of Norway, where they were intercepted by Norwegian F-16s south of Andoya at approximately 0300 local time.[47] Upon their recovery to Russia, one aircraft from each pair fired an inert Kh-55 cruise missile into the Caspian lowland weapons range. *Zapad* '99 was portrayed as the largest combined-arms exercise held in Russia in the last 14 years. It exhausted virtually the entire fuel, training munitions, and other expendables allocations for the participating units and significantly affected those of nonparticipating units.

Later in September 1999, two pairs of Tu-95s from Anadyr and Tiksi air bases on the Chukotka peninsula in Russia's Far East Military District approached the Canadian border, whereupon they were also intercepted by U.S. fighters.[48] In a similar spirit, the VVS has announced plans to fly heavy bomber missions to the former Soviet air base at Cam Ranh Bay in Vietnam, which has been available to Russia free of charge until 2004 under the terms of a lease agreement reached in 1979 and which was recently reactivated.[49] Defense minister Sergeyev declared that these recent bomber forays over the north Atlantic and out of Russia's Far East were intended to test and rehearse "one provision of Russian military doctrine—the use of nuclear forces when all measures of conventional defense against aggression have failed."[50] As one might have expected, all of these missions were flown by the VVS's most experienced and proficient bomber crews.

*Air Operations in Moscow's Second Chechen War*

Stung severely by Russia's poor performance in the first war in Chechnya during 1994-1996, many in the military's upper ranks had long been itching for an opportunity to vindicate themselves by having another go at the Chechen rebels. Such an opportunity finally presented itself in August 1999 through a combination of happenstance and possible Kremlin contrivance when thousands of Islamic militants entered Dagestan under the leadership of the Chechen warlord, Shamil Basayev, allegedly to establish an Islamic state, at about the same time that a number of mysterious bombings of apartment buildings occurred in Moscow, Volgodonsk, and Buinakskand, causing extensive civilian fatalities which then-acting President Putin attributed to Chechen "terrorists." Although no one stepped forward to take responsibility for the bombings, unidentified "Chechens" were widely implicated, prompting a resurgence of popular support for Russian military intervention—and, perhaps not entirely by accident, helping to ensure Putin's subsequent election as Boris Yeltsin's successor.

In response to these putative trigger events, Russian troops poured into Dagestan and eventually expelled Basayev's forces. Moscow characterized that incursion as an "anti-terrorist operation," which enabled the federal government to use force without first securing State Duma approval. After several weeks of low-intensity operations in Dagestan, Russian forces began moving slowly and deliberately into Chechnya, in studied contrast to Russia's abortive assault on the capital city of Grozny in December 1994. This time, Moscow opted to lead with heavy air and artillery attacks from standoff ranges to preclude any early need for close ground combat with the Chechen rebels. Whenever resistance was encountered, Russian troops simply sealed off the affected town and bombarded it until it surrendered. They did not enter Grozny in strength until December.

VVS air assets devoted to the operation were spearheaded by a regiment each of Su-24s and Su-25s based at the Mozdok air base some 60 miles northwest of Grozny. These units were drawn from the 4$^{th}$ Air Army headquartered in the nearby Don River basin area. They were supplemented by additional aircraft and personnel from the Moscow region air and air defense forces. Russian observers indicated that some 80 percent

of the initial fire support was provided by air power, split roughly evenly between ground-attack jets of the VVS and attack helicopters organic to Russia's ground forces, with an additional 15-17 percent provided by artillery.

Air operations commenced with attacks on a radar unit at the Grozny airport and on what was left of Chechnya's "air force," a single propeller-driven An-2 biplane. After that, initial targets included bridges, major roads, buildings, oil production and storage facilities, ammunition dumps, communications links, and rebel strongpoints. Later, the target set was expanded to include rebel leadership and camps, which saw a distinct shift in munitions used from high-explosive bombs to antipersonnel submunitions.[51] The avowed goal was to avoid close combat on the ground at every reasonable cost and to minimize friendly losses, albeit with less concern for Chechen noncombatants. Defense minister Sergeyev stressed that the overriding intent was to achieve desired combat objectives with "minimal losses among the forces."[52]

VVS aircrews flew 5000 combat sorties between August 1999 and early February 2000. On January 27, 2000, Russian forces reported 100 Su-24, Su-25, and Mi-24 helicopter sorties over Grozny and the southern mountains during a single 24-hour period. The more typical daily intensity of air operations was 25-60 sorties.[53] By November 2000, Kornukov reported 266 enemy armored vehicles and 13 antiaircraft artillery (AAA) positions destroyed. Many aircrews flew multiple sorties a day. All were rotated in and out of the area every 5-6 weeks, while their aircraft remained forward-deployed at Mozdok. New pilots arriving in theater with only minimal mission qualification would initially operate at medium altitudes, stepping down to lower altitudes to attempt better target identification and more accurate manual bombing only after their comfort level and proficiency had increased.

As in the earlier Chechen war of 1994-1996, the VVS used the A-50 airborne surveillance platform to monitor enemy airspace. It also flew round-the-clock Su-27 and Su-30 combat air patrols to ensure against any attempted helicopter resupply of rebel forces from outside Chechnya. An An-12 airborne command and control center (ABCCC) directed some strikes, but most VVS ground-attack missions were con-

ducted without any direct command and control support. Although the Tu-22M3 medium bomber flew 200 combat sorties in 1994-1996, it was not used in the second war.[54] In all, some 11,000 combat sorties had been flown as of January 2001.

Russian attack helicopter crews applied many of the same tactics that had been developed and tested earlier during the 1980s in Afghanistan. As in the first Chechen war, Mi-24 gunships and Mi-8 transport helicopters were the principal workhorses used, supplemented as needed by Mi-26 heavy-lift helicopters. Attack helicopters worked in either pairs or as four-ships as organic assets of an Aviation Tactical Group (ATG) subordinate to ground commanders, with Mi-8s often orbiting nearby in standoff positions to provide targeting instructions.

Some combat applications featured simultaneous attacks from opposed directions out of a circling "wheel of death" formation operating just outside Chechen AAA range. As many as a third of the Mi-24 sorties flown were "free hunt" missions against rebel convoys and other targets of opportunity. Since few, if any, Russian attack helicopters carried global positioning system (GPS) equipment, their aircrews were forced to navigate by visual pilotage. Only five transport helicopters reportedly carried GPS receivers. The use of nonsecure radios further allowed the rebels to monitor Russian frequencies and to target ATG operations. Russian ground commanders were said to possess poor knowledge of helicopter attack tactics and would often keep their helicopter crews in high-threat areas for too long, needlessly increasing their exposure to enemy fire and endangering their survivability.[55] In addition, because of poor target identification and the unavailability of accurate navigation and geolocation equipment, one Su-25 mistakenly attacked the Georgian town of Zelo Omalo near the Chechen-Dagestan border.

Russia's defense ministry evidently conducted only limited operational evaluations of new equipment during the second Chechen war. An all-weather variant of the Su-25, the Su-25TM, was battle-tested out of Mozdok for the first time, firing Kh-25ML missiles to take out satellite communications dishes and the sole surviving Chechen An-2.[56] The VVS also had success against point targets with the AS-10 and AS-14 electro-optical and laser-guided air-to-surface munitions. Finally, two

Ka-50 Black Shark advanced attack helicopter prototypes were dispatched to Mozdok in November 1999 but were pulled out by March 2000, having evidently flown only a few local-area test flights. By all accounts, they were never committed to combat.

As for what worked, air-ground coordination appeared more effective this time than in 1994-1996. Fratricide did occur on several occasions early on against Russian internal ministry (MVD) troops because the latter had not trained with the VVS and could not communicate with VVS aircrews, a problem further compounded by the distrust, and even hatred, that existed between MVD and regular Russian ground troops.[57] Such friendly fire incidents largely ceased, however, once combat operations shifted to Ministry of Defense command and additional ground forward air controllers (FACs) with improved communications links with VVS pilots were provided. There was also greater reliance on electronic intelligence (ELINT), as well as an effective combat use of the upgraded Pchela-1T unmanned aerial vehicle (UAV), which provided Russian commanders with real-time video feed to locate mobile rebel groupings and to interdict supply routes coming into the war zone from outside Chechnya.[58]

The most glaring problems and revealed deficiencies encountered had to do with the inadequacy of Russian precision munitions and night/adverse-weather attack capabilities. The VVS's lack of suitable night-fighting equipment (including night-vision goggles) meant that the majority of air operations had to take place during day clear-weather conditions, leaving Russian ground forces exposed and vulnerable at night. Precision weapons were also used only during daylight hours owing to the VVS's lack of night target designation capabilities. The few attack missions conducted at night served mainly as flying artillery to saturate wide-area kill boxes with nonprecision munitions, such as FAB-250 and FAB-500 cluster bombs and S-8 and S-13 rockets, as well as ODAB-500 fuel-air explosives on occasion, the latter of which caused extensive civilian casualties. The Su-24 was limited in its ability to employ electro-optical and laser-guided weapons against targets located in the more mountainous terrain of Chechnya. The Su-25, unequipped to deliver precision weapons, was used almost exclusively on day close air support (CAS) missions in VFR conditions. To help counter the infrared SAM

threat, Su-25 pilots routinely made liberal use of self-protection flares during target egress.

Intelligence preparation of the battlefield also left much to be desired. Attacks by Su-24s and Su-25s against rebel supply routes were extensive, yet generally ineffective because of a shortage of available real-time information on the location of those routes and the small size of the rebel convoys. The VVS possessed nothing like the synthetic aperture radar (SAR) and moving target indicator (MTI) equipment carried by the U.S. E-8 Joint STARS battlefield surveillance platform, which was used to such telling effect against enemy ground forces during Operation Desert Storm. Much as NATO's air forces experienced over Kosovo in 1999, Russian reconnaissance was deficient at spotting Chechen troop buildups and providing reliable battle damage assessment of attacks against dispersed, concealed, and lightly-equipped enemy forces. FAC support was hampered by the fact that most Chechen rebels, like their more senior Russian counterparts, had served previously in the Soviet armed forces and, accordingly, knew and understood Russian tactics implicitly. They frequently would monitor Russian FAC radio transmissions and misdirect VVS CAS aircraft against Russian troops. They also would fire off spoofing flares to confuse VVS pilots as to who and where the real friendly ground FACs were. Finally, they made special efforts to single out FACs for sniper attack. As a result of these often highly effective rebel countertactics, numerous inadvertent blue-on-blue engagements occurred during the earlier phase of Moscow's second Chechen war. As a result, later VVS air support missions were redirected against rear-area targets or against enemy troops not in close contact with Russian forces.[59]

As for the air attrition experienced by the invading Russian forces, the VVS lost a Su-25 to enemy AAA fire on September 9, barely a month into the operation, with the pilot successfully ejecting and getting rescued soon thereafter. Another Su-25 went down on October 3, with its pilot, a regimental commander, also successfully ejecting. This time, a Su-24MR reconnaissance aircraft, launched to photograph the area for a combat search and rescue mission planned for the following day, was downed by an infrared SAM, with one crew member killed during the ejection sequence and the other ultimately rescued by an Mi-8. An Mi-

24 gunship, in turn, was downed while supporting *that* rescue effort.[60] Another 24 aircraft sustained battle damage during the war's early months. By May 2000, the invading Russian forces had lost two Su-24s, two Su-25s, and 10 helicopters to enemy ground fire.[61]

On balance, Russia's second Chechen gambit was more successful than the first, even though more than 2000 Russian servicemen were killed and another 5800 wounded during the course of the operation. Russia's on-scene commanders managed to avoid a replay of the three failings that largely accounted for the first war's unsuccessful outcome, namely, poor coordination among the numerous friendly players operating in theater, not sealing off the capital city of Grozny before entering it in force, and badly mishandling Russian public opinion. Among other achievements accomplished at the operational and tactical levels, Russian forces successfully used counterbattery radars to locate the source of enemy artillery fire, as well as UAVs with electro-optical and IR equipment to locate enemy force positions, mensurate their coordinates, and laser-designate identified targets. As the operation was ramping up, General Kornukov reported that during the first Chechen war, only 3 percent of the munitions delivered by VVS aircraft had been PGMs due to the recurrence of prohibitive weather, whereas during the second war accurate air attacks, in close coordination with artillery and armor, were consistently conducted against enemy point targets that had already been successfully reconnoitered.[62]

That said, Russia's performance in the second Chechen war was also marred by some significant failings. At the outset, Russian military spokesmen claimed that they were merely emulating NATO's earlier air campaign against Yugoslavia, and they made studied efforts to prepare Russia's rank and file for a drawn-out campaign. Kornukov even staged a NATO-style press briefing where he narrated VVS cockpit display videos and stressed the "precision" of Russian air attacks, much as NATO spokesmen did during Operation Allied Force.[63] He further spotlighted VVS attacks against Chechnya's limited cellular phone network, television station, and other communications means, characterizing these as "center of gravity" strikes against enemy "strategic" targets. Similarly, VVS attacks against Chechen oil refineries were rationalized on the ground that the rebels traded oil on the black market and that the strikes

would deprive the latter of a vital revenue source. Kornukov pointedly claimed that there were "certain parallels" between the Chechen operation and NATO's Operation Allied Force, and he clearly sought to emulate NATO's approach by relying more heavily on the coercive use of Russian air power than had been attempted during the previous Chechen campaign.

Such pretensions notwithstanding, however, any comparison of Moscow's second Chechen campaign with Operation Allied Force stopped abruptly with its initial public relations offensive. There was no serious effort made to minimize collateral damage to enemy civilian infrastructure and noncombatants. On the contrary, Russian ground forces fired SS-1C and SS-21 ballistic missiles fitted with submunitions designed expressly for killing and wounding personnel and taking out soft targets like vehicles and buildings. Many noncombatant casualties and extensive damage to civilian structures resulted from such indiscriminate weapons use. Even friendly fire incidents were kept in check only because Russian ground troops were generally positioned at a safe distance from targets that were being bombed in Grozny. Apart from that, Russian forces intentionally sought to inflict damage on civilian structures and to cause noncombatant fatalities, to a point where some VVS commanders were said to have refused to carry out attack orders because of the danger of harming innocent civilians.

Finally, Russia's defense ministry was once again forced to rob Peter to pay Paul to conduct its second Chechen campaign. Many munitions expended by the VVS throughout the operation were stripped from the inventories of other units, reducing PGM stocks to critically low levels and forcing a predominant reliance on unguided bombs. VVS pilots often flew into combat with only half a weapons load because of munition shortages. In all, combat operations were said to have consumed upward of 60 percent of the VVS's operating budget for 1999 and 2000.[64]

*Russian Cooperation with Nato Air Forces?*

Since the theme of the conference session for which this paper was commissioned concerns specializing vs. generalizing with respect to force development and mission emphasis, I would be remiss were I not to offer

some concluding observations on how this issue relates to the VVS as a close and still-looming, if also ailing, neighbor of the Royal Norwegian Air Force.

To cut straight to the point, I would suggest that any serious consideration of possible VVS role-sharing with NATO air forces in potential regional crises, at least for the immediately foreseeable future, would be at best premature and at worst inappropriate, for numerous compelling reasons that would make any such interaction problematic at almost every level imaginable. At bottom, the issue of specialization vs. generalization was most recently dramatized by the allied interoperability problems that became apparent early on during NATO's air war for Kosovo in 1999. It is an issue of concern principally to air forces such as the Royal Norwegian Air Force whose leaders might reasonably expect to operate in an alliance or coalition context at some near-term future point. No such possibility, however, applies to the VVS, at least for the first decade of the 21st century. Indeed, for many of the reasons noted above and still more, probably the *last* thing on the Russian military leadership's collective mind today is contemplating the desirability and likely requirements of conducting air operations with NATO under U.S. or any other non-Russian command.

By the same token, it follows that the last thing that ought to be on the minds of NATO planners, at least for the first decade of the 21st century, is any serious weighing of possible ways of integrating the VVS into NATO's air operations repertoire, with all the many hurdles that would have to be crossed first even to engage Russia as a prospective security partner at the most basic political level. On this point, one need only consider the special complications which NATO had to endure in dealing with Russia's peacekeeping involvement in Kosovo after Operation Allied Force, most notably the Russian KFOR component's unseemly rush to capture and claim control of the Pristina airport, only to have to be fed and supplied afterwards by NATO because it lacked the funds to sustain itself.

The first reason why now is not a propitious moment for Norway or any other NATO member to be exploring interoperability issues with the VVS in any detail is that the latter, even more now than in recent years

past, is comporting itself more as an adversary than as anything resembling a would-be cooperative security partner. True enough, the latter part of 1999 and 2000 saw some signs of a revitalization of Russian military cooperation with the West, both bilaterally and through NATO, following the earlier breakdown of such cooperation triggered by the onset of Operation Allied Force. That nascent revitalization was reflected, among other ways, in the revival of Russian-NATO Permanent Joint Council meetings and by improved Russian peacekeeping cooperation within KFOR. Nevertheless, the preponderance of evidence suggests that Russia remains far from ready to consider more serious cooperative security ties with NATO, in the air realm or any other.

Part of the reason for this can be seen in the still-truculent tone of Russian pronouncements when it comes to the West in general and to NATO in particular. For example, in late 1999, the VVS commander in chief, General Kornukov, wrote that early hopes prompted by the ending of the cold war were not being borne out because the NATO "dinosaur" was still showing a "dangerous recurrence of militaristic instincts," as reflected in allegedly increased defense spending and continued plans for eastward expansion. As a result, said Kornukov, despite NATO's soothing words to the contrary, the alliance "presents a real threat to Russia's national security."[65] In keeping with that declaratory tone, notwithstanding Moscow's continued involvement in KFOR, Russian commentators have routinely portrayed NATO's air war for Kosovo in 1999 as an act of "air aggression."[66]

A second reason has to do with recent Russian military conduct, most notably the harmless but remarkably sophomoric buzzing of the aircraft carrier USS *Kitty Hawk* in the Sea of Japan on November 9 by a VVS Su-24 and Su-27 two-ship element at low altitude and high speed, evidently to make someone's point that Russia remains a "force to be reckoned with" in world affairs. The carrier was undergoing underway replenishment at the time and had ample radar warning of the incoming Russian aircraft, even though its alert fighters were only on 30-min alert because of the low threat and could not be launched in sufficient time to intercept the VVS jets before they passed over the carrier battle group. After the incident, *Izvestiia* boasted that "if it had been an attack, the aircraft carrier would have been sunk."[67] Kornukov likewise crowed over what

Russian sources called a simulated "attack," boasting that "the arrival of our planes came as a complete surprise to the Americans. Photographs show there was panic on the aircraft carrier's deck."[68] Kornukov further announced fulsomely that the VVS aircrews who had carried out the stunt had been awarded military decorations for their performance.[69]

Even were considerations such as these not a factor, a final reason why any serious contemplation of air interoperability with the VVS by NATO planners would make little sense today has to do with a multitude of all but preclusive operational barriers that currently separate the would-be partners. Simply as a practical matter, the VVS is all but wholly noninteroperable with its NATO counterparts, as best attested by the fact that the German Luftwaffe was able to make almost no use of most of the personnel and equipment it inherited from the former East German Air Force and was obliged to retrain completely the few former EGAF pilots retained on active flight status in the MiG-29 because of their completely dissimilar operational upbringing and tactical repertoire. On top of that, the VVS leadership has little incentive or inclination even to consider reconfiguring its equipment to become interoperable with NATO's air forces at a time when it has so many more prepossessing concerns, such as ridding itself of excess manpower and aging equipment, securing enough funding to retrain its pilots to the most minimal level of basic flying proficiency, and simply surviving as a self-respecting military institution, never mind the more ambitious and elusive goals of recapitalizing its largely obsolete force structure and regaining anything approximating real mission readiness.

Even with *these* considerations held in abeyance, any effort to seek VVS involvement in combined operations with any sister NATO air force today would still make for an operational nightmare at every level. One reason has to do with equipment differences of the most basic sort. For example, Western air forces mainly use UHF radios; they mainly use VHF radios. We use both preset and manually selectable frequencies; they use incompatible preset frequencies only. We routinely use TACAN (tactical air navigation), inertial navigation systems (INS), and GPS in peacetime operations; they use their own RSBN (*radiosistema blizhnei navigatsii*, or "short-range navigation system"), INS as the exception rather than the rule, and GPS almost not at all. Their identification

friend or foe (IFF) equipment and procedures are completely different from ours. They operate in a completely different airspace structure and rules and procedures environment than we do.

For all these reasons and more, Russian aircrews, given what we now know of the highly stereotyped and scripted way in which they operated throughout the cold war, could not begin to understand and identify with, let alone assimilate and effectively handle, the contrasting complexity of even the most routine peacetime Western training practices today. To cite but one example, the recurrent Red Flag large-force exercises regularly held at Nellis AFB, Nevada, in which U.S. and allied aircrews periodically train together, even the most seasoned Russian fighter pilot within his own system would be like Robert Heinlein's stranger in a strange land, totally out of his element and beyond his depth. Apart from the insurmountable language barrier he would encounter from the first moment onward, he would bring nothing to the party but a safety-of-flight hazard of outsize proportions.

*On Balance*

If the retirement of General Deinekin in December 1997 and the concurrent onset of moves to merge the former VVS with VPVO signaled the end of one era of post-Soviet Russian air power and the beginning of another, the newly-reconstituted VVS three years later has shown few signs of progress other than the completion of its long-planned merger. Indeed, beyond its expected further reduction in force structure and personnel, it has experienced continued setbacks rather than any turnaround in the most important areas of force modernization and training. Throughout the cold war, Western intelligence analysts typically tended to give the VVS, or at least the theater forces component of it, more credit for operational prowess than it deserved, as the later revelations of glasnost during the final years of the USSR made abundantly clear. But at least the VVS at the height of the Soviet era was not just liberally but lavishly funded, had little to complain about when it came to force modernization, and could be said to operate and train within a framework of consistent and universally recognizable tactical principles. Today's VVS, in contrast, is a serious air force in name only. Its inadequate funding

even to address its most basic personnel needs, let alone for procurement, upgrades of existing equipment, and mission support, remains acute. In melancholy contrast to the tiresome boasts one routinely heard throughout the Soviet era, Russian commentators now freely acknowledge that the NATO countries are "clearly ahead" of Russia in air technology development.[70] No less than General Kornukov himself has warned that without a substantial improvement in the funding situation, Russia's air power "will simply cease to exist in 6-7 years."[71]

In the face of this seemingly systemic predicament, one might fairly ask who the role models are and whence the VVS's successor generation will come? As test pilot Anatoly Kvochur recently pointed out, the once-romantic image of military aviation in Russia has long since lost its former allure, leaving the VVS leadership with a burning need to "revive the motivation of the flying profession." Today, he said, the media refer to aviation "only when there is an accident or some kind of trouble."[72]

Moreover, unlike General Deinekin, who had stoically accepted the USSR's demise from his first days as VVS commander in chief and who understood that Russia needed to tailor its air posture to a new situation and to reach out to the West along the way, Kornukov radiates every impression of being a throwback. Still aggressively unrepentant for his having issued the final order that led to VPVO's downing of Korean Air Lines Flight 007 over the Sea of Okhotsk in September 1983, he has repeatedly sounded far more Soviet-like than his predecessor since assuming command of the new VVS in January 1998.

