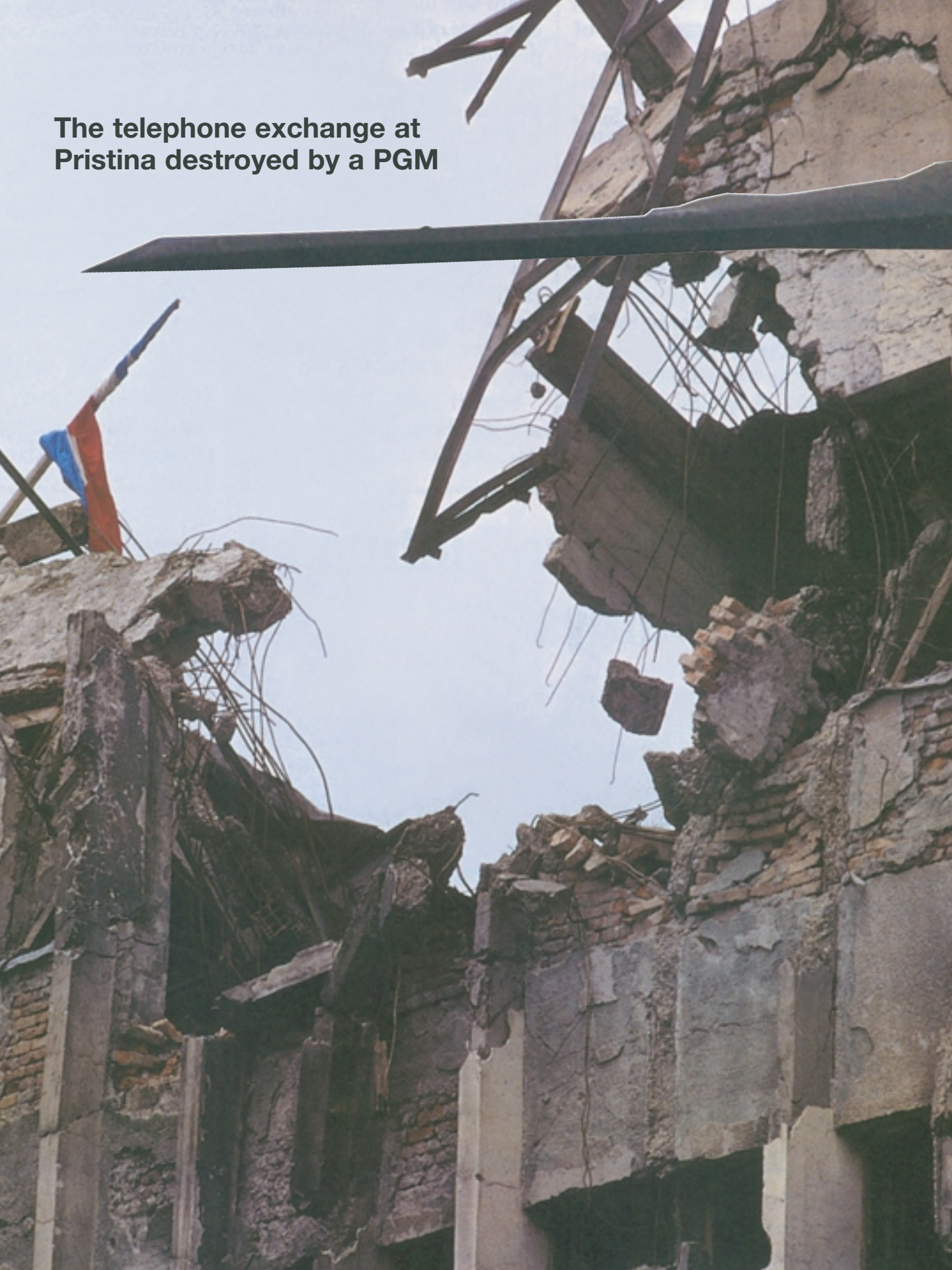


The telephone exchange at
Pristina destroyed by a PGM



The Broader Implications of the

Increasing use of Precision Weapons



Air power is an unusually seductive form of military strength because, like modern courtship, it appears to offer gratification without commitment

Eliot Cohen¹

Air power has been the dominant means of employing force for Western nations for the past decade. It is seen as being the deciding factor in the Gulf War, in Bosnia Herzegovina in 1995 and in Kosovo in 1999. However, airpower has also been used in a generally much less publicized role in Iraq throughout that period, and in other lesser operations. But as Eliot Cohen points out, it also appears to be a less brutal form of warfare, at least for those employing it, with an acrimonious debate developing between the proponents of the Revolution in Military Affairs and those who warn of the dangers of a sanitized, or virtual, war.

A key element of air power in these conflicts has been the use of Precision Weapons or PGMs (precision guided munitions) and the object of this article is to examine the broader implications of their use. The article will firstly establish the context against which the utility of PGMs can be considered. This will be achieved through a brief summary of: the pre-Gulf War historical background; the Gulf War; the Balkans air campaign; the punitive or coercive actions in Iraq, Afghanistan and Sudan; and the Kosovo air campaign. Whilst counter to current UK military doctrine the term 'campaign' is defined as 'a series of military operations in a definite area or for a particular objective', in which sense it is used throughout this paper. The conflicts will then be analysed in terms of the technical, doctrinal, legal and ethical factors. Finally, these factors will be examined to see if there are some underlying trends or specific lessons which may better inform the debate.

The use of LGBs dates back to 1972 when they were first used in the Vietnam war, where the key factor to emerge was the 95% reduction in aircraft required to destroy a specific target and the concomitant reduction in aircraft and aircrew losses. Their next use, in the Falklands conflict, again showed their increase in effectiveness over unguided weapons but the limitations of weather on laser designation was also highlighted. LGBs were then used against Libya, in retaliation for a terrorist attack on US servicemen. This operation demonstrated that whilst PGMs significantly reduced the possibility of collateral damage, it could still occur and be immediately reported through the medium of TV journalism. Furthermore, this was the first operation in which concern about collateral damage led to targeting decisions being made at the highest political level.²

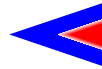
The Gulf War marked the first use of stealth technology, in the use of cruise missiles and of the complementary capability of the F117 armed with LGBs. In all, the coalition dropped 10,468 LGBs, plus 60 French AS30L laser guided missiles used against bunker type targets,³ and launched 282 TLAM and 35 CALCM.⁴ Whilst these were just under 7% of the total weapons dropped it was 2¹/₂ times the number dropped during the Vietnam war. Consequently, PGMs were restricted to key targets or those where the risk of collateral damage was high, but they were still susceptible to weather and other degrading factors. The amount of collateral damage and civilian casualties was remarkably low but was subject to propaganda use by the Iraqis through a controlled media. Coalition loss rates were far below those expected but nearly all air operations were conducted above 15,000 feet, above the ceiling of anti-aircraft artillery and with extensive defence suppression. However, concerns were emerging that this was leading to unrealistic expectations of the future loss-free and omnipotent use of force.

The lack of collateral damage is best illustrated by the lack of media coverage and by Milosevic's subsequent statement that 'only 25 Serbs had died as a result of the campaign'

In comparison, the Bosnia air campaign was very limited in scope, and personally controlled by General Ryan (COMAIRSOUTH) due to an overwhelming concern with the political ramifications of aircrew losses and collateral damage incidents. The lack of collateral damage is best illustrated by the lack of media coverage, particularly when compared with both the Gulf War and the later Kosovo campaign, and by Milosevic's subsequent statement to Ambassador Holbrooke that 'only 25 Serbs had died as a result of the campaign.'⁵ PGMs comprised 70% of the weapons used but there was only one use of cruise missiles. This was seen as an unapproved escalation by some NAC members, but had a disproportionate effect in coercing Milosevic into a more acquiescent stance in the parallel, but unlinked, negotiations. During Operation DELIBERATE FORCE only 653 LGBs, 13 cruise missiles and 305 unguided bombs were used.⁶ A measure of the effectiveness of PGMs against unguided bombs was that whilst 2.8 PGMs were dropped per DMPI destroyed, the equivalent figure for unguided ones was 6.6. Although part of a broader picture of diplomatic activity and ground operations, airpower, and PGMs in particular, appear to be the underlying reason for the resolution of the situation in Bosnia. However, it also set even higher expectations for its future use.

The post-Gulf War operations in Iraq can best be seen as an unavoidable follow-on that slowly shifted in aim over ten years with no obvious conclusion in sight. As a consequence, there were increasing questions concerning the legality of those operations. There was also an increase in the use of cruise missiles, linked to the US Administration's policy of minimizing losses when national vital interests were not at stake. There was also a further retaliatory operation, but this time using just cruise missiles against 'terrorist related' targets in Afghanistan and Sudan, justified as 'self defence' under Article 51 of the UN Charter.

The most recent use of PGMs was in the Kosovo conflict of 1999, where the potential use of the veto by Russia and China in the Security Council forced a switch from formal legal authority for forceful intervention, to a moral justification. This was met



with a legal challenge in the International Criminal Tribunal for former Yugoslavia rather than in the Security Council. There were significantly differing expectations of success ranging from days, by those who may have misread the lessons from the Bosnian campaign, to months, by those who opposed the policy of gradualism. The result of this was that statements concerning a short campaign and that ground troops would not be used was seen by Milosevic as evidence of a lack of will on behalf of NATO. The campaign was conducted with particular sensitivity to potential losses and collateral damage but that, paradoxically, led to criticisms that reduced military effectiveness led to more collateral damage. In fact there were no aircrew losses and collateral damage transpired to be very low. However, considerable asymmetric use of media, highlighting collateral damage incidents whilst ignoring the ethnic cleansing, obscured those facts. Over 23,000 weapons were dropped during the campaign, of which over 300 were cruise missiles,⁷ most of the latter being used in the early stages when, according to General Clark,⁸ ‘the targets were more suitable’. During the earlier part of the campaign, the weather was also a significant limitation with at least 50% cloud cover for over 70% of the time. In these conditions only the cruise missiles and the new US Joint Direct Attack Munition (JDAM)⁹ were certain to be effective and these were limited in number. Whilst no official figures are yet available for the number of PGMs used in Operation ALLIED FORCE, General Jumper (commander of US Air Forces in Europe) stated that ‘out of more than 9,400 designated target aim points over 70% were struck by precision munitions’.¹⁰ In other words some 6,600 DMPIs were struck with PGMs and 2,800 with unguided weapons¹¹ The CSIS analysis estimates that of the approximately 23,000 weapons used 8,050 were PGMs, including 329 cruise missiles. This would give a PGM to DMPI ratio of 1.22:1 with a corresponding unguided weapon to DMPI ratio of 5.3:1.



B-2s used JDAM weapons against infrastructure targets, some within Belgrade city limits. The GBU-31 JDAM (Joint Direct Attack Munition) is a 2,000 lb bomb with an optional penetrating warhead.

One aspect of the air campaign that achieved prominence in the media and in subsequent independent analyses was that of collateral damage, which can also provide a measure of the effectiveness of the campaign as a whole. The Yugoslav government accused all the nations involved in the bombing of the crime of

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Genocide¹² but produced varying estimates of civilian deaths of between 5,700 and 1,200 people,¹³ whilst the US view was that ‘fewer than 20 incidents of collateral damage occurred.’¹⁴ However, both the UK and NATO¹⁵ accept the independent Human Rights Watch report¹⁶ which assessed that there were 90 incidents involving civilian deaths with between 488 and 527 being killed. If this is viewed in terms of the 10,418 strike sorties mounted during the campaign then less than one percent of them involved civilian casualties. The report also assesses¹⁷ that of the 28 incidents where they can identify the weapon used, 21 involved PGMs and the other 7 cluster bombs; a not unreasonable assessment given that 70% of the targets were struck using PGMs. As to the causes of these incidents, Human Rights Watch quotes US Deputy Defence Secretary John Hamre¹⁸ as attributing 10 instances to civilians being present at the target at the time of the attack, 3 to target misidentification by the pilot and 2 to technical malfunction. What he omitted was inaccurate targeting, due perhaps to faulty intelligence, which was acknowledged by the US in the case of the bombing of the Chinese Embassy on the 7th of May.¹⁹ However, the most significant factor in the campaign was the cohesion of the NATO alliance, which both sides recognized as the NATO ‘Centre of Gravity’. Consequently, it was a very ‘political’ campaign with significant national leadership involvement in the tactical details.

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Having examined all the conflicts in which PGMs were used, concentrating on those of the last decade, we will now move on to analysing those conflicts in terms of technological, doctrinal, legal and ethical factors. The following technical trends or significant developments can be identified:

- A steady and significant increase in cruise missile accuracy from 50% in the Gulf War to 85% during operation DESERT FOX;

- An apparent decrease in LGB accuracy from 95% in Operation ELDORADO CANYON, through almost ‘one bomb equals one target’ during the Gulf War, to an 80% success rate in 1995 in Bosnia to 75% in Operation DESERT FOX;

- The continuing limitation of weather on LGB use, particularly if operating altitudes are constrained;

- The development of Enhanced Paveway III²⁰ and JDAM, plus the use of UAVs for target detection and identification, and designation²¹ to overcome this problem;

- The development of a Cruise Missile impact video capability, to match that of LGB designators.