To make matters worse, because of the all but total collapse of funding for operational support, whatever Russia's aircrews may have had in years past by way of a credible combat edge is now gone. As in 1994-1996, the defense ministry sent Russian airmen into harm's way in the second Chechen war who were barely proficient at the most basic instrument and night flying, let along ready to employ weapons in the face of enemy fire with any significant degree of effectiveness. What little peacetime continuation training that still occurs at the unit level today is all but unrecognizable in comparison with normal Western practices. A typical VVS pilot might fly twice in a single day and then go months without flying, and operating practices are routinely condoned at the squadron

and regiment level that would make any Western air commander, for good reason, turn ashen over legitimate concerns for flight safety. In all probability, the only VVS pilots today who have anything even remotely resembling real proficiency are the few test and training professionals at the VVS's flight test center at Akhtubinsk and its weapons centers at Lipetsk and Savasleika.

In all, the VVS leadership remains in the grips of a deeply-rooted identity crisis, still clinging with one hand to pretensions of regaining superpower status and, on the other, facing up only reluctantly to the discomfiting reality of Russia's diminished post-cold war security situation and meager economic prospects. As in the earlier instance of Operation Desert Storm a decade ago, VVS observers could only watch Operation Allied Force as outsiders with a combination of resentment and grudging respect, bereft of any ability to act on whatever they may have taken away from those experiences by way of useful lessons indicated for Russia. Apart from its nuclear capability, the VVS at the brink of the 21st century has devolved, to all intents and purposes, into little more than an inflated Third World air force when it comes to what remains of its former professionalism and fighting strength.

## NOTES

1 This paper was written for presentation at the Air Power Symposium 2001, sponsored by the chief of staff of the Royal Norwegian Air Force, Trondheim, Norway, February 6-8, 2001. I wish to thank Mr. Randy Mayer, office of the Deputy Chief of Staff for Air and Space Operations, Hq United States Air Force, for his help in preparing it.

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# Part IIII

# Modern Conflicts, the Media and Public Opinion: The Kosovo Example

*Jamie Shea*

The problem with conflict is that it is always controversial, no matter how necessary as a means to stop gross human rights violations, and no matter how much it may conform to the "just war" theories of Aristotle or Sir Thomas Aquinas.[1] Using force is a drastic thing for modern societies to do and they do it rarely. The chance of being killed in a military conflict is at a historical all-time low, compared to the risks that our great-grandfathers or great-great-grandfathers would have faced. In fact, military conflict is probably the least likely cause of premature fatality today in western democracies, compared with cancer or heart disease or traffic accidents, or particularly the easy availability of guns in the United States which produce over 17,000 murders annually. As a result, when conflicts do occur, they have a shock value for public opinion, particularly when they occur in a modern European city like Belgrade at the end of the 20th century.

Our main difficulty in justifying the use of force to public opinion is based on this, our greatest success: that we have made conflicts in Europe a rarity. A public which increasingly sees its armed forces as peacekeepers rather than as warriors, engaged in humanitarian or disaster relief missions rather than combat, finds it difficult to accept a reversion to the traditional practice of warfare. Moreover, most interventions these days are what we call humanitarian interventions. They are voluntary. No vital national interest is at stake, and the main motivation for governments is the moral argument that we are upholding human rights, not our narrow, selfish national self-interest and doing "the right thing". But that argument is an appeal to the emotions. Rational arguments in themselves are insufficient to mobilise public

1 The views expressed in this article are those of the author alone. They should not be construed as representing an official position of NATO.

opinion behind a conflict. They have to be supported by an emotional echo in public opinion. Everybody is familiar with the "CNN factor". Emotive images of human suffering, of amputated limbs in Sierra Leone, of raped women in Bosnia, of starving children in Ethiopia, ethnically cleansed Kosovars, all create the public pressure on governments to act. But we also know that emotions are the least stable basis for sustaining action once started. Like love, they can change from attraction to revulsion, very quickly, and with no intermediate phase. We have seen with the United States' mission to Somalia in 1993, or the Belgian role in the United Nations mission in Rwanda in 1995, situations in which public support for intervention can change dramatically when 18 US Rangers were killed in a firefight in Mogadishu, or 11 Belgian paratroopers were gunned down by Hutu rebels. Television showed the body of an American helicopter pilot being dragged through the streets - an image which American public opinion found as shocking, if not more so, as the thousands of starving Somalis before the US intervention. Strategically, nothing changed because of that incident. The United States was not losing, or was not winning any more than before that single casualty. The situation in Somalia was the same. The success of the operation was the same. There was no strategic reason to change the operation. None of the objective factors had been changed by that picture of an American helicopter pilot being dragged through the streets of Mogadishu. But because this intervention was based largely on the appeal to emotions, the idea that dictated events was not whether hungry people were being fed or warlords brought to heel, but whether Western soldiers should be required to sacrifice their lives in order to help other people. Once it became clear that interventions do not always earn the lasting gratitude of the very people that one is trying to save, popular sympathy can turn quickly to anger. In this case, the US intervention in Somalia was soon terminated. Its course had not been determined by how much the US was succeeding but by whether or not the TV pictures could sustain emotional sympathy for the Somalis.

We have a situation today where governments are using the language of moral purity to justify international interventions. Doing the right thing and upholding human rights have replaced territory and treaties as the spur to action. Tony Blair spoke of Kosovo as the first truly humanitarian conflict in modern history. But this emphasis on the "Just War" has cre-

ated a new situation. Today public opinion, and certainly the media and the multitude of NGOs, are focussing less on whether a conflict meets its goals but on how it is fought. The tactics are receiving more attention than the final score line. It is not enough to win. One must win in the right way. The problem here is that technology is not perfect or necessarily moral. The actual execution of a conflict will rarely meet the same high standards of the just war that has become the conflict's chief rationale. The just war concept insists that there must be absolute proportionality of means. Not one bomb more or one day more of operations than are strictly necessary to achieve a clear, pre-announced objective.

Moreover, the just war insists that there should be an absolute improvement as the result of fighting which justifies the cost that has to be paid and that the situation should show an immediate improvement following hostilities. It states further that there should be absolute discrimination between civilian and military targets so that only the "bad guys" get hurt and the "good guys" (or the innocent in the "bad guys" community) are all spared; or that conflict itself should be only a last resort after every other conceivable means of help have been tried and failed. But how can you prove that every other conceivable means have failed? There is always somebody who will argue that you should try the final, final visit to Belgrade to negotiate with Milosevic. In short, if international law (or, at least, the interpretation of international law of certain NGOs) runs too far ahead of human and technological possibilities, there will always be a danger of someone, somewhere accusing even the most reputable organisations, such as NATO, of war crimes and of failing to take all necessary precautions.

But, as there have been 100 armed conflicts since the end of the Cold War and as 80 of those have been internal conflicts, we are simply going to have to adapt to this modern situation in which basically we are fighting to uphold the rights of peoples rather than the rights of states. We are going to have to learn to better manage conflicts where popular support is based on emotions and on a view of the type of civilisation we want to live in. In other words, we act because we have a picture of what we believe is right, and because we want others to enjoy the rights and dignity of our civilisation, rather than because we have a clear idea of what we can realistically achieve in those countries where we are acting.

The key difficulty here is that there is a dichotomy between, on the one hand, somebody like Milosevic who is fighting for strategic objectives and western democracies that are fighting for moral objectives. Moral objectives are powerful mobilising factors but democracies are only willing to tolerate small costs. Public opinion demands the zero casualty war, in terms of the civilian population of the adversary or in terms of their own pilots. The objective is to come as close to zero as you possibly can. Success is judged as much according to proximity to that zero than according to whether you achieved your objective or not. If you go high above that zero, no matter how necessary to succeed in what you are doing, public support can collapse very quickly.

On the other hand, a dictator like Milosevic fighting for strategic objectives is willing to accept a high cost before giving in. He has no problem with his public opinion, at least, not one that he cannot control. This leaves him free to focus his attention and resources on influencing NATO's public opinion, safe in the knowledge that the same means of control prevent NATO from gaining access to his public opinion. Milosevic is helped by the irony that when you intervene against a dictator even the most radical opposition in that country has a tendency to side with the government in the name of the "union sacrée" or national solidarity. For example, the opposition leader Vuk Draskovic was not only in the Yugoslav government but, for a while at least, Mr Milosevic's main media spokesman for the conflict. Because the dictator is fighting for a strategic objective, to keep control of Kosovo, he is willing to absorb a great deal of damage. At the very least, it is a good bet for him to sustain some damage merely to test NATO's resolve. There is always hope that NATO's political solidarity will collapse before Yugoslavia's infrastructure. Dictators are able to make these brinkmanship calculations.

You have no certainty of being able to succeed with an air campaign in 78 hours, no matter how much you would like to. You have to use force for a long time both to demonstrate resolve and to allow time for force to produce its full impact. And this is the problem. The objective may be a limited one: Serb troops out; NATO troops in; refugees back. But what we discovered in Kosovo was that in order to achieve that extremely limited objective, we had to deploy an armed force normally reserved for a major international conflict. We started with 300 aircraft, of which only

50 strike aircraft, in the hope that a warning shot would be enough. Once Milosevic became ready to absorb high costs, we had to deploy five times as many aircraft and ultimately drop 23,600 bombs and missiles on Yugoslavia and attack a wider set of strategic objectives, including in urban areas such as Belgrade, in a campaign that lasted 78 days. We had to begin also to prepare seriously a ground invasion option, although thankfully, it did not have to be activated. In other words, military force cannot be nicely calibrated to strategic or humanitarian objectives. There is no discount in destruction because the objective is a morally superior one. You need a sledgehammer to crack a nut.

As a result, there is in the public view and the media a disproportion between the means and the end. Military force does not work in small packages. You either use enough to win, or you do not use enough and you lose. It was only when NATO realised that it needed to use enough to win that we succeeded in the final analysis. Vis-à-vis the media, this became a major problem because although greater force made the air campaign much more effective and hastened the achievement of NATO's objectives, it also appeared to be inflicting lasting damage on Yugoslavia and victimising the civilian population. It also increased the possibility and consequences of mistakes or "collateral damage". But using too little force at the beginning made NATO look ineffective. Many journalists, for example, declared from the outset that air power would never work. It was insufficient and too limited. Only a massive ground invasion would secure the objective. Unfortunately, from a public perspective, there is no happy medium here where you are using enough force to show concrete results while avoiding lasting damage to a country like Yugoslavia beyond the assets of the regime. It is either too much or too little.

Apart from the issue of proportionality, the next problem is that all conflicts today are fought by coalitions. Nations do not go to war any longer, at least not alone. But we have not yet discovered a patriotism for international organisations. When the United Kingdom went to the Falklands in 1982, there were probably many British journalists who thought it strange to go so far for a territory that many people in Britain had not even realised was part of the United Kingdom, let alone knowing anything about, but it was the nation, it was the flag, the

Union Jack, there was a patriotic feeling that few wanted to criticise. Some, of course, were more exuberant than others, particularly in the popular press, but there was a sort of a discipline that came from the fact that the nation was standing alone in a conflict situation.

But, in a modern day coalition operation like in Sierra Leone, or in Bosnia, or Kosovo, or East Timor, there are sometimes 30 or 40 countries involved. In such a circumstance, it is easy for the media to blame the international organisation for everything that is going wrong without being accused of patriotic disloyalty and not withstanding the fact that the international organisation is us and it only works if we take the decisions to resource it or if we are there to support it. The key challenge with coalitions is that there is not simply one public opinion to look after, your own domestic public opinion, but, as in the case of NATO and Kosovo, 19 public opinions. Another country's domestic problem rapidly becomes yours as well. Because, if public opinion in Greece had forced the government to drop out, we would have lacked access to air space and the use of the port of Thessaloniki. We could not have deployed troops in the former Yugoslav Republic of Macedonia nor could we have made the threat of a ground invasion credible to Milosevic, and that was one of the factors that made him give in at the end of the day. Because of the NATO rule of consensus, one ally's defection would have stopped the operation. So public opinion in Greece was potentially more important to us than public opinion in Washington. That is why Tony Blair spent more time out of the UK preaching the message in Brussels or in Germany or in France or in Chicago, as he did inside the UK, because in a coalition, somebody else's public opinion problem becomes your public opinion problem, and fast.

We live in an age where the media are more sceptical about governments, particularly in conflicts. Nobody could be proud of the way in which journalists were briefed in Vietnam. We all remember the "five o'clock follies" in Saigon, the absurd figures for the body count or the notion that those figures proved that the US was winning the Vietnam war. French journalists feel that they were grossly misled in Algeria in the sixties. After the Gulf War, after the Falklands, journalists believe they have ample reason to suspect that governments are not always telling them all of the facts. This is somewhat of a pity because governments are doing a

good job, much better than in the past, of giving honest, accurate information about conflicts, given the need to protect lives, operational secrecy and, as Clausewitz once said, the "fog of war". Even for the best people with the best technology it is sometimes difficult to know everything that is going on. But still there is this sense that what is said during a conflict cannot be trusted, that everything that comes out after the conflict must automatically be true by contrast.

There has been an example of this recently with Newsweek, which published a story which said that NATO lied in Kosovo because we did not say that only 14 tanks had been destroyed by allied air forces. This proved that the military campaign was a failure. I beg to differ. Whether we hit 14 Serb tanks or 140 tanks is irrelevant. The military campaign was a success and fulfilled unconditionally the three objectives that we set for it. But, how does Newsweek know that there were only 14 tanks destroyed? Did it have proof? No. It reports this because it believes that it has learned of a secret Pentagon report that says that we only found 14 Serb tanks after KFOR's entry into Kosovo. But does the fact that we may have found only 14 tanks (in fact we found 26) constitute absolute proof that only 14 tanks were destroyed? Not at all. There were 78 days of an air campaign. The Serbs had tank transporters. At night, or on cloudy days, they could easily take those tanks out, back to Serbia for repair. Serbs repair their equipment, like every other army. We never claimed, by the way, that we had destroyed 93 tanks; we claimed that we had hit 93 tanks, many of which are probably operational today. Regrettably Newsweek disregards the fact that we conducted a two-month investigation in which we looked at all of the aircraft camera footage. After seeing secondary explosions, where clearly a fuel tank had been hit because it creates a major explosion, in contrast to what happens if you hit a decoy, we concluded, based on four or five different but concording sources of information, that we hit 93 tanks. In doing so, we revised downwards our initial estimate of 120 tanks. We ourselves admitted after the conflict in September, having done an investigation, that we had not hit as many as we had hoped. But, because a magazine publishes that story, it immediately goes into every single newspaper and makes headline news because it is something that comes out after the conflict. Therefore, it must be more accurate than what came out during the conflict. Writing a column

based on the Newsweek story, but without bothering to check it for himself, the American journalist William Pfaff claims that because we got that figure wrong, then we must have got everything else wrong about the Kosovo conflict.

The fact is that there is a difference between deliberate deception and uncertainty. Because you are not certain about something does not mean that your are lying. It does not mean that you really know the figure but that you are being unkind to journalists by not revealing it. The fact is that we will probably never know how many people were killed in Kosovo. We will probably never know how many tanks were effectively hit or destroyed by NATO. We have done a study, based on a sound methodology which says that our best estimate is 93 and we will stick by that. But there is a tendency to believe everything that is said during the crisis has to somehow be corrected afterwards, even if manifestly the information which corrects the original information does not necessarily produce more truth. If anything, it produces less truth and certainly more confusion. Some journalists also find it easier to repeat what their colleagues are reporting than to go in search of their own stories and undertake original research of their own.

The next problem that we face today is that governments no longer have a monopoly over information. That is probably a good thing. The "man in the ministry" is no longer the man who keeps the facts all to himself. We have witnessed of late a proliferation of other information gathering sources. There has been the enormous growth in journalists and print and audio-visual media, particularly following the liberation of the airwaves, and the enormous reduction in the costs of research, printing and distribution. There are hundreds more journalists in the world today than just twenty years ago. It is much cheaper and legally easier today to set up a media organisation. We have the Internet, but also modern news-gathering technology, satellite phones, real-time transmissions and so on. We have also seen a fantastic growth in non-governmental organisations. There are now over 500,000 major multinational NGOs in the world, compared with only 5,000 in 1960. The United States alone has 365,000 NGOs, all of which have staff, resources and technical means to gather information. The issue here is that the production of information per se does not mean the production of more truth, but rather of more

opinion. It simply means that more facts, or pseudo-facts are constantly being churned out which governments and international organisations have to investigate. A spokesman today spends as much time analysing and correcting false information than actually putting out his or her own information and view points. The problem for the modern media is the increase in rumour over real information. For instance, in the United States, an individual named Matt Drudge has set up his own Internet newsletter. It first revealed the Monica Lewinsky scandal. However, virtually all of his other allegations have been found to be baseless. Yet getting the story right just once vastly increased his credibility with the media, who then felt obliged to report everything else he said.

The problem is that if television reports one story about a political or sex scandal, other networks have a dilemma. It is a rumour. They have no reason to believe that it is true. But it could be true. Any rumour could be true, even if the probability is low. And if they do not report it and another network reports it and later on it turns out to be true, they would have given a scoop to the competition. So what is the best insurance policy? Report the rumour. If it turns out to be wrong, who cares for others are also guilty of the reporting error? At the same time the news cycle moves on, another day, another story. There are no legal implications, no fall-out, no responsibility. Television, as a medium, has no past and no future. It is always the eternal present, what the BBC's Nik Gowing has called "the tyranny of real time", with no causality, no connection to what came before or what goes next. So everything is immediately important and a few moments later completely unimportant, contrary to our experience of real life.

During the Yugoslav air campaign, Belgrade's news agency Tanjug would regularly report that it had shot down six NATO aircraft and most networks would run with that immediately. It was sufficient that Tanjug should report it. And then the onus was on the NATO spokesman to spend hours waiting for the pilots to return, making sure that everybody had been interviewed about the operations, before being able to deny these reports. The press kept us tied up for hours with the simple checking and rebuttal of false information. Time that I could not spend getting the real information and trying to make sure

that it, and not rumour or false information, was dominating the headlines. This is going to become an increasingly difficult problem of crisis management in future. The longer you take to deny a story, the smaller the denial is. You need a microscope to find it when it eventually appears on the back page of the Los Angeles Times or the New York Times or whatever, several days later. The Yugoslavs, knowing that, used their Internet site to actually proliferate stories of bad information and all kinds of allegations which Western journalists would then pick up and play with in their reporting.

One of the features of modern conflicts is asymmetrical warfare which means that adversaries cannot beat NATO cruise missile for cruise missile. They cannot compete with us tank for tank. We had a massive superiority in the military field. Such a margin of technological superiority is essential because it enables you to win at an acceptable cost with minimal "collateral damage" and to protect your pilots in the process. But it is a public relations deficit, because it enables the adversary to portray himself as the victim. Milosevic wanted to be seen as defenceless in the face of brute aggression by the Goliath of NATO. He wanted the cure to become the story which is criticised and not the original disease, such as his own ethnic cleansing in Kosovo, which was the original incentive for NATO action. It is like these stories where the techniques that the police use to catch criminals become more the focus of public attention than the original crimes of the criminals themselves. He who controls the ground, controls the pictures, and this was the major problem that we had. We had nobody on the ground. In fact, I need journalists in my profession. I do not just need them to help me get my story across, but I need them to tell me what is happening. In Bosnia there were 3000 journalists on the ground throughout the NATO air campaign of 1995 which led to Dayton. I was in touch with them every single day. I was giving them information, they were giving me information. They were almost like a police force that could go to the scene of a car crash within ten minutes and objectively establish the facts (or at least ask the probing questions where the facts were not clear). For me, it was extremely valuable because they were faster than NATO soldiers or NATO satellites. Certainly faster than our intelligence community. When I hear that you csannot beat CNN, I agree. We were at a disadvantage in Kosovo because Milosevic made sure that there were no journalists there except

for a few that could be relied upon to portray the situation as near normal. There were a few true independents but they were in hiding and could not operate freely. There was consequently no police force on the ground to go to Djakovica after the tractor convoy bombing on 14 April and tell me immediately what had happened. There were only Milosevic's soldiers and Milosevic, controlling the ground, controlled the pictures. He gathered together groups of Western journalists in Belgrade, bussed them down to Kosovo. The windows were blacked out. They arrived in Kosovo and were allowed to film the tractor incident but nothing else. How I have wished that Western TV crews would only agree to participate in such bus tours if they can film whatever they want to and not only those scenes as directed by the Serb police. Minutes later the harrowing images were on TV all over the world. We lost 20 percentage points of public support in Germany alone, which it took weeks of hard effort to make up again. There was a sense that NATO was killing the very people that we were trying to save. What was incredible in all of this is that the only time Milosevic seemed to care about the human rights of the Kosovar Albanians was when he could exploit their deaths for propaganda purposes as if NATO alone were responsible for their suffering.

The problem with something like Djakovica is that it was not a manipulation. It actually happened, and therefore NATO could not deny it. But there was an obvious danger for NATO's public support if the only pictures that Western TVs were able to obtain - and broadcast - were those of NATO's errors and not those of Milosevic's crimes. Not only did this present a confusing moral picture but conveyed the impression of a moral equivalence between the Alliance and the Serbs - as if the crimes of the latter were somehow less serious because they had come in response to a NATO "aggression". But if TV shows the truth, it is not the entire truth. It is like a jigsaw puzzle in which truth consists of 1,000 pieces and you cannot know all of the truth before you have at least 50% of those pieces on the table. But the press, by concentrating on that one NATO accident, made it look as if the only thing that was going on was NATO killing innocent civilians. Before NATO acted there was no shortage of TV pictures of the situation in Kosovo but then the air campaign itself became the main story; and any military campaign removed from the context in which it is taking place will

seem heavy-handed and destructive. Milosevic was deliberately expelling many people, both before and after the Djakovica convoy incident. We had no pictures to show of that reality and where there are no pictures, there is no news. NATO needed to counter with its side of the story: burning houses, deportations, mass graves and then ask people to choose who is right and who is wrong based on presentation of a greater reality. We were not able to do so, because we had nobody on the ground to provide those pictures and therefore we could not create news out of what we were saying. A battle between pictures and words is like a battle of science and religion. My words were perhaps more descriptive of the overall situation than Milosevic's pictures, but who did the public find it easier to believe? Whereas pictures have the scientific ring of proof about them, words could be dismissed as speculation, rumour, the exaggerations of a hard-pressed NATO spokesman. In future NATO will have to devote far more of its military resources, such as satellites and drones, not only to look for military equipment, as necessary as that may be, but to gather evidence on what is going on on the ground. This may impose some difficult choices because sometimes it is unwise to let an adversary know what we know. If you produce too many pictures of a mass grave, Milosevic can send a bulldozer to the site like the Bosnian Serbs used in Srebrenica to try to destroy the evidence so that the Hague War Crimes Tribunal would have no proof and therefore no possibility of indictments for war crimes. Sometimes pictures have to be kept secret because they have a greater usefulness. Other times it was simply a problem of declassification, but there is no doubt: you can only fight pictures with pictures.

A dictator like Milosevic was not fighting NATO on its own terms, except with some erratic anti-aircraft fire. We were fighting him with weapons and he was fighting us back with pictures. We had no access to his public opinion. This was not a level playing field. Because of the Western media's obsession with fairness, Milosevic had totally free access to our media. Virtually every time I gave an interview, the BBC or Sky would insist that I be together with a Yugoslav spokesman. Nothing else would be fair or balanced. The media believe that it is only in the contradiction of two arguments that the truth is going to emerge, even if one is patently wrong and propagandistic. Does something called truth really emerge in the middle? Is the public really enlightened about an issue

by being exposed to contradictory arguments? Is balance - as a rigid notion - the best guarantor of objectivity? But that is a reality that we have to deal with because the media will not change its approach and I on occasion have used the argument of balance to obtain media access when I believed opponents were receiving unfair air time.