Whilst the first trend appears obvious it obscures the initial claims that it was 85% effective. This gives the first lead as to why the second trend appears counter-intuitive. The initial Department of Defence ‘Report on the Conduct of the Gulf War’ made claims concerning the effectiveness of LGBs, and in particular the stealth/LGB combination, for what the General Accounting



Office²² later criticized as procurement driven reasons. In the case of ELDORADO CANYON, 18 aircraft dropping 3 LGBs each is not statistically significant. In the next two measurable events, Operations DELIBERATE FORCE (Bosnia) and DESERT FOX, the success rates are remarkably close at 80% and 75% respectively. However, the DESERT FOX analysis quotes the number of LGBs which hit their intended target whilst the far more detailed DELIBERATE FORCE analysis considered weapon effectiveness in terms of the comparative numbers of PGMs and unguided bombs per DMPI. Furthermore, it considered all PGMs, laser guided, electro optical/infra red and cruise missiles in that calculation. This is the second source of confusion in attempting to compare success rates over the campaigns. Finally, analyses of the Kosovo air campaign imply that the PGM to DMPI ration had halved when compared to the Bosnia campaign four years before. Assuming that each weapon was individually targeted on each DMPI, which is not unreasonable considering the limitations on NATO and particularly US PGM stocks²³ then even the improved PGMs and JDAMs could not achieve a single shot probability of kill of over 82%. Furthermore, only 3% of the PGMs used were cruise missiles. Therefore the only conclusions that can be drawn are that: over the whole spectrum of PGMs between 75% and 85% can be expected to hit the target; and as guidance systems become hybrid, with more reliance upon GPS across the spectrum, LGBs are tending towards the greater previous accuracy of the cruise missile.

The corollary to this is that 15% to 25% of PGMs can still be expected to miss the desired target, through mechanical failures or human error, or fail to achieve the expected level of damage. Thus a PGM that is incorrectly targeted, such as those which hit the Chinese embassy in Belgrade,²⁴ has a very high chance of hitting the 'wrong' target. Furthermore, one of the small percentage of weapons which may fail to guide to its target may miss by miles rather than feet.²⁵ All this serves to illustrate what may be called the 'PGM Paradox' which is that as expectations of flawless performance increase so does the outcry when those expectations are not met.

But does this mean that there has been a Revolution in Military Affairs (RMA)? The then USAF Chief of Staff, General Ronald Fogleman writing in 1997 had no doubts when he said that 'The increases in the capabilities of air and space assets as instruments of war have revolutionized our ability to assess and attack adversaries in terms of range, direction and timing. As an instrument of peace, the RMA has created new expectations for access, influence, presence and assistance'.²⁶ If such an RMA has occurred then it is very much an American occurrence: the availability to a European force of mission critical items, such as space based surveillance, is US-dependent. A more pragmatic line was taken in the UK's Strategic Defence Review of 1998 where it was considered that whether or not an RMA was underway was academic. What mattered was the UK continuing to contribute significantly to multinational operations. However, it went on to warn against the potential effects of 'asymmetric warfare' against a force that was becoming increasingly dependent on high technology.²⁷ The validity of the warning was brought home during Operation ALLIED FORCE where there were significant target location and identification problems. The US Secretary of Defence and the Chairman of the Joint Chiefs of Staff recognized this in their statement to the Senate Committee on Armed Services when they said that 'Given that the US may confront the use of similar tactics in the future, our limitations in

being able to locate enemy forces under cover are being assessed, with the emphasis on understanding how we can quickly develop and implement approaches to counter such tactics'.²⁸ The weapons developments outlined above also reinforce David Caddick's view that rather than a revolution we are seeing more an evolution of military capabilities,²⁹ albeit a very fast one, but one in which both technology and tactics are responding to new threats.

Whilst the above factors all have a doctrinal element, in particular the concepts of 'precision engagement' and 'information superiority',³⁰ they are primarily technical in origin. On the other hand there are some developments which, although technically enabled, are primarily doctrinal in concept. In this case the NATO definition of doctrine as the 'fundamental principles by which military forces guide their actions in support of objectives. It is authoritative but requires judgement in application'³¹ is used.

Conflict	No of weapons	Cruise Missiles	non-cruise PGMs	Unguided bombs
Gulf War	155,186	0.2%	7%	93%
Deliberate Force	1026	1%	69%	30%
Desert Fox	955	44%	30%	26%
Allied Force	23,000	1%	34%	65%

Table 1: Percentages of weapons used.

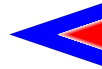
Conflict	Cruise Missiles
Gulf War	330
Deliberate Force	13
Punitive operations	>180
Desert Fox	420
Allied Force	329

Table 2: Numbers of cruise missiles used.

The first conclusion to draw from these two tables is that even a relatively small conflict such as that over Kosovo requires a significant number of unguided weapons, in a major regional conflict similar to the Gulf War the percentage will be even higher. The reasons for this are fourfold: firstly, by no means all aircraft are capable of laser designation; secondly, most PGMs are far more expensive with costs ranging from \$1.2m for a cruise missile to \$73,000 for a Paveway III LGB;³² thirdly, near-precision capabilities, such as GR7 Harriers dropping unguided weapons on GPS-based coordinates in Kosovo, may be all that is required and; finally, such conflicts are likely to be fought by coalitions and only a few nations in addition to the US possess a PGM capability.

Secondly, the number of cruise missiles used in Operation DESERT FOX is significantly higher than in the equivalent sized DELIBERATE FORCE. One argument for this could be that far deeper penetration was required in Iraq, against a much stronger integrated air defence system.

However, when the number of cruise missiles used in the three punitive/coercive attacks on Iraq is considered, an alternative view may be that risk to aircrew is not justified when national interest does not require it.



Lastly, the number of cruise missiles used during Operation DELIBERATE FORCE was remarkably small, especially as some 60 had been used two years previously in two attacks on Iraq. However, the number used against Yugoslavia in 1999 was considerably higher, particularly when the objective appeared to be to coerce Milosevic into accepting the Rambouillet terms with minimum force. Furthermore, the total force applied in the latter operation was also considerably greater.

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The RAF's Harrier GR7s flew from Gioia del Colle, one of the closest Italian bases to Kosovo. The Harriers were armed with LGBs.

Two additional factors emerge from the analysis of the campaigns as a whole. Firstly, with the exception of the UK Tornado losses in the opening nights of the Gulf War where they were employing a central region designed weapon which could only be delivered from low level, aircrew losses from then on were between minimal and zero and aircraft losses barely higher. Linked to this is that for all subsequent operations minimum operating altitudes were specified ranging from 15,000 feet during the Gulf War and Kosovo campaign, although during the latter aircraft did operate as low as 6,000 feet in the later stages, to the Bosnia campaign where the limit was 10,000 feet, reducing by exception to 5,000 feet.³³

The next doctrinal debate concerns the move away from the use of decisive force to a strategy of gradualism. In this case the comparison is between the Gulf War and Operation ALLIED FORCE, the other uses of PGMs being too restricted in time or scale to offer meaningful analysis. Whilst the issues that emerged over Kosovo have been addressed earlier, the relevance of doctrine is a broader issue. At the political/strategic level the 'Weinberger Doctrine' delivered in a 1984 speech concerning the uses of military power was both a response to the loss of 421 Marines in the Beirut bombing of the 23rd of October 1983 and

the earlier gradualist policies in Vietnam of Johnson and McNamara. The six points of his doctrine can be summarized thus:³⁴ forces should only be committed to intervention if vital to US national interests; there should be an intent to win; there should be clearly defined and achievable political and military objectives; the relationship between forces and objectives should be continually reassessed; there should be the support of the people and of Congress; and committing forces to combat should be a last resort. This was later refined into the 'Powell doctrine' which required that, once committed to using force, that should be done so decisively. In the Gulf War there can be little doubt that Weinberger's tests were met and the conflict was waged with decisive force. However, where Kosovo is concerned arguments can be put to support either side of the debate. It is more difficult to sustain that in the question of decisive force. Both the NATO and UK reports on the conflict make the point that 'enough' force was applied and that the desired end-state was achieved. On the other hand, commentators such as Aubin and Walker are adamant that once the threshold of war is crossed it is both morally and practically right to prosecute it with the maximum of vigour. Perhaps it could be argued, as General Clark did, that 'it wasn't a war, there was no declaration of war, it wasn't legally a war, and we weren't going in there to conquer territory; simply one plank in a diplomatic strategy'.³⁵ Senator Reed's response to General Short's arguments for the immediate application of decisive force was 'it amazes me that people are shocked that politics and political judgements enter into military strategy it is an integral and inescapable part'³⁶ backs up Clark's essentially Clausewitzian argument.

... 'it wasn't a war, there was no declaration of war, it wasn't legally a war, and we weren't going in there to conquer territory; simply one plank in a diplomatic strategy'

The final doctrinal change which can be observed is that of tactical restrictions being imposed, both during the planning phase and in response to specific incidents, to reduce collateral damage. The imposition of lines of attack that are not optimal in terms of weapon effects goes back to the Gulf War weapon employment. However, whilst the tactical restrictions during that Operation DELIBERATE FORCE were made by the Air Component Commander, General Ryan, in an attempt to forestall political problems those during Operation ALLIED FORCE were imposed from the political level to the extent that General Short considered that they endangered his airmen. Again, this poses a question concerning the obligation of commanders to protect their manpower and equipment for reasons of both morale and military practicality which is not dissimilar to that concerning the use of less than decisive force.

In considering the legal trends over the operations involving PGMs during the last decade this section will first consider those issues of the rules governing the resort to force (*jus ad bellum*) and then those concerning the rules governing international armed conflicts (*jus in bello*). Occurring as it did so soon after the end of the Cold War the Gulf War appeared to provide a model for the international use of armed force where the UN and in particular the Security Council could at last play the role envisaged for it in the drafting of its Charter. A graduated series of Security Council resolutions legitimized the Coalition's use of

force under Chapter VII of the Charter both in terms of the restoration of international peace and security and Kuwait's inherent right of collective self defence. Operation DELIBERATE FORCE, in Bosnia Herzegovina in 1995, was similarly legitimized by the Security Council but involved three developments beyond the use of force in the Gulf War. Firstly, in UNSCR 770 (13 August 1993) a humanitarian crisis was recognized as constituting a 'threat to international peace and security'; secondly, UNSCR 836 (4 Jun 1993) delegated the management of the crisis to NATO as permitted by Article 53 of the Charter; lastly, rather than specifying 'all necessary measures' the use of airpower was specifically mandated.

The legal justification for the various operations against Iraq following the Gulf War appears more tenuous. Whilst, unlike over Bosnia Herzegovina, the no-fly zones had no specific UN authorization, the operations they supported (Operation PROVIDE COMFORT in the north and protection of the UNSCOM verification flights) did have that in UNSCRs 688 and 687 respectively. Whilst no parallel ground operation to PROVIDE COMFORT existed in the south a similar air exclusion zone was imposed on humanitarian grounds. The January 1993 attack was justified in terms of self defence and of enforcing the terms of UNSCR 687. On the one hand it is argued that the developing doctrine of humanitarian intervention has been abused by the US and the UK to justify what are now a series of self-perpetuating and essentially punitive operations. The counter view is that whilst the no-fly zones were initially set up for humanitarian reasons, the subsequent operations were legally justified because the initial mandate in UNSCR 678, to restore 'international peace and security etc' by the use of force had not been extinguished by UNSCR 687, the cease fire resolution, as the terms of UNSCR 687 had never been fully met. The Security Council's 'reaffirmation' of UNSCR 687 and 'in particular paragraph 2 of resolution 678' (the mandate to use force) in UNSCR 949, on the 15th of October 1994 appears to lend weight to this argument. However, in the debate leading to UNSCR 1154 being passed on the 2nd of March 1998 the US and UK claim that the unilateral use of force in response to further violations was justified was rejected by 11 delegations including China, France and Russia.³⁷

Whilst there is a punitive element in the coercive actions against Iraq the reverse appears to be the case in the two entirely US operations against Libya in 1986 and targets purportedly related to the bin Laden terrorist network in 1988. Legally, reprisals are illegal acts committed in retaliation for an earlier illegal act by another State, however reprisals involving the use of force may be legal if resorted to in conformity with the right of self-defence.³⁸ Both operations were in response to terrorist attacks and both justified as self defence in accordance with Article 51 of the UN Charter. Whilst both operations were subject to international criticism neither were subject to legal challenge nor to Security Council condemnation.

Finally, Operation ALLIED FORCE appeared in legal terms to be the antithesis of the Gulf War. In this case there was no Security Council resolution either authorizing the use of force or empowering a regional organization. The legality of the bombing campaign was challenged in the International Court of Justice a month after it started on the primary grounds that the nations involved had violated the international obligation not to use force against another state and were involved in Genocide against the Yugoslav peoples. Yugoslavia's request for preliminary measures, ie the agreement of the Court that the bombing

was illegal and an order that it be stopped, was not accepted on the grounds of the lack of *prima facie* jurisdiction.³⁹ However, that did not prevent the Court from considering the merits of the case at a later date.