But we have to work harder in future conflicts to get access to our adversary's media. In other words, if Milosevic is playing asymmetrical warfare against us, why cannot we play asymmetrical warfare back against him, by also trying to influence his population, against what he is doing? I did appear on Serb TV many times, but as a hideous caricature of my real self. We tried the Internet to reach Serb opinion, because the Internet is meant to be the free media. The Yugoslavs have many Internet connections, but Milosevic recognised this and organised a systematic ping bombardment of our server that went on for ten days and totally incapacitated it with a virus, a sort of a Love-Bug from Belgrade. It took us a long time and several thousand dollars before we could fix this problem and as far as I am aware it is the first instance of cyber-warfare. In future we have to think more imaginatively about setting up our own radio stations, seeing how we can use technology to beam our pictures onto Yugoslav television. The technology is undoubtedly there to do this, for example, in morphing Western TV pictures onto local TV and gaining access to foreign airwaves. I am not talking about a NATO propaganda TV. I do not think that that would be particularly effective. What I am talking about is helping recognisably objective western media, for instance the BBC, or ZDF or Deutsche Welle to get access to Yugoslavia. That of course has to be one of our key priorities next time round. Neighbouring countries could be enlisted to set up transmitters (as Hungary is now doing to help the independent Serb media shut down by Milosevic) or we can make better use of nearby Montenegro. The Serb-language output on other international radio stations can be increased. In order to limit the pernicious influence of state-controlled media preaching violence, such as Serb TV, international satellite authorities, such as Eutelsat, can be asked to disconnect channels that refuse to follow standards of fair journalism.

A further challenge is revisionism. Controversy does do not stop in the media the day that the air campaign actually ends. If anything, it

increases afterwards. One of the problems is that because so little is actually known during the conflict itself and because you cannot give a complete view of reality at the time, there is a view that the reality you have given is wrong and has to be substituted by a totally different reality once the conflict is over. It reminds me of the phrase by Jean-Paul Sartre that life is lived forwards, but understood backwards. Admittedly, there is some truth in this. After every conflict a great deal of information comes out, and, for obvious reasons: access to the territory, investigations, research, interviews with people that one was unaware of at the time etc. This can be positive to the extent that we better understand that what we have seen on TV is not the real story. Indeed, if you watched television during the NATO air campaign, you will have seen the history of a failure. You would have seen NATO's mistakes, the infamous "collateral damage". You would have seen Milosevic responding by evicting thousands of refugees, creating in many a mind the impression that NATO bore the main responsibility for turning a humanitarian problem into a humanitarian catastrophe of biblical proportions. You would have seen the air campaign lasting 78 days, the length itself becoming a media issue as crises make minutes seem like hours and days like months. You would have seen innumerable talk-shows with talking heads, for instance retired generals and admirals, recommending an entirely different course of action but claiming credibility from their past responsibilities and expertise. The only person I know who had the courage to say 'mea culpa' was John Keegan, a British military writer for the Daily Telegraph, who publicly acknowledged that he had been wrong in claiming that air power alone would not win a conflict. Most people watching TV would have had the impression that the air campaign was going wrong and NATO was failing. The round the clock coverage and hours of reporting failed to convey the most elementary fact: that NATO was in reality succeeding, that images of failure hid a more profound reality of alliance solidarity and resolve. TV failed to predict the final outcome - the public was thus misled.

Television has a lot of space to fill up, sometimes. Without much actually happening. Have you ever watched BBC TV on a rainy day in the summer when it is covering a cricket match? And the BBC have arranged to be at Lords or the Oval for the day, but there is no play. And so you watch veteran commentators whose job it is to just talk. In order to keep

the show going, praying that at any minute the rain will stop, the sun will come out and the players will come back on the pitch and therefore allow TV to show the action rather than the commentary. But if there is no action to supply the news, their commentary and speculation become TV's substitutes. At the beginning of the conflict I suddenly saw television bureau chiefs from Bangkok, Sydney, Tokyo and New York turning up at NATO Headquarters. In other words, many TV channels decided that for 78 days nothing in the world would happen. History was stopping everywhere else in the world. There would only be one story and that story would be covered 24 hours a day. The Kosovo air campaign was important, but in my view, it did not merit 24 hour coverage. It was not that important. But how many people can remember what else happened in the world during those 78 days? None else seemed to exist because it was not on TV.

There were consequently two conflicts: the virtual war that we lost, and the real war that we in fact won. Because what you saw was, Milosevic not giving in, NATO not winning, NATO making mistakes, the innocent dying because of the "collateral damage", the refugees pouring over the frontier. And of course, this is very difficult to understand. How is it that the solution is worse than the problem? NATO intervenes to stop ethnic cleansing and what do we get? More ethnic cleansing! The problem here is that any conflict is based on the assumption that the situation has to get worse before it can get better. You use violence to stop violence and the temporary result is more violence. But that, like sometimes, a painful medical operation, is the only way that you can get at the real problem and therefore get to the real cure. So the initial result of conflict is, what a mess! And it was very easy, even for people who supported NATO, to watch CNN and say, "Oh my God! This is going terribly wrong. I did not think this was what was going to happen. This is becoming an absolute mess. Stop!"

But we did not fail, we won. Why did we win? We won because of all of the things that TV did not show. We won because of our determination, we won because of Milosevic being less determined. We won because we had secret negotiations with the Russians. We won because we had a secret option on ground troops. None of that appeared on television. Am I blaming television? No. TV cannot show things that it

cannot film. But the tip of the iceberg which is filmable is not the reality of the iceberg. It is what is below the surface that determines the iceberg, it is shape, it is direction, it is ultimate survival. If you are a historian today, you would probably say that most of what television showed was secondary. It was certainly dramatic according to the old adage, "if it bleeds, it leads." The Djakovica tractor convoy incident was undoubtedly a setback and a tragedy. But, it did not stop Milosevic, it did not stop NATO, it did not stop the Albanians, it did not affect the outcome of the war. It was a neutral fact, highly dramatic, highly visual, but not a shaping factor except unless NATO governments had allowed themselves to be swayed by it to call a halt to the air campaign. The bombing of the Chinese embassy was again, highly visual. It was news because it was so unexpected. I complained to one TV producer, "Look, you have been showing this Chinese embassy bombing for five days, every single hour on your channel. And during this period Milosevic has expelled 200,000 refugees." His reply was: "We did refugees last week." It is important, but because it is an ongoing process, it is not news. More often, what is news, is not always what is important. It is like a journey. You may take your car up into the mountains one weekend and then you turn round and go back. You take the same road, you do the same number of kilometres, you look at the same scenery, but going back it is a totally different journey. Looking back we see the same things but in a different order and with a different perspective.

So there is a good side to looking back. But the problem with revisionism is that it starts on the basis that because everything that was originally said has to be wrong, everything that comes out later has to be right. But one uncertainty is no better than another uncertainty. For example, revisionists have said that because "only" ± 2500 bodies have been retrieved from mass graves in Kosovo, the figure of 10,000 that many Western leaders gave must be wrong. Thus NATO must have exaggerated the deaths to justify its intervention. But as long as the digging continues and more bodies are found, the figure of ± 2500 will change even if 10,000 is not reached. There are also over 5000 persons still missing who are not believed to be in prison in Serbia. Moreover, does an intervention require a proven death toll in excess of 10,000 to be justified? Is not a gross violation of human rights justification enough?

In any case, the important thing is to save those that would otherwise be killed were no intervention to take place. That is certainly what NATO has done in Kosovo. But the media focus only on the costs of action and action always has costs. The same commentators, who usually push for military action when it is a conveniently abstract notion, rarely ask what would be the situation if NATO failed to act; or whether an imperfect air campaign is not better than no air campaign at all. How many refugees would we have in Albania and Macedonia today, how many thousands of people would have died in Kosovo if NATO had not acted? How much would the region have been destabilised?

If this is the media environment constraining Western military actions, how is NATO to respond? One of the ironies is that the Alliance spent fifty years rehearsing to deter wars. We had almost no experience in how to fight them. Therefore, even though we were a military organisation, Kosovo was a novel experience, like when you read a manual about how to do something, but then actually do it for the first time. One of the key lessons is that we have to be better at finding out information. If you do not know about an atrocity, the media can accept a degree of uncertainty because NATO was obviously not involved. But the media, rightly, expect you to explain your own actions. One of the problems that we had, particularly with the Djakovica tractor convoy incident, is that it took us five days to clearly establish what had gone on. And we made the worst mistake of giving information before we knew the actual facts. It is always tempting with the media putting you under pressure to say something, just to give the journalists something to write about. It is also easy to believe that because your organisation is acting for the best of motives, you cannot be responsible for something so bad as hitting civilian tractors. Once you give out contradictory stories, you look as if you have got something to hide, or there is some sort of cover-up going on. So what you have to do is impose discipline on all of your spokesmen. You cannot be silent, that is worse than anything else. But it is important to compose a line with no speculation incorporating what you know. And you can say, “when we know more, we will tell you”.

Having made the promise, however, to tell the truth, you must tell the truth. Transparency has to apply 100%. If you are not willing to confess your errors, you will never be believed when you claim successes later on. I promised the journalists during the Djakovica tractor incident that we would present the facts. The suppression of information is precisely the way to keep the story going. The worst thing you can do is either break your promise to supply information, or let the facts come out little by little. Either you say nothing or you say everything. There is no intermediate ground. We managed, fortunately, to get this message across within the Alliance. As a result, an airforce squadron spent the weekend looking at video tapes of the Djakovic tractor convoy incident to explain what had happened. At the time this was more important to NATO's success than flying missions. An attitude of win first and investigate and explain afterwards is unsustainable. I regret that it took a major public relations disaster for us to learn that lesson, but at least we learnt that lesson before it was too late. Once we provided a full explanation of the Djakovica convoy incident, I was asked comparatively few questions about it. On one of the last days of the air campaign, a NATO bomb landed very close to an apartment block in a town on the border with Montenegro. By that time, our information system was working very well. I had somebody at every military headquarters in the chain of command to collect the information fast and to move it up to NATO HQ in real time. As a result, I was able to begin my morning briefings by volunteering all the relevant information about this incident, including the aircraft involved and the size of the bombs, before the journalists were even aware that it had happened. In doing so, we prevented the media handling of the incident rather than the incident itself from once again becoming the story.

Obtaining information is all the more difficult when you are no longer a direct observer of or participant in events. The essential action was at NATO Headquarters until March 24th. At that time the emphasis was on diplomacy. I could come out of a NATO meeting and say to a group of journalists, "look, I was there and this is what happened" and as I was a direct observer. And then on March 24th, the action moved from Brussels to Kosovo. I was not in the planes, or on the ground. Decisions are made also as much in capitals as at NATO HQ. The spokesman becomes a journalist dependent on his sources to supply him with the essential daily facts. Truth is a jigsaw puzzle. There are moments when

you do not have all of the pieces of the jigsaw puzzle, but you could say, "Aha, it is a Mercedes, it is blue, there is a beautiful girl sitting on top of it and it is outside a chateau with a blue sky." I do not have all the details, but I have enough to know that that is the picture. But if you go to a briefing with so many holes in your jigsaw puzzle that you do not even know that it is a Mercedes or you do not know the colour of the sky, then you are in trouble. One of the things that spokesmen in conflicts certainly have to do is improve their ability to know what is going on. But it will always be a matter of judgement to determine what is true from what is false. A spokesman sometimes has to use his gut reaction. One example: I was under mounting pressure from the media to show that we were being effective against Serb tanks. One day, I saw some intelligence reports that we had attacked a Yugoslav army brigade exposed on Mount Plastrik and destroyed 30/40 tanks. Initially it was heartening news. Finally, I could say to the journalists that were being effective. Because it is important to remember that in conflicts, effectiveness impresses the media far more than moralising rhetoric. I phoned about 50 people, I looked through all of the intelligence, I wrote a detailed script. At five minutes to three, I tore it up. I had plenty of information, but I did not believe it. I did not have the feeling that it was right or added up particularly in view of NATO's previous difficulty in hitting large numbers of Serb tanks. I am glad I did not give that story, because after the war KFOR entered Kosovo and went to Mount Plastrik, and did not find any damaged tanks. So, one has to exercise one's best judgement as to what is true or not, and err on the side of caution. If unconfirmed information is nonetheless given, it should always be sourced (e.g. "refugees have reported that ...").

As far as pictures are concerned, NATO should be wary of showing videos of gun camera footage again during its news conferences. Because what, sometimes, is your biggest success story can also be your Achilles Heel. During the Kosovo conflict, like the Gulf War, video pictures of bombs travelling down laser beams and hitting the target, with incredible accuracy, gave the impression initially of a military well in control. But at the same time, these videos created the impression that this is not real, but rather a computer game, virtual war. But such video clips only show a fragment of a reality that continues. Because, there could be a person behind that building, on a bicycle, who is going to

get killed, and therefore it will be collateral damage. But the video stops, because the camera is blown up on impact, so you do not see what happens next. This creates in the public mind the impression of perfectionism by NATO. Then suddenly, along comes the Djakovica tractor convoy incident: real children, real blood, real disaster, and people think, "Oh my God! What a shock, it is a real war, we have been lied to, we have been deceived." So, no, let us not try to create an image that we cannot substantiate with reality. It is better to actually declare your faults at the beginning and therefore not disappoint anybody than try to overplay your success, because the mood then, of disillusionment, of shock, will be all the greater when mistakes occur, as they invariably do.

Finally, the key issue is education. Wars do not come out of nowhere. But public opinion is only aware of your involvement in a crisis the day you start bombing. In other words, public opinion sees this crisis only in its most extreme manifestation, at the final point, whereas the crisis may have been going on for years. In the case of Kosovo, there was one year of diplomacy with negotiations in Rambouillet and Paris. But the public sees none of the good things that you were doing as reasonable human beings to stop the war, but only the 78 days of controversial things that you do to finally achieve your diplomatic objective through the use of force. This absence of context fosters the belief that, because you are using extreme means, you must be the moral equivalent of your adversary. But, democracies do not become like their adversaries just because they use occasionally extreme methods like force. They still remain democracies and still very different. Therefore, it is important to educate your public into all of those complicated realities of what you are doing and why you are doing it. TV with its obsession with the immediate drama of the moment does not have time for context or background. It focuses on "what" but rarely on "how" or "why". If you show Djakovica, it is of course terrible, but if you explain why NATO pilots were flying over Yugoslavia in the first place at three o'clock in the afternoon, what had gone before, what would happen if you were not acting, what is going to come afterwards, then it is all very different. Because that is the one thing that your adversary is not doing. He in fact is doing the opposite. Whereas success for NATO lies in creating the broadest possible grasp of context linking to the present or the past history of the conflict and prospects for a future settlement, Milosevic's tactic is exactly the

opposite. It is to make an absolute of secondary incidents and convey that they are the only important reality, i.e. NATO is killing innocent civilians. So you have to educate and not only inform.

It would be ideal to begin the education before the air campaign. That, of course, is not realistic, because force is not inevitable until the moment it is used. During my briefings I tried hard to do this. I had a team of assistants every day. I asked them to look into Milosevic's record. I wanted to know how much money he was spending on his special police and to know how much ethnic cleansing there was going on in Kosovo before NATO started bombing. I wanted to know about the circumstances in which Milosevic took away the autonomy of the Albanians ten years ago. It is essential to factor these things in, because it is only if people understand the context that they will excuse you for your mistakes.

Ultimately, media campaigns do not win conflicts. Diplomats, politicians and pilots do that. But a bad media campaign will and can lose you a conflict. Therefore, there is nothing to be ashamed about at being organised. PR is often a dirty word when applied to conflicts. But the fact is that conflicts represent an extreme activity and anything which is extreme creates extra-dimensional public opposition. All kinds of people will oppose you in your own society, not only your adversary. Indeed, it is very difficult to know in advance of a conflict who your supporters and opponents are going to be. Conflicts produce strange alliances of people and no few surprises. There is nothing wrong with advertising, providing it is truthful and it does not lie or mislead about the product that you are offering. But if you do not organise a media campaign properly, even though you may have the finest moral cause in the world, you are never going to be able to deal with that opposition effectively and not even if, like NATO, you are ultimately able to prove you were right. But that can take years as critics will not claim NATO's air campaign was justified one year ago until NATO forces are able to leave Kosovo as a democratic, multi-ethnic, prosperous society. The media are very good at constantly moving the goalposts for judging success - from the return of refugees one minute to the promotion of inter-ethnic reconciliation the next. It is much easier to achieve physical goals, like the return of refugees, than moral or spiritual ones, like

ethnic harmony. In conclusion, military victory is in itself not enough to carry conviction. Without a well-organised media campaign, it is all too easy to lose the peace; and with it the definitive verdict of history.

# Air Power and Coercion

*A P N Lambert*

## Preface

The year 1997 was an interesting juncture from which to write my original thinkpiece on coercion. It followed the 1991 Gulf War, and Operation Deliberate Force – the coercion campaign against the Bosnian Serbs in 1995 – but preceded both the Kosovo Air Campaign, and the several coercive attempts on Saddam Hussein in the late 1990s. While my own analyses, observations and experiences have largely reinforced my thesis and this requires little revision, we should all note with approbation the conversion of many opponents to the recognition that Air Power has a distinct,[1]even "independent",[2] role in shaping world affairs, and that, while its military dominance remains unassailed, it will be the closest thing to a politician's "space invaders" yet devised – lots of fun, a few heart-stopping moments, but little personal risk.

However, Operation Allied Force did highlight practical constraints on the use of Air Power as a coercive tool. Despite the thunderous successes of the Gulf War and the rapier jabs of Deliberate Force, many European politicians still had reservations over its use, - perhaps because they retained an image of Air Power from the Strategic Bombing Campaign - many casualties and only slow successes. Many were not only unconvinced that Air Power could be used coercively, they were hostile to even trying. Although I, for psychological and military effectiveness reasons, stand entirely by what I have advocated about the need for the application of coercive force to be overwhelming, and then to threaten even worse, I fully recognise that political pressures mean that this military effort may be diluted, perhaps even severely, by political caution. Sadly, for the reasons given below, this caution actually prolongs the conflict, it suggests lack of commitment, gives the enemy reasons for hope, and actually increases casualties overall. In his perceptive analysis of Kosovo

Professor Mason has documented some of the political realities, quoting Meilinger, who put it to airmen frustrated by the political constraints,

> *"Tough. Grow Up. That's Life".*[3]

But even if the military ideal cannot be fully realised, it should not stop military officers trying to understand it, or even advocate it. I offer this piece for those that care to try.[4]

## Introduction

> *They knew everything about us. There wasn't anything they didn't know. If we lit a cigarette, they could see it. God knows what they were dropping on us. All sorts of bombs. We didn't expect that intensity. We couldn't fight planes with mortars. And our anti-aircraft guys couldn't do anything. …. It felt like we went over every inch of Kosovo. We spread out, one of us every hundred meters, but they just picked us off. Bosnia was a spa compared to Kosovo. Everywhere there was a smell of bodies … I'm going to the woods, where everything is calm. I'm going to spend 10 days there, thinking of nothing, alone. I want to be alone.*[5]

The warfighting paradigms of the Cold-War era require considerable revision if they are to have utility in the turbulent inter-state and intra-state relations of the new millennium. The geographical imperative - to defend West Germany as far forward as possible - that the Cold War placed on commanders required massed armies and a defensive style of warfare more redolent of WWI than the manoeuvrist attacks of WWII. Now, thankfully, all that is past, - for the time being at least. But abrasive foreign policy did not die with the ending of the Cold War; inter-state rivalries, ethnic frictions and belligerent criminal activities have, arguably, increased in number if not in intensity since the ending of bipolar equilibrium. Moreover, the pre-democratic anarchic nature of much of the world suggests that there are still great opportunities for despotic adventurers to exploit their weaker brethren using military muscle. While we may see relatively few eruptions such as the Falklands or Gulf Wars or Kosovo in the immediate future, we should ponder that each event largely caught us on the hop.

Air Power's utility in this simmering cauldron of world affairs is now acknowledged by all but its most extreme detractors. Its speed of reaction is highly responsive to political needs; it commits and risks the minimum number of personnel; it can deliver enormous punch from which it is almost impossible to hide; and can do so now with a precision that both opens up new coercive possibilities and minimises casualties.[6] As the USAF School of Advanced Air Power Studies paper has argued,[7] the Balkans Air Campaign, executed under the codeword Operation Deliberate Force, showed that Air Power is likely to be a key, if not decisive, ingredient in any future operation. Indeed, in Operation Allied Force it was almost the only instrument!

If force is to be used, current Western sensitivities demand that its aim should fall far short of total military defeat and outright military occupation. Although Total War can never be discounted, the use of force in the future will probably be in the context of a more subtle, and hence coercive application.

Coercion, in its strict interpretation, focuses on the use of force alone, and it is true that in every international relationship where one side seeks to influence another's behaviour the threat of the use of force is always present, either overtly or implicitly. However, in reality, states almost always prefer other instruments either as precursors to the use of force, or, at the very least, in parallel with it. A Western response to a crisis is thus likely to be both ad hoc and multi-faceted, involving humanitarian aid, quiet diplomacy, persuasion through the megaphone of the media, opprobrium through the UN, economic sanctions and, if all those fail, then the threat or the use of force. The interaction between the panoply of persuasive instruments suggests that they should never be examined in isolation; it is their combined effect that provides the leverage and, if we are to comprehend their impact, as perceived by individuals in the target state, then we must consider them all as part of a whole.

Many theories abound which attempt to explain coercion. We can easily recognise a successful campaign, but deriving a theory that enjoys universal support is fraught. To the left of arc is the Schelling approach of graduated response, where costs are increased slowly, allowing the victim time for sober reflection, and logical compliance. At the right of arc

stands Douhet, with his massive punishment strategy, designed to destroy civilian resolve. Whether these two strategies lie on the same spectrum or are, in reality on different axes is still an open question. My fundamental assumption is that war is, however, an event between human beings, with individual and collective aspirations, and with individual and collective risks.

For the purposes of this chapter the word coercion includes both compellence and deterrence, but the focus will be primarily on the compellent aspects. The chapter does not attempt to argue the pros and cons of any particular taxonomy; but it suggests a more objective view of the processes involved. It reviews the historiography and concepts that underpin coercion, and finishes by suggesting some coercive lessons from recent campaigns. In parallel, it reviews some of the deficiencies in extant work and applies psychological and decision making principles to the mechanics involved.

## Use of Force

In its most stark form force destroys something, thereby depriving an opponent of its use, and hence limiting his future courses of action. At one extreme, the total destruction of the Grande Armée in 1815 finally thwarted Napoleon's ambitions and it laid France open to occupation. Conversely, at the other end of the spectrum, the application of even a relatively small amount of force may be enough to persuade a victim that any further resistance is futile, and he then elects to comply in order to avoid further attrition. Examples of such coercion include the "gunboat diplomacy" of the colonial era, or even the Air Control of the Middle East in the 1920s. Such a differentiation echoes the thoughts of earlier nuclear theorists.

> *Thomas Schelling, in his 1960s analysis of nuclear power, distinguished between "brute force" and "coercive force". "Brute force" referred to those cases where military power was used to destroy something, purely to deny it to an adversary, or to exert force in such a way as physically to prevent a certain behaviour.*
>
> *"Coercive force", on the other hand, referred to the use of violence as*

> *a way of hurting or punishing an adversary, and there was, therefore, an implicit bargain between user and victim to deter or compel a certain type of behaviour.*[8]

If we are to understand the use of force it is necessary to distinguish the primary purpose of an operation - whether it is principally to Deny a victim his military options or to Coerce him.

## Denial

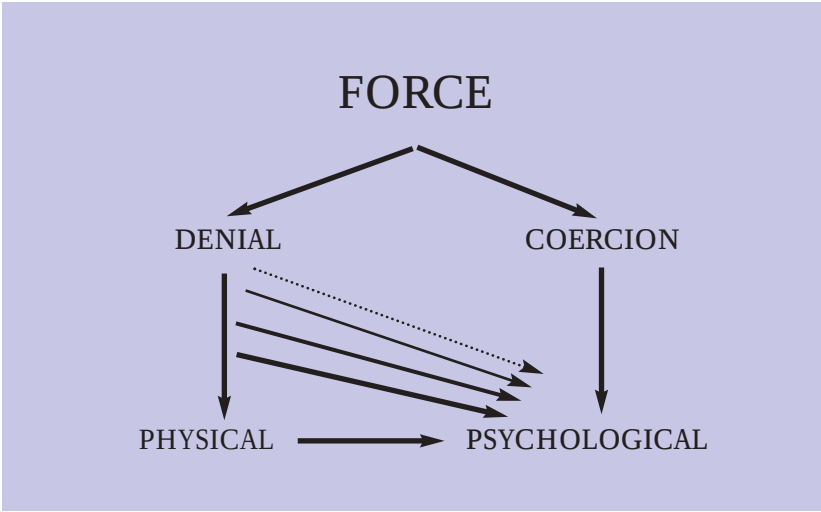
There are times when it is irrelevant whether an enemy is coerced or not - if he is disarmed then, although he may still be vindictive, he is still disarmed. Denial, in the form of constraint or destruction, aims to reduce an opponent's war-making capability or potential, either by physically preventing movement or deployment, or by irrevocably and significantly altering the balance of power. This could be achieved through the wholesale destruction of his forces, but the enemy's physical options could also be denied by more subtle means, such as the containment of forces through destruction of bridges, the sowing of minefields,[9] or by confinement through blockade. Denial prevents the victim from waging war as he intended and, by blocking off his options and thwarting his expectations, it inevitably also alters the victim's hopes of success. Perhaps from enduring physical damage on his lines of communication, from watching his command functions paralysed, or from seeing his means of waging war destroyed, the victim is forced to recognise that the balance of power will be so irretrievably altered, that he will lose to his opponents, and can do nothing. A good example of a Denial campaign is the attritional warfare of W.W.I where the intention on both sides became the destruction of the enemy's army. Once the army had been destroyed then the road to the capitol would be open and the state was vanquished.

Often unavoidably, past Denial campaigns have degenerated into a slogging match, an attritional process that continues as the pendulum of advantage swings from one side to the other, until the balance of power finally becomes irrevocably altered. Indeed, many Denial campaigns degenerate still further, into a match where the contest is less over who achieves a military advantage, more over which side can tolerate pain the most. It becomes rather more a contest of stamina - who can endure the

losses for longer. In effect, not which side can win, but which can avoid giving up for longest.

Denial campaigns thus frequently achieve a momentum all of their own and can become difficult to terminate, even well beyond the culminating point of defeat. The reasons are many. First, is the element of self-delusion. For good psychological reasons commentators frequently become fixated by losses, rather than the more important factor, what forces remain. For example, commentators waxed lyrical over losses on (e.g.) the first day of the Battle of the Somme, but neither they nor the public seemed interested in the more important criterion - the balance of forces left. With this fixation, propaganda machines go into overdrive as they talk up enemy losses while minimising one's own. Nations thus become deluded into thinking that the enemy is close to exhaustion, he cannot sustain further losses and victory must, therefore, be just around the corner. Second, habituation to own losses can take place. Provided the loss rate is not perceived to be too severe, and the cause deemed important enough, then populations, leaders and even military personnel adjust to a slow rise in casualty rates.[10] Third, as the war progresses, leaders become progressively identified with the outcome of the war, and surrender without success is seen not only as a waste of the country's investment in the war, but more importantly, as a betrayal of the martyrs who have given their lives in the cause. A willingness even to consider negotiations is seen as debasing their sacrifice. - "How can we give up now after so many gave so much?" - Finally, at a personal level, failure in the war may also be regarded as a failure of the government, perhaps with dire personal consequences for its leadership. For example, how could the senior leadership of the Nazi party have entertained any thought of surrender? - To have done so would have been tantamount to signing their own death warrant.

Denial is fundamentally a physical act, but inexorable attrition seems to portend inevitable defeat. Progressively and surreptitiously, this produces a psychological reaction, and hence a measure of coercion. Pungently, even in WWI, capitulation occurred far short of annihilation of the German army. Indeed, the German army felt it had been stabbed in the back by its political leadership. The psychological result of denial is critical to understanding the processes. At the very least a denial tactic that




physically constrains produces frustration and fatigue. At the other extreme, an attritional campaign becomes progressively coercive as casualties mount; and the slow but sure destruction of the military power-base, and the prospect of inevitable and impending defeat, are themselves highly compelling, even far short of total destruction. Of course, in some circumstances surrender may not be an option and evidence suggests that where an enemy feels that there is no way out he may, like a cornered animal, fight fiercely to the death. This was the stark choice the allies gave Hitler, a choice which inevitably meant the allies would have to march on and storm Berlin.

Denial also has another unfortunate side-effect in that the sheer size of the operation, and the scale of destruction, may also produce considerable collateral damage. Homes, personal possessions and even items of great sentimental or cultural value are often destroyed en masse. This in turn produces a sense of outrage, cries for revenge, encouraging even the war's detractors to rally to the cause, and making the rest determined to fight all the harder. The Blitz on London in 1940 produced such an effect.

Denial then is simple – simple to comprehend and simple to measure.[11] However, if the study of warfare is confined only to Denial, the most

physical of wartime phenomena, then it rather misses the point. At all levels, war is fought by human beings, - each with his own motivation, each with his own hope of success and fear of failure, each with his own prospects of reward and fear of retribution, and each with his own ability to influence friends and neighbours. And it is based on these, and even more subtle and diffuse beliefs and perceptions, that an individual will fight and die, or give up in surrender or flight. Erroneously, the quality of a force is often measured in numbers and weapons when, in reality, morale, resolve and commitment are often far more decisive. Indeed, no two apparently evenly matched armies ever fight to mutual destruction; at some point one side just gives up leaving the other victorious.

## Coercion

In his analysis of coercive methods, Alexander George distinguished between "coercive diplomacy" as an alternative to "military strategy".[12]Indeed, many commentators have suggested that coercion is somehow different to "real" warfare. This somewhat arcane distinction is difficult to draw, and is more in the mind than in reality. Indeed, Clausewitz accentuated the fact that force is always used as an instrument of policy, and that the aim of war itself is to "compel the enemy to do one's will". Force, or the threat of the use of force, is used right across the spectrum of conflict and to seek to draw a line between the use of force for "coercive diplomacy" and war fighting rather misses the point. Force is always used to compel; in reality, the purpose of "war fighting" is less to annihilate, but far more to coerce - be it to persuade the enemy to comply with demands, to compel an army to surrender, or just to run away. Warfare is coercion. Warfare is violent and bloody and individuals almost always experience strong emotions and trauma when confronted by violent death.[13] Those already dead have no vote; it is those that are still alive who decide when and how to surrender. And it is the manipulation of that reaction that lies at the heart of coercion. Denial focuses on death, while coercion focuses on the living.

Fundamentally, Coercion is about persuasion, and it is hence a psychological activity.[14] It seeks to: dissuade an adversary, to persuade him to do what he would prefer not, or to desist from what he is currently doing. But, like beauty, coercion is in the eye of the beholder. From an analyti-

cal point of view, it is the perceptions of the victim that matters, and not the intentions of the coercer. At one extreme, the atomic attacks on Japan at the end of WW II were highly coercive. Hiroshima was the HQ of the Japanese 2nd Army; it was a road/rail/port complex, but its destruction could equally easily have been accomplished in just one raid by 210 B-29 sorties.[15] But the destruction of Hiroshima and Nagasaki by single weapons produced profound psychological intimidation. It demonstrated not only Japan's profound impotence to do anything in response, but also her abject vulnerability for the future. The implication was clear: the next would surely fall on Tokyo,[16] and hazard the life of the Emperor. These supreme events, together with other misfortunes, combined to put inescapable pressure on the leadership to surrender. Equally, however, it gave them a welcome pretext for so doing. At the other end of the spectrum, coercion is the only realistic option open to terrorists who could not engage in classic warfare.

Presentationally, coercion enjoys an advantage over Denial. Denial removes or destroys an object; the choice of target rests with the assailant, and responsibility for any casualties or collateral damage is his alone. Coercion, on the other hand threatens to destroy something only while the victim remains in his delinquent state. Thus the burden of choice passes to the victim - cease your criminal activity or suffer the consequences.

But coercion is not just a one-way street, with coercer and victim at either end. In a coercive process there are many different audiences, each with his own agenda and perspective. The coercion may have to gain acceptability from a whole range of third parties, ranging from the publics of the coercing state, to other allied leaderships and their publics, to supra-national organisations, and finally even to the patron(s) of the victim state. Finally, but by no means least, the coercer will need to establish his credibility more widely if he wishes to be taken seriously in the future by any other putative malefactor, who will be watching the current contest with interest.

## Deterrence

The most effective form of coercion is a stated (or even implied) threat that does not have to be carried out because it is believed and feared, thereby deterring an adversary from challenging. Because of this, the success of a deterrent threat frequently goes unrecognised since the object of the threat may perhaps be deterred even from contemplating a particular course, or he may reject it at an early stage, and in consequence appears to do nothing. British naval policy of the Victorian era to maintain a standing navy twice the size of the next nearest competitor was a manifestation of such a policy. Indeed, the success of a deterrent could well be measured by the paucity of challenges against it.

Unfortunately, unless the asymmetry of power is vast, deterrence based on conventional weapons is inherently contestable, and an adversary may have few reservations in reacting aggressively to test and explore the credibility of a threatened use of force. Indeed, just like a naughty schoolboy, a belligerent may try to assess what constraints are operating and where the point of punishment really lies; there will always exist, therefore, a tension between a threat and calling its bluff. In Bosnia, for example, the Serbs frequently tested the UN's resolve, to find what level of atrocities or military activity was likely to precipitate UN punishment. At Srebrenica, in particular, the West had implied that it would react strongly if this "safe area" was attacked; this, the Serbs did not believe. In the event, NATO Air Power attacked just two tanks and then largely stood by while the town was overrun, the men massacred, women raped and the town ethnically cleansed. This reinforced the Serbs' perceptions and gave a "green light" for an attack on the other safe areas, Zepa and Gorazde.

In simple theoretical deterrent contests, such as exemplified by the "Chicken" game, one contestant can gain psychological dominance over the other by various subterfuges which demonstrate an absence of constraints, - one such subterfuge might be to say that "I have an incurable disease and will die anyway". The essence is to demonstrate that there are no constraints upon me, whereas you have everything to lose.

An adversary's reaction to a deterrent posture may be far less in contemplating a trial of strength, but rather in identifying and exploiting a deter-

rer's weaknesses. One example of an unsuccessful deterrent strategy, but a successful coercive strategy by the opposition, was the 1982 terrorist truck-bombing of the US Marine barracks in Beirut, with the unexpected and sudden loss of 300 men. The US presence in Beirut was designed to demonstrate US power, to overawe and deter the factions then operating in the Lebanon. In response, Hizbollah's aim was simple: to puncture the myth of overwhelming US power by exploiting her extreme sensitivity to human losses, thereby compelling her to withdraw. At no time did Hizbollah seek to alter the balance of power vis-à-vis the USA, since to have done so would have been somewhat futile.

Both Bosnia and the Gulf War demonstrated a further phenomenon, that of self-deterrence. Given the West's sensitivities not only to receiving casualties, but in inflicting them as well, the use of force may backfire, and become counter-productive. Western public opinion would have little sympathy for a posture based on chemical warfare, but even in conventional warfare, where enemy casualties became too large then the West may back down. In Bosnia, a sensitivity to casualties, and a desire to remain on the touchline, deterred the UN from applying its Air Power effectively. In the Gulf War the perceived scale of casualties amongst the fleeing Iraqis on the Basra road produced a popular revulsion, and the "massacre" was an ingredient in the early termination of the conflict.

## Compellence

Coercion, poorly targeted, or applied too slowly, can exhibit many of the disadvantages of Denial, and can often embroil one more deeply in a war. Unfortunately, a slow pace means that the target may have time not only to habituate to the pain, but also to take effective countermeasures. The graduated response strategy of Rolling Thunder against the North Vietnamese fitted this model, and there is considerable evidence not only that it failed either to coerce or deny, but also that it gave the population time to become hardened to the bombing, time to upgrade their air defences, time to put their industry on a war footing, time to garner allies and time to mobilise. Unfortunately, in the highly complex world of UN operations and multi-national forces, constraints frequently swamp capabilities, and what was conceived as an overwhelming demonstrative application of coercive force often serves to say more about a coercer's

constraints, weaknesses and lack of resolve than it implies about his determination. NATO's raid on Udbina airfield in 1994 gave such a message. The damage inflicted was minimal, and easily repaired. In contrast, what was supposed to demonstrate NATO's overwhelming power probably said more to all sides about the constraints under which NATO laboured, giving a perception of political weakness and lack of commitment. The effect was thus the opposite to that desired; and like Srebrenica, it encouraged the belligerents to redouble their efforts.

Moreover, the early stages of the 1999 Kosovo conflict conformed to this model. An ill-considered and effete opening offensive:

> ….. *with the implied goal of merely inflicting enough pain to persuade Milosevic to capitulate. It was expected by US and NATO leaders that he would settle very quickly.x*[17]

Unfortunately, overwhelming multinational constraints, a reluctance to use force, and a child-like belief in the omnipotence of air power produced an initial campaign with no clear aim, no focus and virtually no prospect of success. At best this was the re-incarnation of Imperial Gunboat diplomacy, but unfortunately this time the savages had more than just a few spears. In the event the Serbs thought they had a good chance of success, provided they could stay the course.

Compellence is harder to achieve than deterrence since threats that failed to deter are unlikely to compel, and victims are normally willing to pay higher costs to retain possessions than the assailants are to take them. Moreover, because it is psychological, coercion is also heavily time-dependent. The instantaneous loss of the 300 men at the truck-bombing in Beirut was far more stressful than the same loss spread out over several months. The British experience in Northern Ireland also amply demonstrates this point.

Some military activities which pass for coercion have, in reality, no intention of compelling; their aim is to establish a future credibility, or just to bolster the morale of own or allied personnel:

> *The most obscure form of hurt is pure punishment, perhaps where a threat has failed and force is used to punish the adversary to re-establish the credibility of threats for the future.*
>
> *Punishment not designed to re-establish credibility is mere revenge and has no utility of itself, except perhaps for the satisfaction or morale of those inflicting it.*[18]

In a similar vein, domestic politics often become a more important factor outcome than the coercion of an opponent, and in the period before an election governments have been known to execute raids on delinquent states to demonstrate their standing on the world stage, rather more than in the hope of achieving a desired coercive outcome. Such operations should not really be judged as genuine coercive attempts, - nevertheless, an examination of the use of coercion as an electoral tool might, on the other hand, prove interesting to a researcher interested in conspiracy theory!

## Mechanics of coercion

At its simplest level, that of the individual, coercion is typified by a "carrot and stick" approach, of inducements against stressors: rewarding compliance, while threatening to punish intransigence. Individuals are highly impressed by asymmetries of power and personal vulnerability, with consequent implications for their own future and life expectancy. The use of force, or even the threat, is always accorded a high priority in personal decision-making, and it inevitably produces a significant psychological reaction. The reaction varies with personality type, motivation, perspective, and the perceived vulnerability of the victim. Where force is targeted directly, a reaction might vary from submission and compliance, to outrage and a desire to fight back at all costs.

Psychologically, victims are far more impressed by a forthcoming stressful event than they are by an equivalent inducement. In other words, an inducement has to be very large to match a smaller but credible physical threat. - How much would you have to be paid to box with Mike Tyson? Similarly, fear of personal failure is often more important than hope of success. Success, once achieved, rapidly becomes the new norm, whilst failure carries huge and enduring penalties.

Unlike denial, which concentrates on damage done thus far, coercion accentuates prospective damage. Moreover, rates of destruction are more highly regarded than levels of destruction, and the victim's perception of future events is derived from extrapolation.

At the individual level the coercive processes can be inferred from classic psychology. At the collective level, the processes are not so straightforward. Four principal decision-making theories enjoy currency: realism, with decisions taken by a unitary rational actor; organisation theory, where decisions are more the result of "turf battles" between bureaucratic self-interest groups; social psychology, where decisions are the product of small elites, who brainstorm ideas; and cognitive psychology, where decisions are taken by individuals each of whom is subject to stressors.[19] Regrettably, the chapter cannot give space to weigh the theories, rather, it will blend the salient points of each, and examine how coercion has impacted on decision makers.

If stress is the prime agent of coercion, then violence is its prime instrument. An offensive that seeks to persuade without violence will have to offer very strong inducements indeed or it will most likely fail. Similarly, a threat of violence without the substance is not likely to enjoy much credibility. More likely, it reveals weakness – weakness that can be exploited.

## Asymmetry

Effective coercion is also not about a fair fight. To be successful, a coercer needs to demonstrate the asymmetry of the situation, of his overwhelming power and total invulnerability, to force the perception in the mind of the victim that the coercer has the initiative, and that the opponent is utterly defenceless. The effect of this stark asymmetry is not new. Rommel made the famous remarks that:

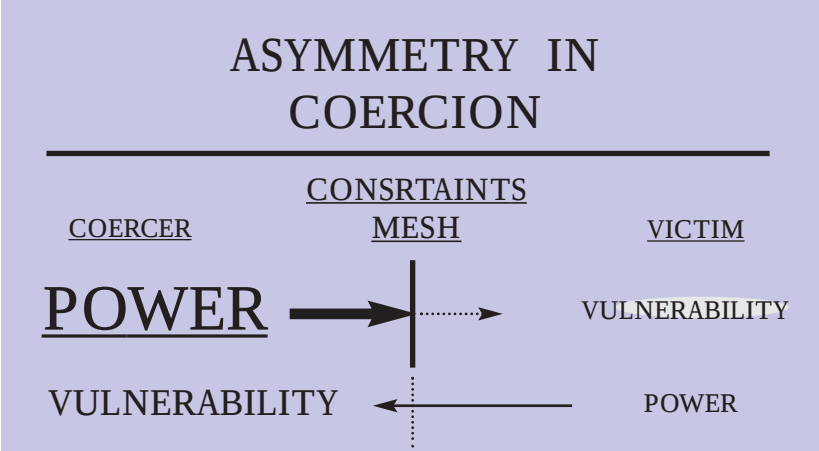
> *....anyone who has to fight, even with the most modern weapons, against an enemy in complete control of the air fights like a savage against modern European troops, under the same handicap, and with the same chance of success.*[20]

*The enemy's air superiority has a very grave effect on our movements. There's simply no answer to it.*[21]

In the 1991 Gulf War the Iraqi soldiery faced a similar imbalance. As the Coalition's growing air superiority demonstrated, Iraqi forces could do little to prevent allied air power from having free rein across the whole country; they were incapable of preventing aircraft operations, and unable to prevent aircraft from attacking targets at will. Even their best efforts seemed impotent. In contrast to the Vietnam War, where aircraft losses had been significant, coalition losses in the Gulf were measured in fractions of one per cent.[22]

But in both these circumstances the Allies enjoyed overwhelming power, and the few vulnerabilities were largely mitigated by a commitment that would tolerate substantial casualties. However, in operations where commitment is low, or the constraints imposed are high, then the tables may be turned. The coercer's apparent overwhelming combat power could become progressively attenuated as if the capability was passed through a mesh. Meanwhile, his force deployment may itself offer a vulnerability ripe for the picking. - In Bosnia in 1995, for example, UN forces were taken hostage as a counter to the very limited NATO bombing. Asymmetry of power alone is thus not a very effective predictor of coercive outcome, and any putative coercer needs equally to examine the balance of vulnerabilities and the relative constraints for himself and his victim. Similarly, conventional balances of power can be misleading since alternative means of fighting may also render simple calculations of power obsolete.

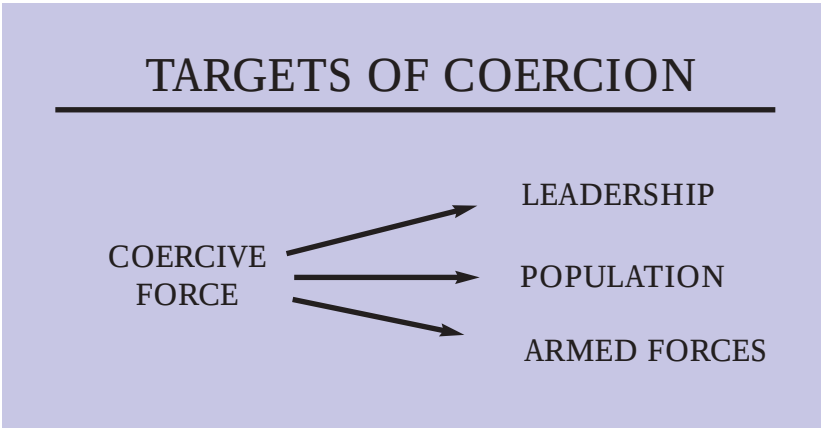
In Kosovo in 1999 the Serbs soon realised the West's overwhelming Air Superiority. However, the small scale of the offensive and the circumscribed target sets seemed to offer hope. Only once the constraints were progressively removed could the full might of NATO be brought to bear.




Selecting a target for coercion

Coercion can only be effective if it targets individuals that can affect the outcome. Historically, coercion has been regarded as focusing on one or more of 3 groups of the population.

Hiroshima targeted the leadership, the Strategic Bomber Campaign of WWII was originally conceived to target the morale of the enemy's population, and the Gulf Air Campaign proved most effective in destroying the resolve of the Iraqi Army.



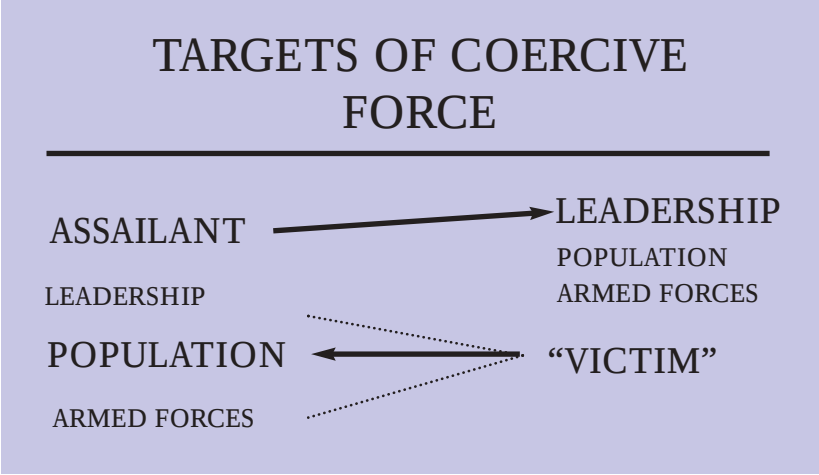
The effectiveness of coercion rests on an understanding of the decision making and psychological processes involved: on deciding whom to hurt and what potential destruction the particular victim will find unbearably painful. The "whom" requires an objective assessment of who are the true power brokers. Who in the target group has the power to respond in the desired way, and has the power to carry the oligarchy with him? To take an obvious example, in the final stages of the Pacific War in 1945 did the US seek to coerce the emperor, the political leadership or the Japanese army? Similar choices would have had to have been made against communist states, where factions in the communist party may have been more influential than a political figurehead. Similarly, in Iran Ayatollah Khomeini would probably have been a more lucrative coercive target than the nominal government. In Kosovo, who was the real target – Milosevic, the party apparatchniks, the people or the army? Certainly the pain was widespread:

> *By the end of the seventh week, there began to be reports of Yugoslav officials openly admitting that the country was on the verge of widespread hardship, due to the mounting damage that the campaign was doing to the nation's economy. … The destruction of one factory in Krujevac … resulted in 15,000 people being put out of work, plus 40,000 more who were employed by the factory's various subcontractors. By the time the campaign had reached its halfway point, the bombing ….had deprived more than 100,000 civilians of jobs.*[23]

> *Yet a third factor may have been mounting elite pressure behind the scenes. … Serbian military leaders had begun sending their families out of Yugoslavia, following a similar action earlier by members of Yugoslavia's political elite.*[24]

## Conter-coercion

It is important to remember also that while an assailant is focusing on his target audience, whichever that might be, the nominal "victim" is almost certain to attempt counter-coercion. Probably, because of the likely asymmetry in conventional power the victim may use methods other than military force, or even other forms of military power, such as WMD




or guerrilla tactics, the use of ballistic missiles, laser weapons or even info war.