The case for military intervention, in the absence of specific Security Council authority was spelled out by Marc Weller thus:

NATO's action was based principally on the doctrine of humanitarian action. It occurred in a context which could no longer be considered an internal affair of the Former Republic of Yugoslavia, as was confirmed by the finding of the Security Council according to Article 39 of the UN Charter.⁴⁰ The threat of force was focused on achieving aims which had been spelt out by the Security Council, including a political settlement as a means of terminating an actual or imminent large-scale humanitarian emergency. Whilst not expressly endorsing the use of force, the Council nevertheless endorsed the process which was to be supported by this threat.⁴¹

This exposes the apparent contradiction of the international legal system in that whilst it comprises 'laws' that are analogous to domestic laws they are not imposed by a universal jurisdiction and its court, the International Court of Justice only has jurisdiction where all parties to a case have, at some stage, agreed to it. As Judge Rosalyn Higgins sees it International Law is a

...the International Court of Justice only has jurisdiction where all parties to a case have, at some stage, agreed to it

normative system which is not merely the impartial application of rules but an evolutionary decision-making process.⁴² Catherine Guicherd takes this further in the case of Kosovo to argue that it should not be seen as an exception but more as proof of serious gaps in International Law in the area of humanitarian intervention. Thus, the embryonic practices of the NATO operations should be consolidated into a strong body of law to allow humanitarian intervention.⁴³ She therefore appears to be suggesting that a new 'customary' law, which is an accepted source of International Law,⁴⁴ of humanitarian intervention is emerging.

International humanitarian law, the Laws of War, *jus in bello*, or perhaps most accurately the Laws of Armed Conflict regulate the conduct of armed conflict and are found in their current form in the Geneva Conventions of 1949 and in Article 1⁴⁵ of their additional protocols (1977). This latter is the most detailed concerning targeting, however neither the US, France or Turkey have ratified it. The "laws of armed conflict" which refer to targeting are summarized thus by Christopher Greenwood:

The modern law of targeting revolves around two central principles:

- (a) attacks should be limited to combatants and other military objectives; the civilian population and civilian 'objects' must not be made the target of attack (the principle of distinction); and
- (b) even military objectives should not be attacked if an attack is likely to cause civilian casualties or damage which would be excessive in relation to the concrete and direct military advantage which the attack is expected to produce (the principle of proportionality).⁴⁶

The definition of military objective is found in Article 52(2) of Additional Protocol 1 and states:

In so far as objects are concerned, military objectives are limited to those objects which by their nature location and purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.

As Greenwood points out, some normally harmless object such as a house may become a military objective through its use or location, and most NATO states party to Additional Protocol 1 have declared that an area of land could be a military objective. He also points out the significance of the phrase 'circumstances ruling at the time', which precludes whole target sets being considered legitimate just because of what they are.⁴⁷

Whilst issues of *jus ad bellum* concerning all the operations considered above have been addressed internationally, usually in the Security Council, *jus in bello* issues have only been addressed once; by the International Criminal Tribunal for the former Yugoslavia (ICTY) and the International Court of Justice (ICJ) in the case of Operation ALLIED FORCE. That is not to say that the issue was previously ignored, with the various official and academic reports on the Gulf War and Operations DELIBERATE FORCE and ALLIED FORCE all concluding that the nations concerned took considerable efforts to observe the principles of distinction and proportionality. However, there have been no official reports on the coercive operations against Iraq and analytical articles in the specialist press whilst critical have not addressed specific *jus in bello* issues.

The *jus in bello* issues upon which the Yugoslav application to the ICJ was based were violation of Additional Protocol 1 with respect to civilians and civilian objects: also cited were Breaches of the Convention on the Prevention and Punishment of the Crime of Genocide, the 1948 convention on free navigation on the Danube, the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights of 1966. These were also linked to the *jus ad bellum* charges listed above.⁴⁸ Amnesty International's report on the conflict concluded (with respect to attacks that may have involved the use of PGMs) that 'NATO did not always meet its legal obligations in selecting targets and in choosing means and methods of attack also aspects of the Rules of Engagement, specifically the requirement that NATO aircraft fly above 15,000 feet, made full adherence to international humanitarian law virtually impossible.'⁴⁹ The ICTY Prosecutor had also received allegations that as the resort to force was illegal, all NATO actions were illegal.⁵⁰ Given the doctrinal similarities between the Gulf War campaign, Operation ALLIED FORCE and Operation DELIBERATE FORCE, the similar levels and types of collateral damage in the first two, and the common emphasis on avoiding collateral damage, the legal arguments concerning *jus in bello* in the latter operation would appear to be equally applicable, in general terms, to the all these operations.

The ICTY Committee found,⁵¹ as did both Human Rights Watch and Amnesty International, that there was no evidence to support the charges of crimes against humanity or genocide. Whilst unable to resolve the precise linkage between *jus ad bellum* and *jus in bello* the Committee was clear that whilst a person guilty of a crime against the peace could be criminally responsible

for the activities causing death or destruction during a conflict the ICTY did not have jurisdiction over crimes against peace. On the other hand it did have jurisdiction, with regards to acts committed in Yugoslavia, over violations of the laws of armed conflict and was explicit in separating the two.⁵² The Committee also found that whilst there was nothing inherently unlawful in flying above the height of enemy air defences, commanders had a duty to take practicable measures to distinguish military from civilian objects or personnel. However, it accepted that modern technology enabled that obligation to be carried out in the vast majority of cases.⁵³ Finally, the Committee stated that:

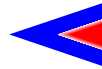
On the basis of the information received the committee is of the opinion that neither an in-depth investigation related to the bombing campaign as a whole nor investigations related to specific incidents are justified. In all cases, either the law is not sufficiently clear or investigations are unlikely to result in the acquisition of sufficient evidence to substantiate charges against high level accused or lower accused of particularly heinous offences.⁵⁴

It is important to recognize that this was a preliminary examination of the facts, to establish if there was sufficient basis for the Prosecutor to proceed with any further investigations and not a final judgement. However, it analysed the facts available to Amnesty International and Human Rights Watch on the basis of the law of armed conflict and the existence of intention or recklessness, rather than simple negligence, as the *mens rea* (state of mind) for the offence, rather than just the nature of the event.

What overall legal trends, or new factors, can therefore be identified? Firstly, there are two conflicting trends in the area of *jus ad bellum*. On the one hand in the conflicts where military force was being used in response to egregious violations of international law or humanitarian disasters every effort to ensure the legality of the use of force was taken. Both the Gulf War and Operation DELIBERATE FORCE had the authority of the Security Council. Whilst Operation ALLIED FORCE lacked that formal authority, the Security Council had endorsed the process which the operation supported. Furthermore, there was a clearly developing and generally accepted justification for intervention on humanitarian grounds. On the other hand, the solely US punitive operations were justified entirely as self defence; and the coercive operations in Iraq upon the continuing validity of a UNSCR which had arguably been superseded by a further UNSCR imposing a cease fire, supported by humanitarian and self defence arguments.

... 'if it is not possible to ascertain whether civilian buses are on bridges, should those bridges be blown? Such a view would entirely reverse the principle of proportionality making the judgement of military advantage, with its much broader ramifications, subordinate to the protection of civilian life

A further development was the use by Yugoslavia of the ICJ, rather than the Security Council, where the US, UK and France had a permanent veto, to firstly try to have the bombing campaign stopped and, if that failed, to have its legality independently examined. Linked to this is the attempt to use human rights law, as well as the laws of armed conflict, to



gain a supportive judgement. The conflict between these is evident in a statement by Mary Robinson, the UN High Commissioner for Human Rights, that ‘if it is not possible to ascertain whether civilian buses are on bridges, should those bridges be blown?’⁵⁶ Such a view would entirely reverse the principle of proportionality making the judgement of military advantage, with its much broader ramifications, subordinate to the protection of civilian life. However, human rights laws were explicitly excluded from consideration by the ICTY which restricted itself to consideration of the laws of armed conflict.

The first new development in the application of the *jus in bello* was entirely unforeseen. Whilst the ICTY was established to deal primarily with Serbian war criminals after the 1995 conflict in Bosnia Herzegovina it was still extant four years later and had a remit under its Statute to consider all potential violations of both human rights and humanitarian laws in the former Republic of Yugoslavia. As a result the efforts of NATO in 1999, and by inference of the various allies in Bosnia Herzegovina in 1995 and in the Gulf War, to use PGMs in particular in accordance with the principles of proportionality and distinction were vindicated for the first time by a legal process. The ICJ is also in the process of considering these issues in the context of the Yugoslav application to it.

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The ICTY report also referred to ‘high level’ accused although it did not specify how high that went, and its clear distinction between *jus ad bellum* and *jus in bello* implies that it did not consider political leaderships to be the subjects of its investigations in this case. However, the command and control arrangements in ALLIED FORCE in particular calls this into question. The UK report on the Kosovo crisis states that whilst NATO military authorities selected the targets for attack, individual Allies were responsible for approving them and the UK assessed all pre-planned targets against the requirements of international law.⁵⁷ When this is considered along with the Secretary Cohen’s statement that ‘certain sets of



Military installations in Serbia before and after an attack by Precision Guided Weapons

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targets 'were reviewed by the allied capitals and by higher political authorities',⁵⁸ and the French influence over the targeting process, then it is not unreasonable to conclude that Ministers and senior law officers have become intimately involved in what used to be seen as tactical decisions. Thus, due to technological advances in both communications and weapon accuracy, and the concomitant changing role of airpower, the reach of *jus in bello* has extended far beyond that originally envisaged.

The increasing use of launch-and-leave weapons also poses questions as to the applicability of the laws of targeting outlined above. If the submarine or warship captain, or the captain of a B52 bomber, launches a salvo of cruise missiles at a set of coordinates which may even be pre-programmed and



over which he has no control, is he legally responsible for any violations of the laws of armed conflict which may ensue? The ICTY report indicates not, in two respects. Firstly, the report repeatedly distinguishes between the aircrew and their commanders. Secondly, in the case of the bombing of the Chinese Embassy on the 7th of May 1999, which was hit by JDAMs dropped from a B2 bomber, it states that neither the aircrew nor the commanders should be assigned any responsibility as they were

provided with the wrong information by another agency. However, as Amnesty International suggests in its report that responsibility did not just lie with the CIA but with all elements of the command chain⁵⁹ it may not be so easy for a Joint Force or Air Component Commander, with his own intelligence staff, to argue that he could not discharge his responsibilities under Additional Protocol 1 in that situation.

Having looked at the relatively finite technical, doctrinal and legal trends the intangible issue of ethics remains. The Oxford English dictionary defines ethics as ‘the science of morals in human conduct’. Whilst this would appear to be an oxymoron it goes on to define science and morals as ‘the branch of knowledge involving systematized observation and experiment’ and ‘concerned with the principles of what is right and what is wrong’ respectively. Thus it is possible to consider the rights and wrongs of the uses of armed force through theories constructed by that process of observation. This section will firstly use the ‘Just War’ theory to assess the conflicts considered above and then Michael Ignatiev’s contention that developments in technology have led to ‘virtual wars’.

Whilst there are differing views as to what constitutes the principles of Just War theory they can be reduced to the *jus ad bellum* criteria of: just cause, right intention (for example to restore the *status quo ante*), legitimate authority, last resort and reasonable prospect of success.⁶⁰ To these can be added the principles of formal declaration and proportionality (in terms of the overall aim). The *jus in bello* criteria for targeting, discrimination and proportionality, are also now considered to be a part of the criteria. However, not all are appropriate in analysing the implications of the increasing use of PGMs in any specific conflict. Whilst there have been cases where disproportionate or indiscriminate force, in terms of the *jus in bello* criteria, has occurred in all the conflicts studied the minimal civilian casualties show how effective attempts to minimise collateral damage have been. Thus it can be concluded that in this respect PGMs have had a significant effect on the morality of using force.

In the Gulf War PGMs contributed significantly to the success of the air campaign, a not unexpected result after their previous uses in Vietnam and Libya. However, it could be argued that the war would have been waged without them, and the Coalition’s willingness to accept significant casualties, even to the extent of reactivating reserve hospitals as far away as the UK, supports this conjecture

Whilst the moral benefits of using PGMs to minimise casualties appears constant across the conflicts that is not so clear with respect to other *jus ad bellum* criteria. In this area only those criteria which specifically relate to the employment of PGMs and their possible contribution to the decision to resort to force will be examined. Whilst the use of PGMs in Vietnam and the Falklands were incidental to the decision to use force that was not so for Operation ELDORADO CANYON. The emphasis given to the role of LGBs in preventing collateral damage and striking the right targets shows that they were a significant factor in determining the prospect of success for the Operation and were therefore a deciding factor in its execution. In the Gulf War PGMs contributed significantly to the success of the air campaign, a not unexpected result after their previous uses in Vietnam and Libya. However, it could be argued that the war would have been waged without them, and the Coalition’s willingness to accept significant casualties, even to the extent of reactivating reserve hospitals as far away as the UK, supports this conjecture. With the success of PGMs in the Gulf War in mind, and PGMs amounting to 70% of the weapons used in Operation DELIBERATE FORCE, they were clearly fundamental to the expectation of success.