And, since Western democracies are susceptible to persuasion, the most profitable target may be judged to be the population. So, while the US was busy coercing the North Vietnamese leadership through bombardment, Ho Chi Minh was busy coercing the US population via the Media.

An attack on the population or the armed forces would normally eventuate in pressure on the existing leadership to surrender or comply, but this is not inevitably true. In 1917, the Germans helped the Bolsheviks undermine the existing leadership, thereby substituting a non-compliant leadership with a compliant one.

Selection of the most lucrative group is difficult. Pape argues that attacks on civilians are unlikely to be effective:

> *Social scientists have long studied the effectiveness of both threats to civilians ("punishment") and threats of military failure ("denial") for deterrence. Punishment threatens to inflict costs heavier than the value of anything the challenger could gain, and denial threatens to defeat the adventure.*[25]

> *The evidence shows that it is the threat of military failure ..... and not threats to civilians, .... which produces the critical leverage in conventional coercion.*[26]

Indeed, while leaderships and forces have proved susceptible to coercive force, populations frequently have not. The reasons perhaps lie not only in the size of the target audience, but, more importantly, in the fact that the population's demotivation is often difficult to translate into a desirable outcome, especially if the target state is a dictatorship and, in surrender, the dictator is possibly facing his own demise. In Hitler's case it is likely that he would have accepted almost unlimited destruction of his population before he agreed to surrender. In any case, deliberate attacks on non-combatants are now clearly considered unlawful except with the possible exception of reprisal. For the West then, attacks on non-combatants are unlikely to be acceptable; however, our sensitivities makes our civilians an attractive option for others not fettered by the rule of law. Indeed, the SCUDS fired against Israel in the Gulf War almost unhinged the Coalition, and the War of the Cities in the Iran/Iraq War was certainly a factor in bringing it to a conclusion.

But anti-leadership strategies can also be unpredictable. Against Qaddafi, the 1986 bombing raid of Libya seems to have had mixed results. Anecdotal evidence suggests that the accidental death of a young girl - "one of my daughters" - in the Azziziyah barracks did more to persuade him of his personal vulnerability - with the result that he quickly retired into the desert. That said, in the aftermath of the attack terrorism did not decline but actually increased, culminating in the bombing of Pan Am 103 over Lockerbie two years later. Whether this was because by then he felt far less vulnerable, - since it had become clear that no further attacks would be countenanced by the US Administration, is not certain. Similarly in Kosovo, it is possible that Milosevic only capitulated once he felt that he and his family had become vulnerable, less to the bombing, but rather more to the mob rule that did indeed eventually oust him from power.

In the Gulf War the de facto power brokers were the thousands of individuals in the Iraqi army who decided to desert, surrender or just run away. It mattered not a jot what the Ba'ath party wanted, or what

Saddam intended, the power to continue the war had largely passed to the mass of the soldiery. And it is doubtful that they were concerned whether Kuwait could or could not be retained: what mattered to them was primarily their own survival in the face of the huge asymmetry of power demonstrated against them, amplified by the coercive Psywar that moulded Iraqi soldiers' perceptions of their personal vulnerability.

### Victim's perceived vulnerabilities

Having selected the target group, there is then a need for an assessment of the victim's vulnerabilities - what does he value, but more importantly, for what is he prepared to make any sacrifice? Maslow, in his study of the Hierarchy of Needs drew attention to the most fundamental requirement for every individual, that of the actuality (or illusion) of security. Weapons have always challenged individual and group securities which is why coercion applied to threaten the individual is always highly influential, with the degree of coercion proportional to the perceived risk posed.

The sense of vulnerability will clearly differ from one individual or culture to another; determining it is one of the more difficult assessments to be made, and is without any guarantee of success. For example, unitary rational actor might be persuaded by devastation of his infrastructure since this would make life intolerable for his people, and costs would outweigh any anticipated benefits. Conversely, a despot might find that attacks on his population were perversely beneficial - they might focus the population's anger elsewhere, even reduce the number of mouths to feed/support, and provide a cause célèbre in the media battle. Certainly, Mohammed Fara Aideed seemed keen to exploit such a concern in Somalia.

Pape has argued that exploiting vulnerabilities is not the prime determinant of success. In his analysis the successful coercer should target the enemy's benefits, not his costs:

> *The key to success is.... the ability to thwart the target state's military strategy for controlling the objectives in dispute.*

> *To succeed the coercer must undermine the target state's confidence in its own military strategy.*
>
> *Once a state is persuaded that objectives cannot be achieved, levels of costs that were bearable as long as there was a chance of success become intolerable. The target then concedes in order to avoid suffering further losses to no purpose.*[27]

Pape's model combines tens, if not thousands or even millions of individuals into a single anthropomorphic entity, a "unitary rational actor" that, in reality, does not exist. The "state" does not have "a" view or "an" opinion. Some individuals will be persuaded others will not. The key is in compelling the power brokers - who may, or may not, be the leadership, and who may, or may not, have a single view. However, if frustration of benefits is the only measure then it is difficult to see why the Japanese did not surrender far earlier than they did, when it became clear that their aims had been thwarted. In fact, they gave up only when the failure could no longer be hidden and costs became unacceptable.

Groups, of course, have their own internal dynamics; under mildly stressful conditions a group often presents a united front and speaks with a single voice. However, as the pressures mount, small groups tend to become more cohesive against a common enemy, while larger units fragment, and may ultimately even compete against each other. But even cohesive groups are rarely entirely objective. Dominance competitions, or factional self-interest pressures mean that the decisions may not be rational, weighing costs versus benefits. Even the view of a small elitist group is not entirely logical, since the leader can assume an overwhelming control of decisions.

Against leaders, or small groups such as the Tikriti Clan that supports Saddam Hussein, tailoring the coercion is difficult:

> *Predicting the response of any individual to coercive pressure is a highly subjective exercise at best because it turns on estimating the balance of incentive between the coercer and the target.*[28]

This unpredictability means that leadership strategies can be fraught with danger. One option would include targeting the leader's self worth: his perception of immortality, - of how history will regard him, and whether he has brought honour, or disgrace, upon himself and his peers. Decapitation is another coercive option. One could argue that none could have been worse than Hitler, and his removal would have placed a more compliant leader in power, who could then be compelled through a sense of his own vulnerability. However, even a successful decapitation strategy is fraught. Killing the leader might not produce compliance but might equally likely precipitate a sense of outrage, and the replacement of a known rogue by one that was even more extreme, - and who may incidentally have less control of the reins of power. For example, had Saddam Hussein been killed during the Gulf air war, there would have been at least a chance that he would have been replaced by his heir apparent, the arrogant Uday, with almost totally unpredictable results.

Recent revolutionary changes in the modus belli suggest that certain non-violent coercive mechanisms may also be highly persuasive. While non-violent weapons cannot produce such immediate and decisive effects to challenge security, they can however have more long term surreptitious threats that affect the individual's perception of his longer term prospects. For example, an information warfare weapon that targeted a dictator's bank accounts and demonstrated that his retirement security blanket could be removed might be highly influential.

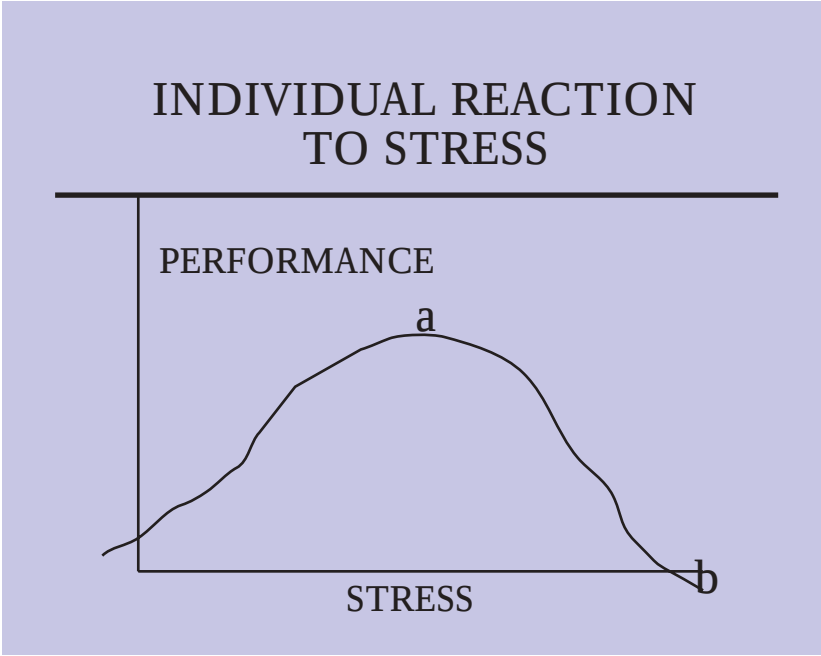
## Application

Since coercion is inherently a psychological mechanism, the application of stressors needs to be considered.

Incremental Force. Schelling's concept of an incremental application of force is highly theoretical, and assumes complete rationality on the part of the victim - somewhat difficult in the stresses of war! It is difficult to find a campaign where it has succeeded; but worse - it's employment has frequently led down a cul-de-sac or up an escalation ladder.[29] Indeed, the evidence from the Rolling Thunder campaign against Vietnam suggests that the initial graduated response strategy produced results the opposite of those intended. In early 1964 McNamara directed the JCS to develop

a programme of "graduated overt military pressure" which it was believed, Hanoi could not withstand.[30] It began on 2 March 1965, and built up progressively with ever increasing intensity. Why did it fail - since it demonstrated capability and resolve, and allowed the victim a chance for rational calculation of losses vs. gains? Perhaps the answer lies in the psychological process. Selye's General Adaptive Syndrome explained that as stressors mount, so too does performance, with the individual achieving a peak at "a" on the graph below. However, more stress, beyond the critical level cannot be dealt with by the individual, and faced with competing demands, he loses rationality, and his performance falls, ultimately to a point of confusion - "b".[31]

I argue that coercion, which is fundamentally the application of stress, should produce a similar effect. Thus, if this is true, as the total coercion increases so too would the performance of the target audience. And there is considerable evidence to support this. In London in 1940 the relatively slow build up to the Blitz allowed Churchill time to prepare his pop-



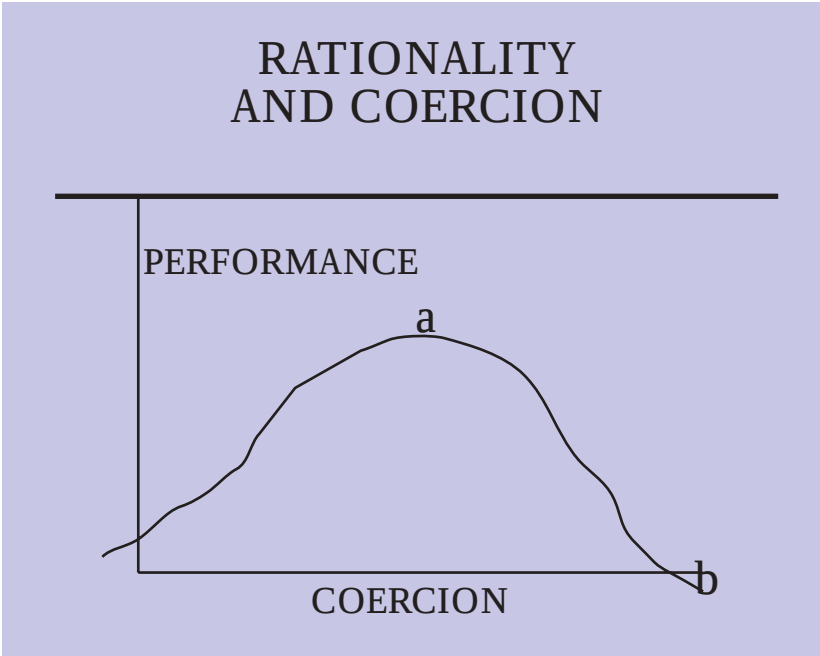
ulation, time to pass emergency legislation, time to encourage longer hours of work, time to deploy his air defences and scope to demonise the Nazi threat. Moreover a similar process seemed to be at work in the early stages of the Kosovo conflict. An ineffectual opening gave the Serbs hope, not doom.

During the employment of the Schelling strategy in Vietnam a similar phenomenon seemed to be operating. Attacks grew in intensity, and the target area chosen was gradually moved further north.[32] However, the graduated response had little effect on North Vietnamese resolve, war effort or support for the Vietcong. Indeed, realising the air war would be severely limited, "Northern leaders used the air offensive to create popular support for the war."[33] Indeed, Hanoi dispersed its oil reserves and evacuated urban centres. "Rolling Thunder's gradually increasing severity acclimated the North Vietnamese to the campaign..."[34] "In terms of its morale effects .... the US campaign may have presented the [North Vietnamese] regime with a near ideal mix of intended restraint and accidental gore."[35] These analysts agree with my contention, reinforced by events in Kosovo, that Incremental Stress actually improves the performance of the target audience by:

- Giving the victim opportunity to take countermeasures, and to habituate to the stress.
- Giving a Sense of Purpose.
- Externalising the threat.
- Encouraging the population to rally round.

In sum, it can prove counter productive, and may be just what the victim leadership wanted.

Taking the argument one stage further, and continuing to apply sound psychological stress principles, while it is true that the victim reaches a point of maximum performance at point "a", it is also the point at which the victim is most focused on the task in hand, and his rationality is maximised. The victim is at the edge of a cliff. Despite his best efforts, one more hard push and over he goes! Provided it is clear to the victim that the coercer can, and most probably will, apply further stress then the victim should be at his most compliant. That said, for all the reasons given




above, he may be unable to act rationally and compliance may only be achieved once the victim has descended into psychological confusion. Evidence from the Iraqi POWs suggests that the bombing had certainly taken them to this point, depicted by "b" on the graph.

According to one specialised clinic:[36]

> *The Iraqis had been exposed to conditions specifically designed to lead to the development of Combat Stress Reaction (CSR). The incredibly intense and successful allied air campaign subjected many Iraqis to extraordinary stressors, including the constant fear of imminent death, frequent witnessing of the deaths and injuries of comrades, sleep deprivation, lack of food and water and disruption of command and control channels. Any of these circumstances separately would be expected to predispose a soldier to the development of CSR while their combination would multiply the risk.*[37]

> *All the EPWs [POWs] reported ... anxiety, depressed mood, sleep disturbance and fear. Other CSR symptoms reported by most of the EPWs included intense memories and dreams, exhaustion, irritability, guilt ... noise sensitivity, disciplinary problems, psychomotic disturbances, dissociative slates, poor concentration and constricted affect. Homicidal ideas were expressed by half of the EPWs ... to kill their own officers.*[38]

Unfortunately, it was not possible to quantify the level of trauma, nor to correlate it against particular attacks. Nevertheless, it was clear that all had been exposed to frequent bombings; several POWs indicated that bombings had occurred almost continuously. The least frequent was every two to three days. Living conditions were miserable with little food or water, and starvation was common. Soldiers lived in small groups, they often witnessed death or injury and medical care was largely non-existent; there was a marked schism between officers and enlisted soldiers. Soldiers were asked to rate their combat effectiveness at the start of the ground war; all replied they were at 0%.

Many methods of coping were employed: by far the most common response involved religious practices and prayer. Another common sustaining thought was of family members. POWs often expressed fear for their family members, indicating that they would have deserted except for anticipated reprisals against loved ones'.[39] The strength drawn from their small "buddy" groups was important to sustain them but they openly discussed surrender and a third actively considered suicide.[40]

Fear of the allies grew progressively and eventually outweighed the fear of death squads; at least 160,000 soldiers deserted. Until G-Day few prisoners were taken, largely because of the Iraqi obstacles and minefields, but once these had been breached the trickle became a flood; 87,000 gave up, most without a fight.

### Anticipation

Coping with stress is always difficult. One method in everyday use is to try and predict events and the likely level of pain that will have to be endured. Preparation of women for childbirth is an example. As stress

mounts, individuals progressively refine the model and attempt to predict the outcome. Where an individual anticipates success he commits himself more fully to the enterprise, and vice versa.

> *The reasons for this may lie in the concept of self-efficacy. …. The theory is founded upon the simple postulate that people's perceptions of their own capabilities influence how they act, their motivation levels, their thought patterns and their emotional reactions in demanding situations. Perceived self-efficacy is high when the individual believes that he can perform an act or a completed task. It is low when failure or inability is anticipated. Self-efficacy has nothing to do with the outcome of the behaviour; it is purely to do with whether or not people believe that they could be successful.*
>
> *Even where self-efficacy is raised by bogus feedback about performance success, it will still engender greater effort in subsequent similar tasks.*[41]

The effect of such a perception is that where a leadership or a group believes in their prospects of success, they are likely to invest heavily in terms of effort, treasure and commitment. Conversely, where the perceived self-efficacy level is weak then the group is likely to be far more diffident over the chances of success. In each case the predictions often become self-fulfilling prophesies. For the coercer, the task must be both to recognise the level of self-efficacy, and to demonstrate clearly to the victim that his perceived level of confidence was entirely misguided.

Studies by Professor Quester parallel this concept and suggest that victims are also very impressed when their expectations are not met, since anticipation is a key to the victim's psychological defences.[42] If the level of destruction fails to meet his expectations, the victim is likely to be pleasantly surprised, more resolved to resist, and thus less likely to be coerced. It reinforces his self-efficacy prediction. Conversely, if the level of destruction is patently far greater than he expected, then his ability to cope is inadequate, his credibility as a leader suffers and his expectation of the future is that it is likely to be more painful than he can tolerate. His belief in himself is thus in question, and so is the rationale upon

which he based the investment of time, effort and money. He has thus become far more susceptible to coercion. The V1 and V2 attacks against London in 1944 were militarily insignificant, yet they brought an outcry amongst the population which felt secure in its expectation of a rapid victory. The SCUDS in the Gulf produced a similar effect.

This expectancy theory together with the stress-curve hypothesis argue that, the initial application of force needs to be very severe and well beyond the victim's expectations. Equally importantly, the victim must believe that the worst is still to come, and what will happen next will be utterly intolerable. This is fundamental; if the victim believes the worst is past then he needs only ride out the storm, and wait for it to pass. However, if the worst is yet to come then the future is bleak and unpredictable. - "Surely he wont go as far as ... (destroying A or B etc.)?" (It is vital, therefore, not to let the victim know when the coercer is approaching the end of his target list!)

## Uncertainly of success

Unfortunately, coercion is, like any psychological event, not susceptible to measurement nor can one always have a high degree of confidence in its predictions. It is fraught with uncertainties, both for the coercer and his victim. Indeed many, if not most, air campaigns begin in the belief that they can quickly coerce the target group, but the absence of any response seems to suggest that another remedy is required. The first week of Deliberate Force probably fitted this mould as did the early stages of Kosovo. If a coercive aim fails the putative coercer may then have to fall back to a Denial strategy, where the outcome is physical, and the effect of the destruction can be more easily and more accurately measured and judged.

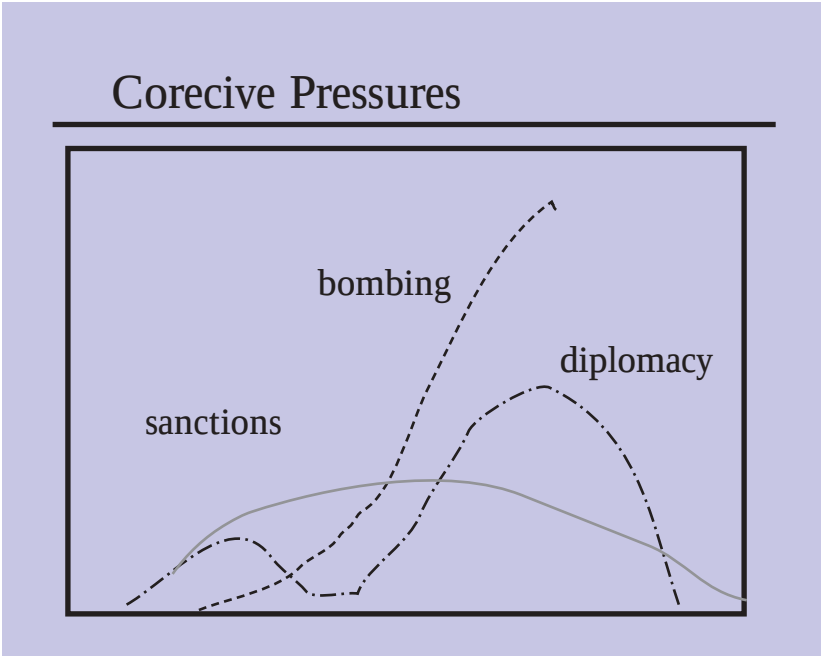
However, this is not to argue for the end of a coercive campaign; far from it. Whilst protecting one's own population against counter-coercion, the Allied campaign should be re-examined to check the enemy's true expectations and where he is on the stress curve. As the campaign continues the analyst should look for tell-tale signs – desertions in the army, rioting on the streets, public disagreements amongst the hierarchy are all indicative. An opportunity will probably open up, allowing extreme pressure to be brought to bear to bring the campaign to a close.

### Achieving compliance through a concatenation of pressures

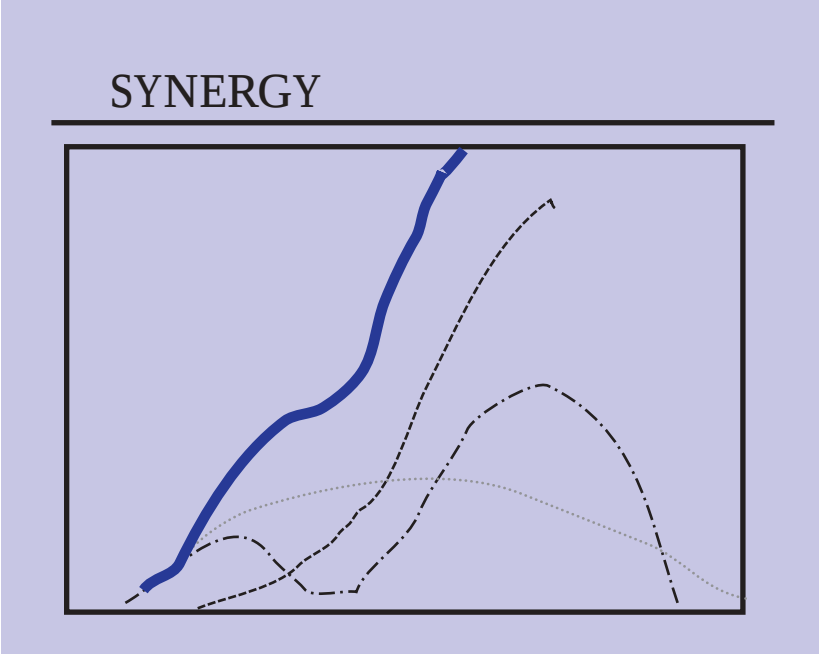
Analysis of Operations Eldorado Canyon and Deliberate Force suggest that successful coercion often hinges on the synergy obtained from the confluence of a variety of pressures.[43] For example, for President Qaddafi in 1986, the combined effect of Soviet displeasure, Libyan military unrest in the aftermath of the bombing, improved European counter-terrorist activity, a dramatic defeat in Chad and the real prospect of another raid, combined synergistically to persuade him to reduce his support for the terrorists.[44]

In Bosnia, the cumulative effects of economic sanctions, the bombing, the consequent inability to deploy troops, the increasing military successes of the Moslems and Croats and the strong diplomatic pressure all peaked at the same time; they combined to convince the Serbs that the high-water mark had passed and the tide had now turned.

The secret is to phase the pressures so that they peak at the same time, with synergistic results. The sanctions have reduced the stockpiles, and what transport can get through has to carry food, not weapons.



Meanwhile a lack of weapons, combined with the widespread destruction of the bombing means that what forces there are left cannot move to the battle areas. Failure in battle has psychological effects, and both patrons and the mediators apply progressively increased pressure. Fear of imminent failure is highly stressful, and the leadership, given the right inducements and pretext, elects for a settlement.




In the mind of the victim, therefore, a coercer seeks to induce a number of perceptions:

1. That the victim is impotent to withstand the onslaught.

2. That all options are moving against him. And the pressures are mounting synergistically:

   First, the victim should feel isolated from his Patrons.

Second, not only is there now no prospect of victory or success, but the tide of war is moving inevitably in favour of the enemy.

Third, that the victim's losses will grow and any temporary territorial gains are likely to be lost.

Simultaneously, the coercer should mount a Diplomatic Offensive.

3. If his predicament is now hopeless, and his aims are thus impossible. Why then should he or his people endure any further pain?

   Given the awful alternatives, then perhaps, with suitable inducements and pretexts by the assailant, compliance becomes the least bad option.

4. But the assailant will need to avoid the prospect of humiliating the victim since this is likely to produce a hardening of attitudes, culminating perhaps in a fight to the death. A way out must be available.

## Terminations

However, the victim's increasing commitment through costs already incurred, or "sunk" costs, together with the identification of the government with the war, means that termination may prove almost impossible for the existing leadership, if the war just continues as it is. Termination may then still need to be achieved by other means. One example is a psychological blow - a devastating overwhelming shock leaving no room for alternatives - or perhaps a cataclysmic event that provides at its very least a pretext for surrender, as, for example were Hiroshima/Nagasaki.

Air Power has a positive and powerful role in direct coercion throughout the spectrum of conflict. Bombing, by itself does not create a political solution to the dispute but it can contribute powerfully to coercion and even break a deadlock. The key points are as follows:

1. In addition to evaluating a victim's value sets, the coercer needs also to assess the target's expectations.

2. Demonstrative use of force has rarely proved successful. It often says far more about a coercer's resolve and constraints, and allows the victim to identify a coercer's weaknesses.

3. Incremental use of force also allows the victim to habituate, to prepare his populace, and to deploy countermeasures.

4. Threats by the coercer to use force will be tested; a bluff will be called.

5. A victim may tolerate considerable pain if he believes victory is within his grasp.

6. To coerce successfully, an assailant needs to apply decisive (high intensity, short period) force which far exceeds the victim's expectations.

7. The victim needs to be convinced that worse is to follow, and that tomorrow's pain will be intolerable.

8. If a coercive plan seems to fail then the campaign should continue, emphasising the denial aspects. The balance of power should be altered so that the victim's prospect of victory progressively evaporates. This has two outcomes:

    a. Remotivates the victim's adversary and provides him with the political acceptability for negotiations.
    b. Imminence of defeat convinces the target that further pain is not worth enduring.

9. The effectiveness of the campaign is likely to be magnified by synergy with other pressures:

    a. Diplomatic Pressure, especially through patrons.
    b. Sense of Isolation
    c. Inducements.
    d. Victories by the target's enemy.
    e. Prospect of further coercion.

10. However, a significant, highly coercive, cataclysmic event may still be required to persuade the victim to cease operations.

Finally, coercion is like the relationship of schoolmaster and schoolboy; it is not a one-shot event - the schoolboy might comply for now, but he is sure to try again, and the coercer should always see his activity as part of a continuing process.

## NOTES

1 Amongst the most notable was John Keegan writing in the Daily Telegraph on 4th June 1999.

2 Professor Tony Mason, "Rethinking the Conceptual Framework", in Air Power 21: Challenges for the New Century, Peter Gray (ed), (UK: HMSO, 2000), p. 225.

3 Peter Gray, op cit, p. 220.

4 Reprinted, with textual modifications, from the original – "Air Power and Coercion", A P N Lambert, in Perspectives on Air Power, Stuart Peach (ed), (UK: HMSO, 1998).

5 Reflections of "Milos" a Yugoslavian soldier bombed during Operation Allied Force, quoted by Roy Carroll in The Observer, 20 Jun 99. Extracted from an article in Air Force Magazine, November 2000, by Dr Richard P Hallion.

6 For a treatise on the fundamentals of coercion see Michael Clarke, "Air Power, Force and Coercion", in The Dynamics of Air Power by Lambert and Williamson (eds), (UK: HMSO, 1996), pp. 67-85.

7 Air University Paper, The Balkans Air Campaign, in Air Power Journal, Summer 1997.

8 Michael Clarke, op cit, p. 67.

9 NB: British policy now eschews mine operations.

10 In WWII, loss rates amongst bomber crews grew progressively throughout 1943 and early 1944. Bomber crews of the USAAF coped with their personal vulnerability provided they had a reasonable chance of survival. "BGen Eaker felt strongly that for a man to stay and fight he needed at least an even chance of survival". Tour lengths were adjusted to balance crew survival against operational needs. Mark K Wells, Courage and Air Warfare, (London: Frank Cass, 1995), p. 103.

11 Beware other taxonomies. Pape, for example refers to Denial as the denial of the enemy's fielded forces options. Hence, in his interpretation, a denial campaign is waged against the army in the field.

12 A. L. George, The Limits of Coercive Diplomacy, (Boulder Colorado: Westview Press, 1994), p. 10.

13 It is possible to habituate to scenes of death and to become immune to suffering. Many Prisoner of War guards reported feeling nothing for their captives as they led them to the gas chambers. The captives had simply been "de-personalised".

14 British Defence Doctrine, British Military Doctrine, and many classical theorists all allude to the importance of psychological factors in war. Indeed, the basis of the British Army's Manoeuvrist Approach is not so much to destroy an army but rather to undermine the enemy's resolve to continue the fight. The secret of wartime success lies in investing in the precise destruction that will produce the maximum return in its subversion of enemy resolve. In other words, what damage will produce the earliest submission?

15 Robert A. Pape, Bombing to Win: Air Power and Coercion in War, (Ithaca: Cornell University Press, 1996), p. 105.

16 Recent research suggests that a third weapon was available, that it would have been dropped on or near Tokyo on the night of 17/18th Aug, just before dawn, in imitation of the power to cre-

ate a false dawn, a new Rising Sun. Night would be turned into day, lest anyone had missed the god-like power the US possessed.

17 Secretary of State Madeleine Albright declared in a TV interview on the evening of 24 Mar. Vide p. 183. See The Transformation of American Air Power, Benjamin S Lambeth, (Ithaca: Cornell University Press, 2000).

18 Clarke, op cit, p. 70.

19 Holsti, O R, "Crisis Management", in Psychological Dimensions of War, by Glad, E, Sage Pubs, 1990, p. 121.

20 Lewin, Rommel as Military Commander, (Batsford 1968), p.162 in ibid., p. 383.

21 Field Marshal E Rommel "Letter to his wife", in R P Hallion, Strike from the Sky, p. 205.

22 Therefore, an important deduction is that there is not only the obvious physical reason for destroying the opponent's Air Defences and Command and Control system, - it is a fundamental first step in convincing the opponent of his vulnerability, - that the screw can and will be tightened at the whim of the coercer.

23 Lambeth, op cit p.188.

24 Lambeth ibid p. 192.

25 Pape, op cit, p. 7.

26 Pape, op cit, p. 10.

27 Pape, op cit, p. 10.

28 Tim Zimmerman in "Coercive Diplomacy and Libya", in The Limits of Coercive Diplomacy, op cit, p. 203.

29 On 3 Sep 96, a number of CCM were fired against Baghdad, after a flagrant incursion by Iraqis into the Kurdistan area in N. Iraq. It did not modify Saddam Hussein's behaviour; indeed 14 months later, in Nov 97, it looked as though a further attack would be needed.

30 Mark Clodfelter, The Limits of Airpower, (New York: Free Press, 1989), p. 45.

31 After Selye, General Adaptive Syndrome, Understanding Stress, by Sutherland &Cooper, (London: Chapman & Hall, 1990), p. 13.

32 Pape, op cit, p. 185.

33 Clodfelter, op cit, p.138.

34 ibid.

35 Hoeffding, RAND Corp., in ibid.

36 J M Marcum and D W Cline, "Combat Stress Reaction in Iraqi Prisoners of War", Bulletin of the Menninger Clinic, Vol. 57, No 4, Fall '93, p. 479.

37 ibid. p. 480.

38 ibid.

39 ibid. p. 484.

40 The confusion can be amplified by counter-intuitive strategies, where compliance is punished and intransigence seems ignored. This seems to be irrational and the victim thus becomes at a loss to predict the future or map a course for his survival. Under such stresses, the victims search for certainty, for some hope of salvation and for effective leadership. In essence they search for someone to act in loco parentis. And this is what the Coalition Psywar did.

41 G M Breakwell, Coping with Threatened Identities, Wiley, 1986.

42 G Quester, Psychological Dimensions of War, by B Glad (ed).

43 George, op cit.

44 Tim Zimmerman, op cit, p. 216 et seq.

# An Airman's Lessons from Kosovo

*Michael C. Short*

It is a great honour and a pleasure for me to be here. This is my second time in Norway. When I went to the US Air Force Academy we took a summer trip. It was in 1963 and I was 19 years old. I only remember two things: How incredibly good the beer was, and that there was a large park in Oslo with statues of naked women. Although I have my wife with me this time I hope to see that park again.

I have given this presentation twice in Denmark and once in Oslo, but it is great to talk to you younger folks who are just about getting started and will be practitioners of air power for many years to come. It is also good to talk to what is a pure air force audience. I have been talking to a joint audience, and that is very important, but I believe that airmen are in the position to best appreciate what I have to say more than the officers in the other services who have not worked with air power and do not fully understand it. You folks are just getting started, but realistically you probably know more about air power now than a lot of senior officers in the other services. That is one of our problems, and I think that was one of the problems we ended up facing in the air war with Serbia.

I am an old retired fighter pilot now, so I do no longer have to be politically correct, unlike all of you who are still in the line of service. I would like to talk about my views on Kosovo. I do not call it "lessons learned", but "an airman's lessons", because I see very little indication that we learned a whole lot about what happened in Kosovo. I know that within my own country I saw mistakes made in Kosovo in 1999 that I saw made in South East Asia and North Vietnam in 1967. Things that men of my generation thought had been learned by our leadership, both in and out of uniform, turned out not to have been the case. Operation Desert Storm was an aberration as far as I am concerned, because that was in my mind a perfect example of how air power should be used. We used air

power appropriately from the very first night. We dropped bombs on downtown Baghdad on the very first night. We turned the lights out and attacked what we thought were the centres of gravity of the Iraqi regime. We did it entirely differently in Kosovo and Serbia, and I think we did it wrong. I call this "victory by happenstance" as opposed to "victory by design". We essentially bombed for 78 days, hoping that something would work. In fact, we had a conversation along that line about half way through the war. I worked for Admiral Jim Ellis, an American four-star who was the commander of the allied forces in Southern Europe in Naples. In fact, he still occupies that position. He and I both worked for a US Army four-star, General Wesley Clark, who was Nato's Supreme Allied Commander in Europe (SACEUR) at the time and since retired. Every day of this 78-day war we would hold a video-teleconference. I will tell you, that is in your future: That is how you will do a lot of decision-making in staff-work in your future as airmen. As opposed to everybody coming down to Oslo, you will be in fourteen different locations and you will all come up on a secure video-teleconference net to make decisions that we used to make by coming together. We would hold a video-tele-conference every morning at 09:30. I would be in my Combined Air Operation Centre (CAOC) in Vicenza, Admiral Ellis would be at his headquarters in Naples and General Clark would normally be in Mons, or perhaps someplace on the road. General Jumper, the US air force commander for air forces in Europe would be at Ramstain etc. Unfortunately it was a US-only video-teleconference, but that was how General Clark had chosen to run the war. On this particular day, General Clark was giving Admiral Ellis and I guidance on how he thought busi-ness ought to be done. At the end of giving us that guidance he said: "Mike and Jim, I hope this will work". Admiral Ellis thought about that and he said: "General Clark, hope is not a course of action". A pretty insightful comment for a Navy Admiral! But he was dead right: We spent 78 days hoping that whatever we were doing was going to bring Milosevic to the table and accept Nato's terms. As some of you might remember, before the fighting ever started, all of our leaders announced that a ground invasion was not an option. We were not going to use ground power. We were not going to send paratroopers or Marines or armoured brigades into Kosovo to stop the killing. There was no mar-itime option and there was no way Nato's navies were going to influence what was happening in Kosovo. Our leaders had taken all other options

off the table and decided that we were going to use air power to modify Serb behaviour in Kosovo. This was a war that I believe most of us agree was going on by CNN. There were pictures of men and women dying in the streets, villages burning and children having to leave their homes. It berated the European and American conscience to the point where our leaders could not stand it any more and they had to do something. You will deal with that throughout your careers also. The politicians are screaming "we have got to do something", but they have no idea what it is. All they know is that they have to do something, because they will not get elected the next time if they do not do something. So they will now turn to you, because they have no more diplomatic options. They will tell you to do something to fix it. We also entered this conflict with no idea of what the end-state would be. I knew what the military end-state would be. I had very clear guidance on what I was supposed to accomplish with air power. First, I was supposed to stop the killing in Kosovo. Second, I was supposed to drive the Regular Army, the police and the paramilitary forces out of Kosovo, or get them to agree to leave as a result of the bombing. Third, the British Army General, Sir Mike Jackson, was supposed to come in on the ground with an occupation force to protect the citizens of Kosovo, and keep the Serbs and the Muslims apart. Fourth, all the refugees were going to be allowed to return to their homes. Fifth, we were going to facilitate the International Criminal Tribunal for the former Yugoslavia (ICTY) process. Those were the five things that I knew that I was supposed to either accomplish, or facilitate, as the result of using air power, but no one ever explained to me what the political end-state was going to be for Kosovo. Nobody has successfully defined that to this day. The Alliance has troops in Kosovo, hoping that something would work out, just as we do in Bosnia. We have been in Bosnia for over five years now, hoping that something will work out, and quite frankly, ladies and gentlemen, that is what politicians end up handing you sometimes. What are we going to do in Kosovo? Is it going to be a free nation? Like Liechtenstein or Switzerland? Are we going to return it to Serbia, so that they can come down and start killing people again? Should it be part of a greater Albania? Should it be part of Montenegro or Macedonia? Has anybody here got a clue? Nobody knows. So Norwegian and American soldiers keep rotating for Kosovo, risking their lives pretty much every day. It is the same in Bosnia. Does anybody know what the answer is for Bosnia? When can we leave Bosnia? My new

Secretary of State announced yesterday that the United States was going to stay in Bosnia until we all leave. Colin Powell said yesterday - despite what President Bush said in the campaign about pulling US forces back from our commitment - that we had all gone in together and we will all come out together. That is a great message. I can certainly support that message as an American citizen, but as a soldier it is not a great message. The American Army is really tired of being in Bosnia and Kosovo, because unlike the Norwegian Army, we have world-wide commitments. Once an American soldier comes back from Bosnia he goes to Korea, or some place else, because we have world-wide responsibilities and the American Army is being stretched very thin, as is the USAF. My son is an F-15E pilot and flew A-10s during the war. My daughter is an A-10 pilot in Korea. They are both fighter pilots, and pretty good ones I do not mind telling you. He is away from home 90-210 days a year, and quite frankly, young people get tired of that however much you pay them. The politicians tend to use us, without really understanding us, and that is something I think you will deal with throughout your careers. You will be frustrated by it, and you will do your best to educate your politicians on how they ought to use their military, because they are in charge since we live in democracies. We take guidance from our elected leaders and that is the way it should be.

I am told that you are studying air power theory, and have studied air power history. My hope is that air power theory has told you that there is a right way to use air power. At least I believe there is a right way to use air power, and that is to maximise the potential of our capabilities. That means to me that on the first day or the first night of the war, you attack the enemy with incredible speed and incredible violence. Violence that he could never have imagined. It should be his worst possible nightmare with an incredible level of destruction, relative again, to what he thought was possible. You should use every bit of technology that you have to shock him into inaction until he is paralysed so that you can get ahead of him inside his decision-loop and force him to accept your terms. It is about modifying his behaviour as rapidly as you can. That was how I thought air power should be used in Serbia.

General Clark and I had two essential disagreements about the operations in Serbia. First of all, he and I disagreed on what the strategic cen-

tre of gravity was. Slobodan Milosevic, and the men and women around him, who he kept in power and in turn kept him in power, the ruling cadre if you will in Belgrade, was in my opinion, and I believe in the opinion of all the airmen within the Alliance, the strategic centre of gravity. To a simple fighter pilot, the centre of gravity is that entity or that capability that allows a nation to go to war in the first place. It makes the decision to move a nation to war, and then secondly is powerful enough to keep that nation at war. You can have more than one centre of gravity. In the Gulf War we thought that Saddam Hussein, and a small cadre around him, were the centre of gravity. We also felt that the Republican Guard divisions were a centre of gravity. General Schwarzkopf, the commander in the Gulf, defined those two entities as the centres of gravity, because combined they allowed Iraq to go to war, and they gave Iraq the capacity to stay at war. From my perspective Milosevic, the leader, and the people around him, made a decision to take Serbia to war, by not accepting Nato's terms that caused the bombing, and then they were in the positions to make the decisions to keep Serbia at war or to accept Nato's terms. That is what I believe is the centre of gravity. General Clark, however, again a professional soldier but not an airman, believed the centre of gravity to be a force in the field – the Third Army in Kosovo. You can say that it is similar to what Schwarzkopf believed, but I do not think so. I believe the Republican Guard was significantly different form the Third Army in Kosovo.

Certainly a lot of what I wanted to do was intended to make the population unhappy with Milosevic. But what was not clear to me at the time was that even if the population got very unhappy, Milosevic might not give a damn. What we found in dealing with Saddam Hussein was that we thought we could make the population unhappy in order to influence the Iraqi leader, but we were dead wrong. There is only one guy that can influence what happens in Iraq, and that is Saddam Hussein. If he is unhappy with you he shoots you, and he has been doing that for years. We made a mistake there. He is the centre of gravity, and not the ruling clans around him. We were not sure how powerful Milosevic was, and whether if the people got really unhappy they would force him out of power. We have found since that it was probably the case. There was enough unrest in Serbia over the last 18 months to force him out of power, and now they may even put him on trial. The population is per-

haps a centre of gravity, but there are some unacceptable issues associated with laws of armed conflicts. If any one of our nations had believed that I was attacking the population and civilians, then I would have been fired. The law of armed conflict does not allow you to specifically attack the civilian population. Now, a smart airman attacks military targets with a clear understanding of how that will influence the population. When I turned out the lights in Belgrade that was to influence the population. Moreover, I do not think there is any question that when you go through the effort of strategic bombing there will be a time when indeed the population rallies behind their leadership. I think that is a psychological expectation, as it would be to me, because the population is going to be upset by being attacked and they are going to respond. The effect does not come overnight. So the population was a centre of gravity, but we had to bring pressure to bear on Milosevic, and clearly one way of doing that would be to make the population unhappy. A lot of the things that we wanted to do were indirectly or directly affecting the population. For instance, on the first night I wanted to attack the power-grid, in order to turn out all the lights, all the refrigerators, all the micro-waves and all the televisions in Belgrade. I wanted to sever Milosevic's command and control apparatus. I wanted to drop all the bridges across the Sava. Those are military targets, because those bridges were used to re-supply the Third Army in Kosovo. It also made it impossible for the population to get back and forth to work and school. I also wanted to attack factories that had dual use. I would like to have been in the position, after the first twelve hours of attacks, of knowing that the Serb population of Belgrade had no power, could not get to work or to school, and had no reason to go to work because the factory where they were working had been blown up. They are all valid military targets that are clearly impacting the leadership, who had investments in those factories. The population will probably at some point put pressure on Milosevic. I think that in most regimes that you and I are familiar with, it is very difficult to separate the leadership from the population, because I believe the leadership depends on the population for its support. When the population becomes disaffected they will force their leadership out of power. What we were not certain of in Yugoslavia was whether the people was strong enough to do that. We know that in your country and in my country that would happen. The population would rise up and cause the leadership to modify its behaviour or throw it out of the country. But we were not certain that it

would be the case in Yugoslavia, and we felt that we had to bring pressure to bear on Milosevic and the cadre around him. You have to be very careful so that you are not specifically targeting the population, because you cannot violate the laws of armed conflict.

Moreover, without an army in the field, we felt that attacking the fielded forces successfully would be very difficult. I am a child of Vietnam: I grew up in North Vietnam, South Vietnam and Laos. We had an army in the field that was able to tell us every day where the North Vietnamese and the Viet Cong were. I flew close air support in South Vietnam and strike missions in North Vietnam every day. We would come in to a close air support situation and talk to the airborne forward air controller or to the ground commander on the radio. He would specifically say: "I am along the river back to the west, and just on the other side of the canal I have 300 VC pinned down, and I am hitting them with heavy machine gun fire, mortars and they cannot move, but I am not about to drive across the canal with my kids and take them on hand-to-hand combat". So, I have got them fixed, I know where they are and they cannot move, and you are now cleared to get everything on the east side of the canal. That happened on a daily basis. The American Army and the Vietnamese Army fixed the positions, and either made the bad guys move or did not allow them to move, and would next call for air power and allow us to do our job. We knew exactly where they were and were supporting an army in the field that had made the ground enemy predictable. In Kosovo there was no ground army in the field. The Serb Third Army was unopposed, except from the UCK, which did not come close to being an organised resistance. The Third Army owned Kosovo, and we had taken the ground option off the table. They had total dictation of their operations. They could kill when they felt like killing, did not move when they did not want to, and we were always on the reactive side of the equation. As opposed to us being able to dictate what the Third Army could do, they dictated what we could do to them. Since we did not have an army in the field I had restricted my pilots to reasonably high altitudes. I was worried about the SA-6 and SA-3 threat, but felt that we could handle that. But there was no way to handle the AK 47 or the SA-9 or the AAA that is not guided by the radar. It is up there but you do not know about it until you run into it. I had decided, because there was no Nato army in the field, that I was not going to send my pilots below to incur that

risk. I was going to keep them up high and use precision munitions. There was not going to be any dive bomb deliveries by pilots hoping that it was going to be a good bomb, because, there were refugees all over Kosovo. It was not a good-guy vs bad-guy conflict, or as we say in my country – it is all "Indian country" beyond a certain line. Thus, anybody that you kill out there has to be a bad-guy, because there are no good guys out there. That is how it was in Iraq. Beyond the Forward Edge of the Battlefield Area (FEBA) they are all bad guys. I do not ever want to miss, but I can stand missing beyond the FEMA, because I am not going to kill any good folks. I am not worried about fratricide. There was no FEBA in Kosovo. The Serb Army and the Kosovar Albanians on the run were all mixed. So there was a danger of fratricide every time you dropped a bomb, killing civilians.