It could also be suggested that they contributed to using force before the point of last resort, particularly when the US had proposed on previous occasions to 'lift and strike' using airpower alone. However, the tortuous process leading up to the eventual delegation of the authority to use force to the NATO commanders belies this.

Where the continuing operations against Iraq are concerned, the moral framework is much less clear. Directly after the Gulf War there was undoubtedly both just cause and right reason for protecting the Kurds and the Marsh Arabs from persecution and for enforcing acceptance of the cease fire and the weapons destruction programs including airborne inspections. However, as time goes on any prospect of success seems to be diminishing. With regards to Operation DESERT FOX Thomas Keaney asked how could success be measured when it was no longer possible to determine the aim? He also took the view that the attacks on Iraqi air defences after that appeared to be purely retaliatory and not linked to an identifiable strategy.⁶¹ However, a Rand study into those operations concluded that whilst DESERT FOX had not coerced Saddam Hussein into accepting UNSCOM inspectors back into Iraq the ongoing efforts to reduce his military strength had been successful. It also concluded that the later attacks had been in response to further Iraqi provocation after the failure of DESERT FOX. If the underlying cause for the attacks is shifting from the original ones then it is difficult to see how the original moral authority can still be valid. However, such a shift in aim does tend to restore the prospect of success which was clearly lacking after DESERT FOX.

The cruise missile attacks in 1998 are identical in justification to the Libyan raid 12 years previously. Whilst the Embassy bombings and the subsequent retaliation may have provided a distraction from President Clinton's domestic political problems at the time those problems were not the cause of the retaliation, and cruise missiles did provide the means for a significant display of global power projection. However, whilst they provided a technical assurance of success the subsequent questions over the validity of the Khartoum target cast doubts on the existence of a just cause for that attack.

Of all the conflicts considered the one to alleviate the humanitarian disaster in Kosovo in 1999 would appear to be the one most in harmony with the principles of a just war. The NATO spokesman during the conflict, Jamie Shea, stated afterwards that 'Democracies expect the maximum political results from the minimum use of force. As a result the principles of the Just War are making a comeback'.⁶² He then went on to quote just four of them: last resort, proportionality and the two 'targeting' principles. However, in his consideration of proportionality, or that the ends justify the means, he focused on the need to apply decisive force once the decision to use force had been taken.⁶³ Adam Roberts suggests that the success of Operation DELIBERATE FORCE could not be read directly across to the situation in Kosovo for two reasons: firstly, there was no equivalent ground offensive and, secondly, the bombing was not against Serbia proper.⁶⁴ Thus the Allies reliance on PGMs, particularly after the unforeseen effects of the single cruise missile attack on Banja Luka, contributed to an unjustified assessment of the prospect of success, or at least of the time in which it could be achieved. Although St Thomas Aquinas' criterion of sovereign authority has been replaced by concept of legal authority after the introduction of the UN Charter, the Kosovo conflict has taken this a further step on towards a concept of moral authority, the legal aspects of which were discussed above.



Remains of an F117 Stealth from which the pilot ejected safely and was rescued.

However, from the aircrews' perspective they operated in a high threat environment in which two aircraft, including an F117, were shot down

The issue of the reality of war also emerged as a moral issue after Kosovo. After the conflict General Short observed 'I don't wish to be impertinent but I don't think most of our civilian leadership generally understands airpower or how it should be employed. Their exposure to it has been films of the Gulf War which look much like a video game'.⁶⁵ His comments highlight a far broader issue concerning how far technology has sanitized war, except for those actually involved in it. The key elements of a virtual war, as Michael Ignatiev describes it⁶⁶ can be summarized as: a significant technological superiority which confers a risk free, precision capability; plus a pervasive media. These are combined with a risk averse, legalistic culture with a militarily inexperienced leadership and absolute expectations of success. The result, he contends, is the cessation of moral control leading to the use of armed force to political ends rather than as a last resort.

A prime example of the reality or virtuality of the conflict was the issue of force protection. On the one hand there were critics across the spectrum of the decision to keep aircraft above 15,000 feet because this reduced their military efficiency and/or increased the instances of collateral damage. However, from the aircrews' perspective they operated in a high threat environment in which two aircraft, including an F117, were shot down. The arguments concerning the effect of casualties on NATO cohesion have already been addressed but there was also the issue of national perceptions. As a US official stated, albeit with respect to the protection of US troops in Bosnia, 'if it is not a war of national survival then the policy is to keep casualties to the absolute minimum'.⁶⁷

The US Leadership's perceptions are evident in a comment by Dr John Hillen to the Senate Committee on Armed Service that 'they actually get quite giddy in the White House when our bombs hit their targets, and there is a lot of self congratulation. But

TV by definition requires pictures to which journalists require access and in Kosovo and Serbia, and other conflicts, that access was strictly controlled. Consequently, Milosevic was able to use a grossly distorted coverage, which journalists had no option but to go along with...



He who controls the ground controls the media war, even though he who controls the air controls the military strategy for winning

nobody seems to be asking to what end, to what does this lead'.⁶⁸ Henry Kissinger was even more blunt saying, with respect to Kosovo and DESERT FOX, 'the conduct of the operations was undertaken with a reluctance to accept casualties that ultimately conveyed to the American public, and to our adversaries, the absence of any vital interest'.⁶⁹ But what shapes such perceptions? Post war analyses play a part but the other factor is the media.

In a speech on the 30th of April 1999, Mary Robinson said that 'In the NATO bombing of the Federal Republic of Yugoslavia a large numbers of civilians had incontestably been killed'.⁷⁰ As the Human Rights Watch analysis later showed, that was not the case and the majority of deaths had actually been caused by the Serbs. The question is how can an independent media create such distortions, at least in the short term where the influence or consideration of public opinion is greatest? The first factor is the scale and responsiveness of modern TV coverage. Philip Taylor quotes Boutros Boutros-Ghali as saying that 'today the media do not simply report the news. Television has become a part of the event it covers'.⁷¹ TV by definition requires pictures to which journalists require access and in Kosovo and Serbia, and other conflicts, that access was strictly controlled. Consequently, Milosevic was able to use a grossly distorted coverage, which journalists had no option but to go along with, as a weapon. NATO however was unable to respond, until after five weeks a film was smuggled out of Kosovo showing a Serbian massacre of Kosovar Albanians, leading Jamie Shea to conclude that 'He who controls the ground controls the media war, even though he who controls the air controls the military strategy for winning'.⁷²

So is the concept of a virtual war valid and, if so, does it have ethical implications for the conduct of armed conflict? If it does exist then it can only do so as a perception. Physically the US has a significant technological superiority which to date has been seen to confer a risk-free, precision capability. The other NATO nations have differing degrees of precision capabilities and operated in ALLIED FORCE under the umbrella of a primarily US defence suppression capability. As far as the perceptions of the NATO leaderships are concerned Adam Roberts concluded that 'It is hard to avoid the judgement that the campaign began

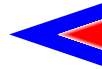
in an atmosphere of unwarranted official enthusiasm about both the capacity of bombing to reduce the Serb military threat to the Kosovars and the probability that the bombing would stay limited'.⁷³ The moral link would therefore appear to be to the principle of 'realistic prospect of success' in that unrealistic expectations of the political effectiveness of precision weapons can lead to the application of less than militarily optimum force. This in turn could extend and exacerbate a conflict leading to a point where the operation can not be politically sustained and quite the opposite of the desired effect is achieved. There is also a moral aspect to the conduct of such a conflict where the imperative to avoid casualties amongst one's own forces actually expose them to more risk as the conflict is prosecuted with less than decisive force.