When I had my initial discussions with General Clark, and he pointed out that he wanted me to attack the Third Army as my primary objective, I said: "General, that is a high level of effort, high risk and low payoff operation. We will do our best but I do not expect to do very well". Finding tanks hidden under tree lines, when you cannot make them move unless they want to, makes it very tough indeed. I think that the history of what we did in Kosovo would bear that out. We did not destroy a whole lot of tanks in Kosovo, unless the Serbs did an incredible job of hiding or trucking out things that we destroyed. We felt as airmen that it was going to be incredibly difficult to bring pressure to bear on that army, and by the time we started attacking the Third Army most of the killing in Kosovo had already occurred. You had already watched it on CNN. There were hundreds of thousand of people crossing into Albania and Macedonia with nothing but the Serbs on their backs. Most of the outrages had occurred. Although it might be that the population would be outrageous if the Third Army was being attacked, we did not think that to be the case. We also believed that even if we started to inflict losses on the Third Army in Kosovo, the ruling cadre of Milosevic and the people around him, would shrug their shoulders, because none of them had sons dying in Kosovo. Certainly the population of Serbia did, but again, we did not believe that the population was unified enough or strong enough to bring the pressure to bear on Milosevic. We thought we had to bring the pressure to bear on the ruling elite. We thought that this was an absolute perfect example of asymmetric warfare. As opposed to

attacking the tanks that were doing the killing, we were going to attack the man who was directing the killing. If you want to modify the behaviour of the Third Army in Kosovo, we felt that we had to get to the leader who was directing that behaviour in the first place. The Third Army in Kosovo was not killing Albanians on their own initiative. Milosevic had told them to do that. In fact, after the war we found that the professional army in Serbia was not pleased with being given this task. They saw themselves as professional soldiers, and burning villages, killing civilians and driving them from their homes was not what they thought they ought to be doing. They were just following orders.

I believe that early on in the conflict there was a great chance that Nato was going to quit. Some of our national leadership was calling for an Easter bombing pause, and that it would be a terrible irreligious and heinous crime to bomb on Easter Sunday. I think Milosevic was really pleased to hear that, because my experience from Vietnam is that once you call a bombing halt it is really tough to get it started again. So, if we had a bombing pause I think Milosevic would have asked us to come over and have a talk. We would have chatted for a while, he would have asked us to leave, and it would have been very difficult to start again. But I think that after the Washington Summit, in late April, when Nato celebrated its 50th anniversary, and all the leaderships came together behind closed doors, they said that we, the greatest alliance on the face of this earth, cannot let this guy beat us. If the nineteen nations of Nato are beaten by a murderer, rapist and scumbag – an indicted war-criminal in a third-rate military power, then the alliance ceases to exist. How can we advertise ourselves as any sort of collective defence if we cannot handle this essentially mass murderer. I think Nato was in after the 1st of May until this was over. I personally believe that if we had kept going on for another two weeks, doing the peripheral bombing that we were doing at that point, not going after the centre of gravity, we would have had reinforcement. After the attack on the Chinese Embassy the French and a few other nations did no longer allow me to attack downtown. It was a sanctuary and we were now bombing the outskirts, and not bringing pressure on Milosevic, but I believe that if we had gone on for another two weeks, hoping that something would work out, I would at that point have had additional five or six US squadrons bedded down in Turkey. We had received permission from Romania and Bulgaria to use their air-

space, and they were already coming in from Hungary where the US Marines were bedded down. They were coming through Bosnia, Albania and Macedonia with an additional 160 war-planes. I think after two more weeks Nato would have said that we are getting on towards the fall, and since none of us wants to do a ground invasion you can do what you need to do. We will kind of turn our heads the other way and you can go after Belgrade if that is what you need to do, because we cannot lose to this guy. I do not know why someone believes that if we had not reached a conclusion after two more weeks of bombing, then Nato would have backed off, because then Nato would have lost. If you had been able to bring enough pressure to bear on the Third Army to defeat them it would have been the right thing to do. If I had my mission statement here to show you, the heart and soul of my mission statement of my commander's intent, was that I wanted to conduct sustained parallel operations. What that meant to me, and as I explained to General Clark, I was more than happy to attack the Third Army with aircraft that I felt would be appropriate: Harriers and A-10s, aircraft that were largely not capable of attacking downtown Belgrade. But F-16s, B-2s, F-117s, B-52s and F-18s I intended to use to attack the centre of gravity. I wanted to bring pressure to bear on both places. General Clark, however, for much of the war directed me to spend almost my entire effort attacking the Third Army. That would have been okay if I could have been successful against the Third Army, but I was not. Initially the weather prevented me, and then there is the fact that we just could not find them, and finally they had done most of the killing already.

We went through several phases. We had campaigned as airmen from the very beginning to attack the centre of gravity on the first night. I accept, having talked to some very senior leaders, that it was too hard to sell, because, and for reasons that escape me to this day, our leaderships, our prime ministers and our presidents, believed that all they had to do was to demonstrate to Milosevic that we were not kidding around. The phrase I heard used many times was "Nato was going to demonstrate resolve". Your prime minister probably, and my president certainly, my secretary of state absolutely, they all thought that if we bomb Milosevic for about three days, and demonstrate to him that we are serious, he will roll and accept our terms. We would probably send him a check for £100 million to his Swiss bank account, but we would get some kind of a deal.

So, with the mindset of bombing for about three days it was not acceptable to blow-up downtown Belgrade to demonstrate resolve. Let us blow up a couple of bridges near Nis, let us blow up an empty barracks near Pristina, and let us show this guy that we are very accurate and mean business.

We also have to control the air. You cannot attack forces on the ground or attack strategically unless you control the air. So I was attacking the Intelligence, Surveillance and Reconnaissance (ISR) on the first night, scattered almost demonstration targets if you will, and we knew these barracks outside Pristina had been vacated for months, we knew we were going to blow up empty barracks in demonstrating resolve. I had in fact been told by General Clark that I would only be allowed to bomb for three nights, because Nato just did not have the stomach for this. Some of the nations would be kicking and screaming because of this thing, since they had memories of World War II and the carpet bombing. Many nations in Nato had not been at war since World War Two. I tried to explain to him that carpet bombing was not on my mind. I was going to do precision bombing. There was going to be twelve smoking holes in Belgrade on the first morning but they would be in the right places. I accept that it may not have been a reasonable option, given Nato's mindset of resolve being all that was required. But after the first three or four nights, when it was very clear that demonstrating resolve did not impress Milosevic at all, then it was time to go at the centres of gravity. You do not have to agree with me, but that was our mindset. I would have liked to go there on the first night. I understood the rationale for demonstrating resolve, but I was not happy about it. I actually thought a deal had been cut. Do you remember the Rambouillet conference, where we all got together and the Albanians accepted our terms and the Serbs did not? I thought the Serbs had come in the back door to Nato and said. "We are in too deep here on how important Kosovo is to us for us to give up without a fight. So we know that you have to bomb us. Milosevic will lose incredible face and perhaps lose his job. So, what about bombing us for three nights? Do not harm anything, and we will not harm any of you guys, and then we will raise our hands and say that we would like to hold onto Kosovo but our population is suffering, so I, the supreme leader, will accept Nato's terms for the good of our people". I heard this so often, about demonstrating resolve, and only being allowed to bomb for three

nights, so I thought a deal had been cut. But three nights go by, and I am out of targets, on the third night I cancelled a second F-117 strike because we did not have any targets, and Milosevic essentially tells us to go to hell. The population was now feeling really good about things, because Belgrade had not been bombed. They were holding rock'n roll concerts in a park in downtown Belgrade and on a bridge that we called the rock'n roll bridge. This Nato is a paper tiger and does not bother us. If you are down in Pristina you are probably not crazy about what is going on, but in Belgrade the sentiment was that nothing happened after three nights. Milosevic tells us to go to hell, and now demonstrating resolve is clearly not going to work. Now it is time to go to war, but Clark pressured me at that point to only bomb a little bit around Belgrade, but the level of effort would be on the Third Army in Kosovo. Again, if I had been successful and destroyed eighty tanks on the first night, three battalions and continued to have that sort of success, then we would have driven the Third Army from Kosovo. Nobody else would have been capable of replacing it and the killing would have stopped. I would still argue that it would not have been the right way to do business, but that would have got the job done. I do not argue with that, but I would still have liked to have done parallel operations. The issue was whether we could bring enough pressure to bear on the Third Army, whether we would be successful enough against the Third Army to modify their behaviour. From my perspective, in simple terms, that is what air war is all about. War is essentially all about modifying behaviour: I am trying to get my adversary to stop doing what I am not pleased about, which is probably the thing that caused us to go to war in the first place.

I did not find that there was an ethical conflict here, but there was a professional conflict. Professionally I thought this was done badly and wrong. I certainly support the idea of stopping the killing, but my politicians gave me no idea of what the end-state was, but again that was not my business. As a concerned citizen I would have liked to know, but it was not my job. My job was to stop the killing. I thought I could stop the killing one way, and Wesley Clark told me to do it another way. It was therefore my job to follow his guidance, and continue to try persuading him that there was a better way of doing business. I do not see that as an ethical conflict, but as an air commander I saw air power being used inappropriately and inefficiently. We were incurring an unaccept-

able level of risk for our aircrew as a result of doing it, but as long as I could protect my aircrews and do the best I could at the job I was given, I had no ethical problem.

But let there be no mistake, I had very clear guidance on how Clark wanted me to reach the end-state. General Clark thought I would reach the end-state by attacking the Third Army in Kosovo, and I was not out there willy-nilly destroying Kosovo: We had specified targets every time somebody dropped. It was not like we were dropping a bunch of bombs and said let us see what happens. There were airborne aircraft looking for targets, and if we could not find a target we had a defined area where the bombs could be dropped so that they could come back and get some more. That was pretty frustrating stuff, but that was what I was told to do. If you think you get to be a commander and do not become frustrated then you are smoking something. War is a very frustrating business, and when you cannot do things your way, you work the best you can within your chain of command. When you get orders that you think are inappropriate, or that you do not agree with, then you have only two options: You can accept those orders, having made an attempt to change them, or you can take your stars off and put them on the table. I did my best to persuade my boss to go in a different direction, but he said no. So I felt that it was my job to do what he asked me to do as well as I possibly could, and again attempt to persuade him to do something else. We were eventually successful in doing that, but then there was the tragedy of the Chinese Embassy, which took us back to what we were doing before. People have asked me what I thought was the turning point: What was it that brought Milosevic to the table? I do not think personally that there was any particular mission, although taking out the power had an enormous impact on the population and the leadership that we were really serious, that we were beyond demonstrating resolve. But I believe that what brought Milosevic to the table was the pressure from the people around him, and probably, at least peripherally the pressure from the population, because although I was not bombing what I wanted to bomb, parts of Serbia were disappearing every day. I think the Serbs finally got the picture that we were not going to quit. We were going to stay with this until he accepted our terms. A small part of their country was disappearing every day as a result of them not accepting our terms. I think it got to the point on day 78 where the men and the women

around Milosevic said this is not working, they are not quitting, and it is time to accept their terms. They are not going to back off, and they are just going nibble away until our country is gone. We are having no success against them in the air. We have heard about the beddown in Turkey, and they will attack us from all directions, and there is nothing we can do about it. I do not know this for a fact but that is what I believe. The Chernomyrdin talks probably had some influence, but I have no insight into that. They realised that Russia was not going to support them any more. It probably had some influence, but I do not personally buy the mindset that Milosevic was just eager to keep on fighting until the Russians turned the screws on. I personally believe that he was independent enough from Russian control to make his own decisions. It is not clear to me that Milosevic was getting enormous support from Russia, that supplies were coming in every day, and that he was being reinforced and that every thing he needed was flowing down from Russia. I just did not see that happen. If it did it must have come in through the mountains. I grant that Russia made the case how Nato was a bunch of criminals, bombing their buddy, but most of us were not paying much attention to that. I do not think it was helping him a lot in terms of world opinion. I give Chernomyrdin and the Russians credit for assisting, but I personally believe that had we not been successful in blowing up as much as we had at that point, and having the potential of blowing up what we wanted to for as far as I could see into the future, I believe that it would not have mattered what Chernomyrdin said.

I think that within the professional military there was almost universal acceptance that we needed to go after the centre of gravity. I talked to some of those who were sitting in the Military Committee, and they said “Mike, you would never have got the permission to go downtown Belgrade on the first night. You have to understand that. But after three or four nights, and Milosevic still standing tall, if Wesley Clark had then come to us and asked to go downtown Belgrade I think we would have given him permission.” Within governments I could not tell you who was pro and who was con. I do know that after day 10, when we started bombing Belgrade - not as strongly as I would have liked but we began to hit individual targets - if there had then been a nation violently opposed to that they would have played their red card, as the French did later. As you know the French exercised their veto capacity throughout

the campaign, taking target-sets off the table so nobody could bomb. So, when we started to bomb Belgrade my assumption is that on a political level all nations had agreed to it. It was very clear to me, coming out of the Washington Conference, that all nations had agreed that we had to change our strategy, and stop attacking the Third Army in Kosovo and go after the centre of gravity. The night we blew up the Chinese Embassy, and I want you to understand that it was indeed an incredible error, not an aircrew error though, the B-2 crew hit exactly what they wanted to hit. It was an intelligence error. They gave us a bad target. They told us it was a logistical headquarters when it was in fact the Chinese Embassy. On that night we were bombing additional eight to ten targets, which I thought were good targets downtown Belgrade, and I had lined up for the next two-three nights more targets for Belgrade. I personally believe that had we been allowed to bomb those target sets for the next four nights we would have brought it to an end. I will never know, but I was very optimistic that we were now about to use air power the way it should be used, and we were going to put more pressure on Milosevic than ever before. But the bombing of the Chinese Embassy placed Belgrade off limits.

Now let us move on to some of the lessons that I believe it is worth talking about. I want to start out with some of the tactical lessons, because that is where you are going to operate:

- Airspace control plan
- Tanker requirements and planning
- Electronic warfare – both SEAD and DEAD
- AOC organisation and expansion
- Impact of both night and weather
- Need for PGM capability
- Data vice information
- Movement of information
- UAV potential
- CSAR
- Time sensitive targets
- BDA cycle and ISR coverage
- Understand and use ALL the assets made available

The first thing is the importance of the airspace control plan. All of you have great input on the airspace control plan, on how successful it is done, and on how all the forces are brought to bear in an operation. A fine example of the failure of an airspace control plan was what occurred in eastern Turkey back in 1993 or 1994, when two US F-15s shot down two US Blackhawk helicopters. It was a failure of the airspace control that the F-15s did not know where the Blackhawk helicopters were supposed to be, and further a failure by the aircrew who misidentified the Blackhawk helicopters as Soviet helicopters. After that tragedy, in my air force, we understood the importance of everybody being on the ATO, and having a good airspace control plan. This is not an easy thing to do. You need to have tanker practice, know where the AWACS is going to be, how many are going in and out of the battlefield, how to keep the commercial aviation in and out of the Adriatic and Bosnia. It all has to be well orchestrated and people have to understand it. It is important to facilitate efficient use of air power and prevent fratricide. Nothing will get your attention more quickly than blue-on-blue. Because if the airspace control plan is not working, the IFF is not working and people do not know where they are supposed to be. Fratricide will stop everything in a heartbeat.

The second tactical lesson is tanker requirement and planning. You have an air force that has no tankers, because your plans for fighting a war for fifty years did not involve the requirements of tankers. You were going to come up from your airfields, kill as many bad guys as you could and return back to your airfields. That is how you will fight if you were attacked tomorrow. But if you go “out of area”, you cannot dictate the base requirements. The enemy does not necessarily come to you, you might have to go to him, and then tankers are incredibly important. We could not have flown one mission into Serbia without tanker support. The tanker beddown is incredibly important, because I did not have control of beddown, and Italy was just swamped with airplanes. I had tankers in Spain, and how inefficient is that, to fly from Spain to the Adriatic? You are almost out of gas by the time you got there. I also had tankers in the United Kingdom. Same problem. To be efficient, all my tankers should have been in Italy. You have to understand that tanker requirements, and the efficient use of tankers needs professional training. It is not a pick-up game where you grab some fighter pilots to put to-gether a tanker plan. You need to be a professional and do this for a living.

The third point is electronic warfare. To my knowledge, there is only one nation in the world that has an airplane dedicated to jamming enemy radar. The US. Your air forces depend on carrying pods on individual airplanes in order to jam enemy radar. I believe that in the sophisticated environment in which we are operating today, that is not sufficient. Electronic warfare must be taken very seriously because the ground-to-air threat is going to become more and more serious. It would be much cheaper for our enemy and potential adversary to go out and buy a few SA-10s, as opposed to a number of MiGs with trained pilots. They can then keep us at bay without building a real air force. I personally believe that the days of the air-to-air conflicts are just about gone. You will deal with surface-to-air threats that will become more and more lethal. You will not be able to get through without an incredible level of effort invested in electronic warfare. We are talking about both suppression of enemy air defences (SEAD) and destruction of enemy air defences (DEAD). I had depended on killing Serb radars with High Speed Antiradiation Missiles (HARM), but that did not work because they did not turn their radars on. That made them ineffective, but then we had to live with that threat every day. The pilots flying in Kosovo never knew where those systems were, and they had to assume that they were flying within the threat-range all the time. We were not successful in killing them with HARM, and there has to be another way of doing it than stumbling on a radar and blowing it up. We have got to have a concentrated effort.

Next there is the Air Operation Centre (AOC) organisation and expansion. Again, your CAOC has to be trained. It cannot be a pick-up game. It cannot be me coming up here to the Air Force Academy saying I need 80 of you guys to come and work for the AOC tomorrow morning. People have to be trained, and have to know what their jobs are in the AOC, because from the AOC comes the plan to carry out the war effort. The Air Tasking Order (ATO), the airspace control plan, the air defence plan, it all comes out of the AOC. The execution cycle is run from here, and if that is not a professional group, then it does not matter how good your airplanes are, or how good your fighter pilots are. The AOC is the key in making this happen. What is it that we have all said throughout our careers about air power? Centralised planned and decentralised executed.

The fifth point is the impact of night and weather. In the war I fought, over half the airplanes provided to me by the allies, could not drop precision munitions at all. They did not have precision guided munitions. Very few of them could drop at night, and even fewer could drop when there was bad weather. You cannot give the enemy such sanctuary, where he knows you cannot strike him at night or during bad weather. You have to be able to fight around the clock, in bad weather and at night with precision. You will not be able to drop a bomb in the future unless it is laser-guided, Global Positioning Satellite (GPS) guided or with some other cosmic guidance that has not been invented yet. The days of dropping gravity bombs, like I grew up with in South East Asia, where it took 80 F-105s or F-4s to drop a bridge, because most of them missed, does not happen anymore. A single F-117 or F-16 is going to drop the bridge. Now our politicians expect that. They will not tolerate us missing by 200 meters just because we are having a bad day.

Then there is the importance of Combat Search and Rescue (CSAR). You send in helicopters when someone has been shot down, escort our rescuers in and bring everybody out. That is a mission that they are trained to do. Again, it is not a pick-up game. When you lose an aircraft you do not grab the first four F-16s you find and tell them to go in. That does not work. You have to have assets and aircrews dedicated to it. It is a very important contract that you make with your pilots. It is very important in my country that we tell our pilots that if you go down, then we will move heaven and earth to come and get you. It might not be in daylight, and my pilots know that. If they went down five o'clock in the morning as the sun was just coming up they would have to go underground until dawn, and they probably knew that if they went down in downtown Belgrade I would not be able to get them either, because they would be picked up before I could get there, but in most cases I would sure as hell try.

The second last tactical lesson is the Bomb- and Battle Damage Assessment (BDA) cycle and ISR coverage. BDA is incredibly important. If I were to send four of you in to attack a target, and you fought your way in against SA-6, SA-3 and MiG 29 in the most terrifying night of your life, and you think you dropped pretty good bombs and now you are home drinking your beer, and they have the same target on the ATO tomorrow. You expect your air commander to be able to tell you that you

do not have to go, because it is destroyed. You have to get BDA much faster than we got it this time, because you would be really upset if you fight your way in again and find out that you did not need to destroy the target. Now you risked your life for nothing, because I did not have accurate BDA. Because if you are an old conservative guy like I am, then I would have to send you in to make sure. You need the ability to get BDA. How does the Royal Norwegian Air Force get BDA? From somebody else! You need to know how to get BDA, and if you can make a contribution to get it, one way or the other, then that is very important. I personally believe a wrong way to do it is manned reconnaissance, which is still very popular within Nato. You have RAF Tornadoes flying at high speed at 200 feet taking pictures, and I think that is how young men and women die. You need to get BDA from Unmanned Aircraft Vehicles (UAV) or satellites, U-2 and Joint Surveillance Target Attack Radar System (JSTARS), but you need to get the BDA inside a cycle so that young people do not have to go back and address a target that has already been blown up.

We are talking about both physical effect and effect on population, but it is very difficult to get effects on the population, and as you know we are not good at Human Intelligence (HUMINT). That is why we bombed the Chinese Embassy. If we had got our homework right, then we would have found the attaché from somebody's country that dropped a thousand beers at the Chinese Embassy and could have told me where it was. So we are not good at HUMINT. We are depending on Brad Sadler, the CNN correspondent in Belgrade, to tell us how the population feels. So quite frankly, our concentration is on physical effects. If we wanted to blow up four shelters, in which we thought there would be airplanes or Weapons of Mass Destruction (WMD) storage of warheads, we can only tell whether the holes are in the right place, because we cannot know what happened inside the shelters, but that is good enough for me. We can put a check on that. We should look more closely into what the leadership and the population are feeling, but I am not going to do that as an air commander. I think the Intelligence, different agencies and the diplomats are going to do that. I believe that effort should be done at the CINC's level and the national level. We will use newspapers, television, and whatever we can get to tell us how the population is feeling and tell us how the leadership is feeling. We might have somebody on the inside. I would have liked to have somebody working close to Milosevic who

could tell me how he is feeling, but that is much less of a science than BDA and destruction. I would like to be able to do both, but as the air commander, what I can control is the BDA on the physical level. As an airman and air commander I have to settle for things that I can control. I am pushing my intelligence, J-2, every day. I had a young American, a Brigadier General that worked for me in Ramstain, and I called him every day asking about the impact, feeling and the morale of the people. Are they dancing in the streets because they are happy, or because they are paid to dance or because they have to because the walls in their houses are falling down? I want that information, but there are some things I know for a certainty, and some things I do not know, but certainty is more important to me as an air commander than knowing about the feelings of the people that got their houses blown up. But you try to push from all sides, and your try to use everybody within the alliance. There were still embassies operating in Belgrade, neutral nations that had not left, and maybe you have got really good friends in the Swedish Embassy that will talk to you over a beer, but I need to get to you to get to them to tell me how things are going. But I am not going to do that. Others will do it for me, and I will depend on them to get that information.

ISR coverage is another thing that you have got to bear. You have to orchestrate that and as with the BDA Norway gets it from somebody else. Right now, and I am not being arrogant, just stating the fact: The vast majority of the ISR comes from the US assets. I will be frank with you, I have read in the paper about this independent European defence capability that is coming up, and I sign up the ability to do that on the ground. There is no doubt in my mind that the European nations can put together a force of 70,000 troops with good tanks and good rifles. But on the air side, all the conglomerated Nato air forces lack a lot of very important pieces. If Nato had gone to war in the air, without the USA, then I do not think you would have had enough tankers to get the forces in and out, except for a very small number, you would have had great difficulty knowing what was happening on the battlefield, because you do not have overhead coverage and you do not have a lot of listening and activation platforms that we have. Your force would have been at an enormous risk because you might not have been powerful enough to shut the radars down. You would also have had very low ability of dropping precision munitions. You would either have dropped just a few

bombs a day, or you would have settled for dropping a set of gravity bombs and I think you would have killed a lot of the wrong folks. I am not being critical, but I do not see the nations of Europe as a group making the qualitative leap to give yourself the capability of operating in the air independently. I know you can operate independently on the ground, and probably at sea also, but right now there are gaps in the European conglomerated air potential. It does not matter that you can drop precision munitions if you do not know what you are supposed to hit and you do not know if you have hit it.

Understand and use all the assets made available. It is really important to know what the weaknesses and strengths are of a contributing air force. Who is going to help you and who is not. Quite frankly in this conflict there were a lot of air forces that did not help me, because they could not drop precision, they could not fight at night and they could not fight all kinds of weather. Clearly your air forces are moving to remedy that situation, and that is a great step in the right direction, but that will always be a challenge to you. Maybe when you fight as a Combined Force Air Component Commander (CFACC), Hungary will provide airplanes to you. Do you know what the most frightening 30 minutes of the war was to me every day? When I had to allow the Hungarians to fly! For political reasons I had to do that. They were brand new members of Nato, their leadership was trying to get permission to acquire new airplanes, and they had to sell to their politicians that they could make a contribution. So for 30 minutes a day I allowed their MiG 29s to fly, and that is an accident waiting to happen. They take off their airfields and Combat Air Patrol (CAP) over central Hungary with no IFF/SIF compatible to Nato systems. They had no tuneable radios. They pre-set on the ground twenty radio frequencies, making them vulnerable to jamming and often unable to talk to the others, they did not have secure radios and they had questionable English skills. The nightmare that I had during those 30 minutes was that two Serb MiG 29s would break it across the border, intercepted by the Hungarians, because then I would have a four aircraft night fight, with four MiG 29s, and some American F-15 would shoot all four of them down because he could not tell one from the other. It would not be the kids' fault, it would be my fault. "Hey boss, there were four MiG 29s out there, and I got them all for you". "Young fellow, I have good and bad news for you: Two of them count and two of them

do not". But you have to understand what your contribution is, because politically every nation in the alliance will have to contribute, and you have to deal with that. You will have issued 200 F-104s as I was. What am I going to do with those F-104s? They take up airspace, and they are taking up perfectly good ramp-space. They will also take tanker time, but you have to use them and you have to have a plan.

Let us finally move to what I believe were the operational and strategic lessons:

- The value of air campaign planning
- Prepare for coalition operations
- Understand the target approval process
- Chain of command
- Centre of gravity
- Collateral damage and loss of civilian lives
- Agree on the "rules" before the fight starts
- What our elected and appointed leaders think about air power
- What are we willing to die for?

First there is the value of the air campaign planning. You are airmen, but when it is time to go to war you will fight jointly: There will be a land, naval, marine and air component, and you will all come together as part of a joint force. The CINC will have an objective in mind and a campaign plan. He will ask you to make a contribution to his campaign plan. You as an airman will have to come back to him with the best use of air power to help him accomplish his goals. He might say to you, "Short, I cannot stand you bombing downtown Belgrade". Then you have to choose another option, but I think as airmen you bring to him first what is in your professional opinion the very best use of air power. That is what air campaign planning is all about. If you fall on something less than that, well so be it, but do not immediately go there just because you think that is what the politicians want. Your job is to bring to your boss a plan for the use of air power as you believe it ought to be used to accomplish the military objectives.

Second, prepare for coalition operations. I have talked a lot about that already. The tactical level of war is reasonably easy to do. You and I can

sit for five minutes, and you can tell me what assets you have got, whether you have secure radios, whether you can fight at night and do you speak English etc. But the operational and strategic level of war is where the diplomats operate, and they know stuff that you and I do not know. For instance, I did not know that the British had placed restrictions on my airplanes based in the United Kingdom. The British said to me that parliament needed to approve all targets dropped by B-1s, B-52s and F-15Es based on their soil. The approval process was incredibly slow. In more than one instance I had airplanes on a tanker, refuelling, within 15 minutes of breaking into Serbian airspace, and the British parliament came through and said that target is not approved, and I ended up cancelling the whole strike package. I did not know that, and I clearly did not know that the French would have veto power over the entire line. If one nation out of nineteen would say that you cannot strike a specific airfield in Montenegro, then I could not strike it. I was stunned. The vote was eighteen to one, and the one was the winner. You need to know the impact of operating within a coalition. Does everybody have a vote, or is it like it was in the Gulf, where we put together a coalition of the willing? Somebody set the rules, and everybody who was willing to follow those rules became a part of the coalition. That is the way I prefer it, quite frankly. If I were ever to fight again, I would fight in a coalition of the willing where we all agree on how we will do this beforehand.

Understand the target approval process. We had targets being approved by the heads of state. The President of my country was approving individual targets before I could strike. That is ludicrous. He had no more idea of why we were striking certain targets than somebody from the street, but because we had done it before we did it again. I had to provide photos of individual targets that depended on the President giving it thumbs up or thumbs down. It took two weeks to get a target approved. We almost ran out of targets at one point, because the President was out of town and we could not get target approval. Once he approved them, they then had to be approved by a number of other presidents and prime ministers who could use their veto. Targets came on and off the list. What you want as airmen is for the politicians to approve target sets. It is appropriate for you to go to your prime minister and say that in order to accomplish the political objectives you need to strike some power-grids, command and control nodes, production facilities,

fielded forces, lines of communication and industrial sites. “Now, are there any targets in those target-sets that you do not want me to strike?” “Yes, I do not want you to strike the presidential palace”. “OK”. “I do not want you to strike the Serb headquarters because it is only 100 meters from a thousand year old orthodox church”. “But, Sir, I can do that without destroying the church”. “No”. “OK”. When these things are settled you as an airman orchestrate all those options to put together an air campaign. We bomb for effect, or what we in my country call effect-based targeting, as opposed to randomly bombing military targets. I should be able to tell you the effect I expect to have on every target I hit. The effect I expect to have by taking out the power-grid is to impact command and control, cause confusion among the Serb leadership and affect the morale of the population. I believe that will begin to bring Milosevic to the table. If you cannot explain to your leadership what effect you expect to have by bombing a target, then you should not be bombing that target. Then you are just randomly targeting, just blowing stuff up, hoping for something to happen..

The next operational and strategic lesson is concerned with the chain of command. You folks have not been at it for long, but I have been at it for 49 years, and the motto for as long as I have been in the business is: Train as you intend to fight, and fight the way you train. Nato had a chain of command in place in Naples for 50 years that was supposed to run this war. Instead, thirty days before the war started General Clark shuffled aside that Nato chain of command, and set up a US-only chain – a joint task force with only Americans throughout the process. That was how the war was run. Essentially General Clark was saying to all of you and your countries that only the Americans are capable of doing this thing so the rest of you should get out of the way. It is okay for you folks to drop bombs, but we will make all the choices and decisions. That is incredibly arrogant and not the right way to do business.

Then there is the importance of centres of gravity, and we talked at length about that in the beginning. You have to talk about that before the fact and hope to get an agreement.

Let us go into collateral damage and loss of civilian lives. That will affect your career just as much as anything else that you do. The politicians now

have the expectation that air power is perfect, believing that we never miss, that we do not cause collateral damage and we do not kill folks that we should not kill. They have no idea what war is really like, because they think it is a video-game. After the Gulf War, Deliberate Force and Allied Force war looks like a game: An endless series of things blowing up and nobody dies. In fact that is what happened to our side the last couple of times: No allied airmen died in Deliberate Force and no allied airmen died in Allied Force and very few allies died in Desert Storm. On the ground we killed more people from fratricide than the Iraqis killed.

We have damaged ourselves by going to the politicians and told them what to buy without being totally honest. My country is very guilty of that. We go to the US Senate and say if you can buy this or that for 10 billion dollars, then we will never miss again. Well, we do miss: The weather is bad and weapons malfunction. We overstate our own capability, that is number one. Number two, management risk is what I get paid for. I started this fight from 15,000 feet, but I was not going to attack anybody on the ground. I was going for fixed targets and centres of gravity until I brought Milosevic to the table. 15,000 feet is a great place to deliver laser guided weapons, and I was really able to diminish the risk. However, as soon as we started attacking targets on the ground, when I could not tell a truck from a tractor with Albanian civilians, I had to let the kids go low. As soon as we had that first tragedy, when we bombed a couple of wagons with civilians that we thought were trucks, I told the forward air controller that they could now go down to 5,000 feet so that they could make positive identification, and I told the bomb droppers that they could go down to 8,000 feet so that they too could make positive identification. As an air commander, when that one tragedy had occurred, I did what you do every day: Another risk-benefit evaluation. I had to increase the risk of my aircrew to diminish the risk of tragedy on the ground. But I do not talk to politicians about this, because Wesley Clark does not allow me to talk to politicians. I say to SACEUR: “Sir, with effect from this morning I have changed the special instruction”. These are not rules of engagement, these are special instructions that the air commander issue to the aircrew on a daily basis. I would say that the minimum altitude for the forward air controller is now 5,000 feet, and the minimum altitude for the strikers are now 8,000 feet. That will significantly increase the risk, because we are now down at the heart of the

SA-9, and we can probably be hit by a light Anti Aircraft Artillery (AAA) that is not radar guided. We are not going to fly around at 5,000 feet, but they are cleared to go down and make a positive identification. The risk has gone up significantly, but that is the best I can do. Whether he relays that to Tony Blair I do not know, but I do not get to talk to the politicians. Every day is a constant balancing of risk and benefit. How much risk am I going to accept? The weather is bad – am I going to let this kid fly? If a bunch of Russian airplanes are coming for the Pope, yes, then we will take that risk. If nothing is happening he may say there is no need to fly this day. "But boss, we flew yesterday". "Yes, but the risk yesterday was justified by the benefits I thought we would achieve".

Agree on the rules before the fight starts. We have talked about that already. The rules changed in the middle of the fight, and you do not want that to happen. You need to know what the rules are when you are going in, and you need to stay with the rules, unless you need a change, and then you ask for a change.

We have also talked about my last but one point: The politicians have unrealistic expectations of air power. They think we are clean, never make mistakes and nobody dies. To some extent this is of course our own fault: We have to do a better job before the fact. The education process has to occur all the time. You cannot do it just fifteen minutes before the war. It is your job, every time you talk to a politician and every time they come out to your base, to tell them how good the system is, and be very proud of your F-16 or whatever it is you are showing them, but then you have to say: "By the way, Sir, about 10% of the time, because of some combination of errors, we will miss". The kid was being shot at just as he released, and driven off target, the laser spot was off by 40 meters or the cloud came between the laser and the target on the last ten seconds. Stuff happens. But we have not been honest with the politicians as professionals on what can go wrong, so they believe we are perfect. We never show them the films of the bombs missing. We always go the US Senate and show them film after film of the bombs that hit and give them the impression that we are perfect and that we are so precise that nothing will happen that we do not want to happen. We have brought that on ourselves and need to correct it. Finally: What is your nation willing to have you die for? Are they willing to have you die to demonstrate resolve? I personally think that is a terri-

ble thing to die for. Both of my kids, as I said, fly fighters. I do not want my daughter to die, of course, but I really do not want her to die for demonstrating resolve. If she is going to die, I would like to know that what my nation was doing, was clearly in the national interest. Maybe national survival was not at stake, but something so important for my nation was on the line, that it was worth young Americans and Norwegians to die for. I would like my elected and appointed leaders to make an articulate case for that situation. They should explain why we are going to war. Body bags may come home, but we, the president and the men around him or her, believe that it is so important for our nation that we accept casualties. Moreover, that we do not quit the first time somebody comes home in body bags. Do any of you remember the US experience in Somalia? We went in to stop starvation. The CNN had geared us up again, and we were in Somalia to prevent a lot of people from dying. We were successful at that, but then because we were being harassed by a bunch of bandits we decided that it was important to catch the bandits. A bunch of lightly armed US Rangers were going to get Mohammed Farah Aidid. Then a US helicopter was shot down with a grenade and a Ranger's body was dragged through the street and the American public demanded that we get out of Somalia. Rangers were dying and it was not in our national interest. The American public had not been convinced by our president that this was the right thing for us to be doing, and they wanted us out. When it is time to go to war, when it is time for you and the men that work for you to go into harms way, you want it to have been a conscious decision at the national level that this is worth dying for. I do not think we have done that to be perfectly honest. When our leadership goes out and says that we do not have a ground option, what does that tell you and I? That it is not worth soldiers dying for it? We do not want soldiers coming home in body bags, although a couple of airmen would be okay. But we think that air power is so accurate and safe that nobody is going to die. So this is a no-risk option. We will take ground troops off the table, send some airmen in who will not die anyway, and this will all be worked out. That combination is very dangerous, because next time we might fight somebody that is good at this business, as opposed to somebody as bad as those we fought the last couple of times - the Serbs and the Iraqis – we may lose a bunch of folks on the first couple of nights and all of a sudden demonstration of resolve does not work out. A couple of nations will pull out of the Coalition too. I think it is incredibly impor-

tant that we get a national consensus on what is worth dying for. I am very hopeful that in my country the leadership of Mr. Bush, Mr. Cheney and Mr. Powell will make it very clear that when we use American forces, when we send my son and my daughter into harms way, that we know why we are doing it and that we are doing it for the right reasons.

Somebody asked me what I believe the Royal Norwegian Air Force should do in the near future. The first thing you have to do is meet the needs of your nation. That is the real reason for your air force existing. What does Norway want your air force to do? Protect your airspace and guarantee your sovereignty in all weather. So, you have got to have a very capable air-to-air platform. The second thing I believe you have to do is contribute to Nato operations, out-of-area, which is not an Article V, where you are defending against the hoards coming down from the north. To me that means that you have to have a force that is technologically capable of being on the first team on the first night. That requires precision, night and weather, in addition to stealth to survive, because, as the air commander ten years from now, I am going to make that risk assessment you asked me about. I have a bunch of Eurofighters, F-22 and JFS. Some are stealthy and some are not, and I am not going to accept the risk of sending un-stealthy airplanes in on the first, second or third night. Stealth and survivability are going to drive that. I think a small nation like yours, who wants to be on the first team, after you have met your national responsibilities, should not focus on numbers. My nation provides numbers. We are the biggest air force on the face of this earth, we have world-wide responsibilities and defence budgets beyond the imagination of other countries in the world. So we are providing a lot of numbers. What I want from you is six first rate airplanes that are just as good as mine, or very close to it. I do not expect you to buy the F-22, only my country will spend that kind of money, but I expect you to have something like the JFS. Now, I do not work for Lockheed, but I believe you should have stealthy and flexible airplanes. Such contributions to the air commander give him a lot of flexibility, as opposed to having a bunch of airplanes that can only fly during the day on combat air patrol. If you have got the budget to help fill a niche, that is also very important. If you were willing to take six platforms and turn them into dedicated jammers that would be very helpful. There might be only one niche that you can fill, but at least you should have some capable combat airplanes, and

expect my country to do the ISR missions and BDA. But I want you to make a contribution, because I want you to share the risk. It is not acceptable to my nation, and it might sound arrogant, but we are talking about the truth here today, that fighting coalitions only have American stuff. I want some Norwegians alongside my daughter, not too close, but alongside, so you are all part of a team, and we all have the same chance of dying. Burden-sharing does, however, not mean numbers. Burden-sharing in my mind means risk: I want you there, ready to die, just as much as my kid. I am not the Secretary of State, but that is how I see it.

With regards to leadership I think the first thing is that you have to understand your business. You do not have to be the best fighter pilot on the face of the earth, but the kids working for you need to know that you know your business. You can never lie to them. You have to shoot straight with them. Do not promise your men something that you cannot deliver. Be visible, do not sit in your office all day, but wander around in the CAOC and go out and visit fighter squadrons. Do not think that you are so smart since you have been at it for thirty-five years that somebody else is not right and that you are never wrong. You may well be wrong, however many stars you have on your shoulders you had better be ready to listen. It does not matter where the input comes from. Do not ever get so narrow, arrogant and smart that you know all the answers. You have to listen, be very flexible, and do not think that there is only one way of doing business. I absolutely wanted to go downtown on the first night, but it was clear that it was not an option. I kept complaining about it to Clark every day I could, but I was doing something else that he asked me to do. We have to stay flexible: It is the key to air power but also the key to leadership. A leader that will not change his mind, and one that will never admit that he is wrong, cannot do his job. Trust your people, delegate and do not micromanage. Wesley Clark drew me crazy as a micromanager. Let me end with a true story. About day 60 of the war we had some pictures of Kosovo that were put on the world-wide net live, and Clark just had that channel on at his desk in Mons with the live video, and I am sitting in my office about four or five o'clock in the afternoon. The hotline rings, and I pick it up: "Mike, Wes, I see three tanks rolling out of the highway just outside Pristina. Get out there and kill them". This was SACEUR! He spotted three tanks and told me go and kill them. This was micromanagement to an incredible degree. You are a general

officer, and you think you are somebody and you think you know it all. Sometimes you walk in and you see three guys doing their job, just grit your teeth, turn around and walk out. Let them do their job. If they prove to be incompetent, then fire them and hire somebody else, but do not try do the job for them. Finally I would tell you to have somebody around you that is absolutely not afraid of you, so that you can close the door every day and ask whether you are screwing things up. He might tell you that you are. The last ten directions you gave were absolutely ludicrous. You have to go out and change every one of those, apologise to your staff and get your stuff together. You have to have somebody that can do that, because all of a sudden the Emperor has no clothes. I had three or four good friends that I had known for years. I did not have them when the war started, because it was as you remember, supposed to be a three day war, but as soon as I knew it was not going to be a three day war I had those guys come down. I gave them jobs, they worked their butts off, but their primary job was to say "Hey, boss, let us sit down and talk. You had eight great ideas today, but that last one was not one of them". Trust your people, do not micromanage and let them do their jobs. I thought we had dealt with it after Vietnam. If you were to go back and research old newspapers from 1967-1968 you would find a picture from the Washington Post with Lyndon B. Johnson, the president of my country, and Robert McNamara, the Secretary of Defense, on their hands and knees, going over the map of North Vietnam to find targets for me to attack the next day. My peer group came out of Vietnam absolutely swearing that we would not let that happen again. We thought we had fixed it in the Gulf War, because Colin Powell, Dick Cheney and George Bush did not get involved in individual targets. Chuck Horner went to Camp David, briefed the President on how he wanted to run the air war, and he and Schwarzkopf got it done. We thought in my country that this was fixed, but I can tell you why this happened. Three months before we went to war in Kosovo you might remember an operation called Desert Fox where we bombed for about 96 hours in Iraq on a limited number of targets. My understanding is that the because CINC Southwest Asia had determined that he only wanted to hit x number of targets, and was only going to bomb for four days no matter what, they decided it was appropriate to brief the President on what they were going to do and on every target they were going to hit. This fight, Nato was convinced was going to be only a three-night fight. So having briefed the President on four

days of targeting in Iraq, it was necessary to get the President's approval on three days of targeting in Kosovo. We could not see that through and we could not stop. We are trying in my country with the new administration to convince them that it is not their role to pick individual targets. The problem that we now face, because technology moves so fast, is that decision makers in all the capitals all around the world will have the information the same time as you will have it as the air force commander. Thus, leaders are prone to micromanage because they now have that capability. It is the job of military professionals to go to our leaders and say "Mr President, Mr Prime Minister, Mr King: It is not your job to do that. Tell me what you want done. I will brief you on my military objectives and on how I intend to meet your political objectives. Tell me what not to strike and let me do my job". It is like going to your doctor. I do not tell him where to cut. He makes that decision. I do not call in somebody else to tell him where to cut either, because he gets paid to do that. I tell him that I am sick, and he will fix it. Why should it be different with bombing? It is a bit more serious than your appendix though!

I am absolutely convinced that in the next fight we can see a Danish, Norwegian or Italian CFACC, depending on where the fight is. Maybe an American deputy, but maybe not. I think we will always have an American chief of intelligence if we are part of the fight, because we bring assets that nobody else can bring. I cannot ask you to be the chief of intelligence if you do not have the right access. I grew from a very small CAOC with a group of folks I was comfortable with, and there were Americans permanently assigned to Vicenza, and the other nations provided people on an occasional basis.

A final note on leadership, and I am going to be a little bit philosophical. I do not believe that my job is to motivate. I provide an environment and guidance that allows you to do your job. I do not believe that leaders motivate, I believe that you do that yourself. My perspective is that the air and the ground crews that come to war are professionals. They may well be frustrated about the rules of engagement, they may well believe that this fight is not in their national interest, and that we are not fighting as well as we could. I think every pilot in the Coalition felt that way, but they are professionals, survival is at stake, there is an enormous peer group pressure to perform, and you do not want to be the weak link. I do not believe that the commander has to motivate. Before the fight

started I went down and laid out what I thought was going to happen. I said this is not the way we want to do it but this is the way we are going to start out. I will do my best to move in the direction that we want to go, but your job is to execute the ATO that I give you as well as you possibly can. Let me manage the risk at the operational level and you manage the risk at the tactical level and be the professional you were trained to be. I think that is all you could ask from your leader, but clearly if you sense that they are reluctant to do their job, because they do not believe in what they are doing, then you have to deal with that straight on. You might have to pull that unit out of action. I would have no problems with that. The air force is different from the other services, particularly in carrying the fight to the enemy, but you are all volunteers. You are not forced to come here to the Air Force Academy. You are here by choice, as opposed to being a doctor, lawyer or a taxi driver you have chosen to fight for your country in war. Now it is time to do that, but as was the case in North Vietnam, I wish we had better targets, but that never had an impact on me doing my job. I do not think this is philosophical, I believe that as a commander and a leader. I try to get the pulse of my people and see if they were unhappy enough for it to influence how they were doing their jobs. I never saw it in Vietnam. We were really unhappy about how that war was conducted. We bitched about it in the bar at night and got drunk, but we sobered up and went flying the next day. We were as good as we could be. You will be surprised how good you become in combat as a result of peer pressure, because somebody else is depending on you. If you are a front-seater, the back-seater is dependent and vice versa. The strikers are depending on the F-15s to clear the sky.

I thank you for your time. It has been a lot of fun for me, I was very impressed by some of the questions you asked here, and I hope it has been worthwhile for you. You are just getting started on what I think is going to be an incredible experience for you, your air force is making all the right decisions to be that front-line air force, and it is depending on you to do that. A lot of times you will not be fully appreciated by your country, but you need to understand that when the nation's survival is on the line they turn to you and expect you to be ready. I wish you the very best, and when you walk into an A-10 squadron some day, and see an incredibly good looking young lady and her last name is Short that is my daughter and you have to take good care of her.