Given all the above Senator Warner's opening comments to the Kosovo 'lessons learned' hearing puts the issue of 'virtual war' into context. He said 'I'm concerned that our citizenry and our elected and appointed officials will grow to expect that a casualty-free conflict could be the future of military operations..... such an outcome is, in my view, potentially very dangerous'.⁷⁴



At present PGMs have between a 75 and 85% chance of achieving the desired level of damage on any one target

How then do these factors relate to each other and are there any broader deductions that can be drawn from them? The first factor to appear in all four of the categories analysed above is the accuracy of PGMs when compared to unguided weapons. At present PGMs have between a 75 and 85% chance of achieving the desired level of damage on any one target. Furthermore, not only are accuracies still increasing but far more realistic and public assessments of those prospects of success are replacing the 'one bomb – one target' rhetoric of the Gulf War. PGMs have therefore contributed significantly to fulfilling the parallel legal and ethical requirements of proportionality and distinction. Furthermore, their standoff capabilities have significantly reduced aircraft loss rates. On the other hand the potential for 'surgical' use is encouraging the resort to both inadequate force and to reprisal operations. The other side of the accuracy equation is that 15 to 25% of PGMs fail to achieve the desired result. By no means all of these result in collateral damage incidents. However, those that do miss for technical reasons often do so dramatically. As a consequence those collateral damage incidents that do occur, and are often accentuated by a pervasive and asymmetrically controlled media, can have disproportionate effects. These can be tactical restrictions that endanger the aircrews involved and reduce military effectiveness.



Linked to this is the impact of the concept of an RMA which is central to the idea of a 'virtual war'. Whilst the weapons technology to support an RMA is in place the targeting systems, in the broadest sense, are not. This is most clearly demonstrated in the 'convoy' bombings in Kosovo and the restriction weather places on many LGB systems. The very accuracy of PGMs also accentuates the effects of intelligence-based targeting errors, as in the bombing of the Chinese Embassy in Belgrade. Lastly, in ethical terms, the power of the concept of the RMA has led to unrealistic expectations and hence to the use of inadequate force, which runs counter both to military principles and to the just war doctrine of requiring a good expectation of success. The potential outcome of this in a future conflict is the extension of the conflict, enhancing the effects of asymmetric military responses and media manipulation, to a point where it can no longer be politically sustained.

Four of the factors which can be identified above stand alone, and are considerations for future operations. Firstly, in all but the smallest of operations unguided and near-precision weapons have to be used alongside PGMs due simply to cost and availability. Secondly, cruise missiles no longer mark an escalation in the use of force and appear to have lost their 'shock' value in coercive terms. Thirdly, the ICJ and, in the future the International Criminal Court, will provide an alternative route of legal

...cruise missiles no longer mark an escalation in the use of force and appear to have lost their 'shock' value in coercive terms

challenge to those nations who have accepted their jurisdiction to a Security Council that can be vetoed by any of the three nations that lead in precision technology. Lastly, there is an emerging conflict between the laws of armed conflict and the growing body of Human Rights law.

The next link is between the doctrinal and legal issues of the levels of war and the linkage between *jus ad bellum* and *jus in bello*. The first problem appeared to be the implication that all acts in an 'illegal' conflict were inherently illegal. However, the ICTY report confirmed the Nuremberg judgement that there was a clear distinction between political decisions and their military implementation.⁷⁵ On the other hand, whilst there was no downward spread of the influence of *jus ad bellum*, modern communications and information systems permitted political leaderships to participate in the tactical decision making process. This specific involvement of previously distanced political and legal figures must bring them into the category of 'commanders' and thus vulnerable under *jus in bello* to legal sanction for actions which were previously a solely military responsibility.

The last set of related factors concern the justification for the use of armed force. Whilst the Gulf War and the 1995 Bosnian conflict were specifically authorised under the UN Charter, others were not. The powers of veto of the 'permanent five' appear to permit the unchallenged use of PGMs in a punitive or retaliatory role, and the unlimited extension of the original remit for coercive operations against Iraq. However, if that is viewed from a 'just war' perspective then PGMs could not have been a deciding factor in the decision to use force in the Gulf, Bosnia or Kosovo where there was both just cause and right reason. In the, purely American, retaliatory operations PGMs were fundamental to the use of force; it could not have been applied without them. Lastly, PGMs provided a proportional and discriminatory way of continuing the coercive operations against Iraq, which

had the just cause of limiting both the Iraqi weapons of mass destruction and their military capacity for internal repression, in the face of a declining prospect of success.

With the exception of Operation ELDORADO CANYON and the attacks against Osama bin Laden, where a PGM capability was fundamental to the decision to undertake the operation, it is not possible to isolate PGMs as the driving factor in the decision to use armed force, although only the Gulf War could have been mounted without them. However, one is left with a series of paradoxes concerning the influence of precision weapons on future conflicts:

The first is the PMG paradox, in that the more they succeed, the more their failures are accentuated.

Secondly, the paradox of the RMA is that the more it is relied upon, the greater are the dangers of its failure.

Thirdly, there is the paradox of the increasing emphasis upon Human Rights, in that the unforeseen consequences of actions justified by the protection of those rights are condemned for the same reasons.


Lastly, there is a paradox in the increasing political involvement in what were once purely military decisions when compared with the difficulty experienced by the individual at the tactical level in trying to take account of the political considerations.

In the final analysis however, Precision Weapons are at the forefront of the use of armed force by Western democracies in a post-Cold War world. Thus any lessons which can be drawn from their previous use have to be applied within the constraints of the national and international political realities of that world.

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A unique feature of the F-22 Raptor is its ability to travel at high supersonic speeds without afterburner. Aircraft that utilize afterburner have greatly restricted range.

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